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JUDGMENT OF THE UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT, Nos. 2021-1805, 2021-1806 (NOVEMBER 21, 2022)

NOTE: THIS DISPOSITION IS NONPRECEDENTIAL.

UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT

VIRENTEM VENTURES, LLC,

Appellant,

v.

GOOGLE LLC,

Appellee.

Nos. 2021-1805, 2021-1806

Appeals from the United States Patent and Trademark Office, Patent Trial and Appeal Board in Nos. IPR2019-01244, IPR2019-01245.

Before: NEWMAN, REYNA, and CHEN, Circuit Judges.

JUDGMENT

THIS CAUSE having been heard and considered, it is

ORDERED and ADJUDGED:

PER CURIAM
(NEWMAN, REYNA, and CHEN, Circuit Judges).

AFFIRMED. *See* Fed. Cir. R. 36.

ENTERED BY ORDER OF THE COURT

/s/ Peter R. Marksteiner
Peter R. Marksteiner
Clerk of Court

Date: November 21, 2022

JUDGMENT OF THE UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT
Nos. 2021-1764, 2021-1765, 2021-1804, 2021-1822
(NOVEMBER 21, 2022)

NOTE: THIS DISPOSITION IS NONPRECEDENTIAL.

UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT

VIRENTEM VENTURES, LLC,

Appellant,

v.

GOOGLE LLC,

Appellee.

Nos. 2021-1764, 2021-1765, 2021-1804, 2021-1822

Appeals from the United States Patent and Trademark Office, Patent Trial and Appeal Board in Nos. IPR2019-01237, IPR2019-01239, IPR2019-01241, IPR2019-01243.

Before: NEWMAN, REYNA, and CHEN, Circuit Judges.

JUDGMENT

THIS CAUSE having been heard and considered, it is

ORDERED and ADJUDGED:

PER CURIAM
(NEWMAN, REYNA, and CHEN, Circuit Judges).

AFFIRMED. *See* Fed. Cir. R. 36.

ENTERED BY ORDER OF THE COURT

/s/ Peter R. Marksteiner
Peter R. Marksteiner
Clerk of Court

Date: November 21, 2022

JUDGMENT OF THE UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT
No. 2021-1934
(NOVEMBER 21, 2022)

NOTE: THIS DISPOSITION IS NONPRECEDENTIAL.

UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT

VIRENTEM VENTURES, LLC,

Appellant,

v.

GOOGLE LLC,

Appellee.

No. 2021-1934

Appeal from the United States Patent and Trademark Office, Patent Trial and Appeal Board in No. IPR2019-01247.

Before: NEWMAN, REYNA, and CHEN, Circuit Judges.

JUDGMENT

THIS CAUSE having been heard and considered, it is

ORDERED and ADJUDGED:

PER CURIAM
(NEWMAN, REYNA, and CHEN, Circuit Judges).

AFFIRMED. *See* Fed. Cir. R. 36.

ENTERED BY ORDER OF THE COURT

/s/ Peter R. Marksteiner
Peter R. Marksteiner
Clerk of Court

Date: November 21, 2022

USPTO FINAL WRITTEN DECISION
IPR2019-01244, '228 PATENT
(JANUARY 25, 2021)

Paper 39
Date: January 25, 2021

UNITED STATES PATENT AND
TRADEMARK OFFICE

BEFORE THE PATENT TRIAL
AND APPEAL BOARD

GOOGLE LLC,

Petitioner,

v.

VIRENTEM VENTURES, LLC,

Patent Owner.

IPR2019-01244

Patent 6,598,228 B2

Before: Meredith C. PETRAVICK, Jennifer MEYER CHAGNON, and Terrence W. McMILLIN, Administrative Patent Judges.

Opinion for the Board filed by *Administrative Patent Judge* McMILLIN.

Opinion Concurring Filed by *Administrative Patent Judge* PETRAVICK.

JUDGMENT
Final Written Decision
Determining All Challenged Claims Unpatentable
35 U.S.C. § 318(a)

I. Introduction

A. Background and Summary

Google LLC ("Petitioner")[1] filed a Petition to institute an *inter partes* review of claims 3–7, 9, 12–14, 16, 17, 31, 33, and 34 ("the challenged claims") of U.S. Patent No. 6,598,228 B2 (Ex. 1001, "the '228 patent") pursuant to 35 U.S.C. § 311 *et seq*. Paper 1 ("Petition" or "Pet."). Virentem Ventures, LLC ("Patent Owner") filed a Preliminary Response to the Petition. Paper 12 ("Prelim. Resp."). On January 28, 2020, we instituted trial. Paper 14 ("Inst. Dec."). Patent Owner filed a Response. Paper 25 ("PO Resp."). Petitioner filed a Reply. Paper 27 ("Pet. Reply"). Patent Owner filed a Sur-reply. Paper 29 ("PO Sur-reply"). An oral argument was held on November 9, 2020, and a transcript was entered into the record. Paper 38 ("Tr.").

We have jurisdiction to conduct this *inter partes* review under 35 U.S.C. § 6. This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. For the reasons discussed herein, we determine that Petitioner has shown, by a preponderance of the evidence, that claims 3–7, 9, 12–14, 16, 17, 31, 33, and 34 of the '228 patent are unpatentable.

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[1] Petitioner identifies Google LLC and YouTube LLC as the real parties-in-interest to this proceeding. Pet. 1.

B. Related Matters

The parties indicate that the '228 patent has been asserted in the following case filed in the United States District Court for the District of Delaware on November 9, 2018: *Virentem Ventures, LLC v. YouTube, LLC*, Case No. 1:18-cv-00917. Pet. 1; Paper 4, 1. The District Court case has been stayed through the issuance of final written decisions by the Board. Ex. 2004, 1.

C. The '228 Patent

The '228 patent is titled "Method and Apparatus for Controlling Time-Scale Modification During Multi-Media Broadcasts," was filed on June 3, 1999[2], and issued July 22, 2003. Ex. 1001, codes (22), (45), (54). By way of background, the '228 patent explains that "digitally encoded audio and audio-visual works are stored as data on servers (such as file servers or streaming media servers) that are accessible via the Internet for users to download." *Id.* at 1:21–25. The '228 patent further explains that streaming is a multimedia playback technique that involves down-loading data and initiating playback before the entire work has been received. *Id.* at 1:42–44. Streaming is advantageous because the viewer/listener does not need to wait for the entire work to be downloaded before any portion of the work may be played. *Id.* at 1:46–54. The '228 patent identifies two disadvantages of

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[2] The '228 patent is a continuation-in-part of application No. 09/320,374, filed on May 26, 1999. Ex. 1001, code (63). The specific priority date of the challenged claims is not at issue in this proceeding, and we need not make any determination in this regard for purposes of this Decision.

streaming: (1) "playback is often interrupted when the flow of data is interrupted due to network traffic, congestion, transmission errors, and the like"; and (2) "a user or client is required to poll for additional data according to its rate of use of the data," and thus "a user or client using data at a rapid rate has to make additional requests for data at a higher rate than a user or client using the data at a slower rate." *Id.* at 1:54–67.

The '228 patent describes two prior art methods for broadcasting a work from a media server to multiple clients requesting data at arbitrary times. *Id.* at 2:1–5. A first prior art approach is to re-broadcast the work at regular intervals, which is problematic because "clients must join a re-broadcast in the middle of the audio or audio-visual work currently being broadcast, or wait for the next re-broadcast to begin." *Id.* at 2:6–14. A second prior art method "initiates a re-broadcast of the audio or audio-visual work each time a client requests to view the audio or audio-visual work," so clients don't have to wait to view the start of the work. *Id.* at 2:15–19. A problem with the second method is that the "media server must monitor, track and fulfill the request of each client requesting data individually," which causes a dramatic increase in server load and limits the media server's capacity. *Id.* at 2:19–27.

The '228 patent describes a need in the art for control of presentation rates of broadcast multimedia. *Id.* at 2:38–40. According to the '228 patent, such a need exists for, *e.g.*, "messages . . . of vital importance" such as "a public service announcement regarding emergency information, safety information, and the like [that] may be missed if a user is listen-

ing at a very fast rate," such that "a need exists for [a] method and apparatus to restrict or direct the playback rate for a client apparatus in a client-server system and/or broadcaster-recipient system and/or to notify the client apparatus or recipient device of the importance of these messages." *Id.* at 2:40–52. The '228 patent further describes a need in the art for providing "different delivery times for specific types of content, such as commercial advertisements, station identification, violence, nudity, adult language, program schedule information, and program information pertaining to audience suitability or content." *Id.* at 2:52–59.

One embodiment of the '228 patent is a method for presentation of information received from a broadcaster, comprising steps of "(a) receiving broadcast information; (b) receiving guidance information relating to presentation of the broadcast information; (c) analyzing the guidance information to determine a presentation rate; and (d) presenting the information at the presentation rate." *Id.* at 2:66–3:5.

In embodiments of the '228 patent, Presentation Rate Guidance Information (PRGI) is broadcast in conjunction with an audio or audio-visual work from a broadcast server "to restrict, or direct, playback rates at a client device receiving the audio or audio-visual work." *Id.* at 27:56–28:7. "PRGI is information that is used to communicate a playback rate for an entire media work or one or more specific portions of the media work." *Id.* at 28:42–44. As described in the '228 patent, PRGI includes, among other things, "presentation rate information" which may include "a single value . . . representing a playback rate" for the media work or a value "representing an increment,

decrement, or scale factor that is applied to the current playback rate." *Id.* at 28:55–29:2; *see also id.* at 31:6–14 (discussing that PRGI may also include multiple playback rates).

Figure 14 of the '228 patent is reproduced below:

FIG. 14

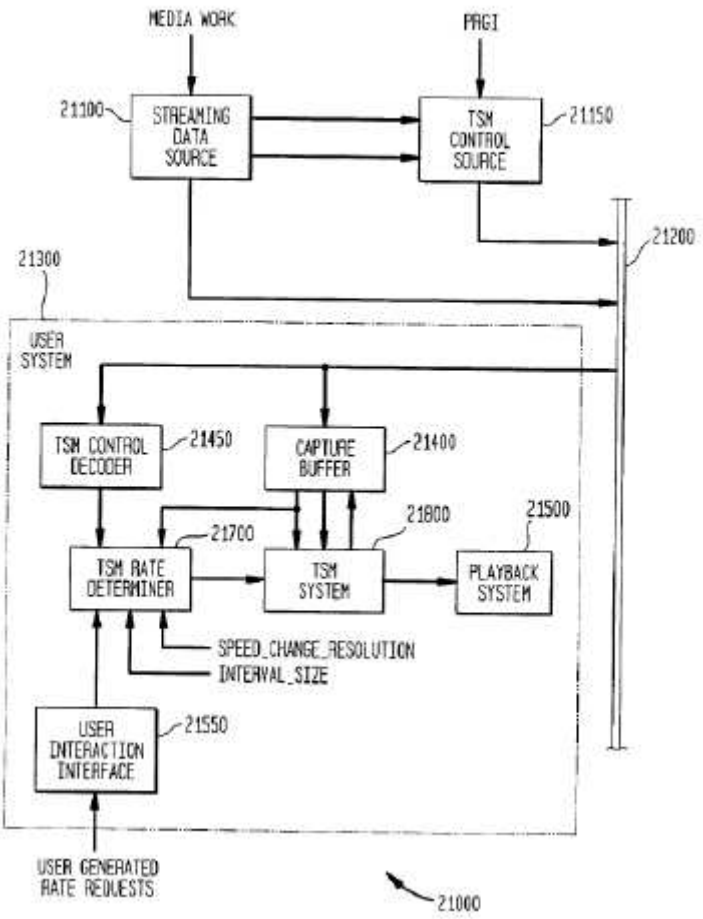

Figure 14 of the '228 patent, above, illustrates embodiment 21000 which transmits information relating to playback rate to clients receiving the media data. *Id.* at 4:13–17. User system 21300 is a client device capable of altering the presentation rate of streamed media based on the PRGI information sent in connection with the broadcast media. *Id.* at 27:56–28:7, 33:30–40. User system 21300 receives a streaming media work from streaming data source 21100 over network 21200. *Id.* at 31:52–67, 33:30–33. User system 21300 receives PRGI from TSM (time-scale modification) control source 21150. *See id.* at 33:30–34. User system 21300 decodes the PRGI at TSM control decoder 21450, and transmits it to the TSM rate determiner 21700. *Id.* at 34:8–15, 37:56–60. TSM control decoder 21450 may augment PRGI data by the application of rules, algorithms, and look-up tables to obtain PRGI data for output. *Id.* at 34:15–18. "TSM Rate Determiner 21700 produces, as output, a playback rate signal representing a TSM rate, or playback rate, which playback rate signal is applied as input to TSM System 21800." *Id.* at 37:66–38:2. TSM system 21800 within user system 21300 modifies the streaming media work by, *e.g.*, speeding up or slowing down visual information to match the audio in the audio-visual work. *Id.* at 6:35–7:37, 39:3–4.

D. Challenged Claims

Petitioner challenges claims 3–7, 9, 12–14, 16, 17, 31, 33, and 34 of the '228 patent. Pet. 2–3. Of the challenged claims, claims 3, 31, and 34 are independent, claims 4–7, 9, 12–14, 16, and 17 depend from claim 3, and claim 33 depends from claim 31. Claim 3 of the '228 patent recites:

3. A method for presentation of information received from a broadcaster by a client device, which device utilizes presentation rates to present information at various presentation rates, and which method comprises steps of:

receiving broadcast information;

receiving guidance information relating to presentation of the broadcast information;

analyzing the guidance information to determine a presentation rate; and

presenting the information at the presentation rate.

Ex. 1001, 42:61–43:3.

E. The Applied References

Petitioner relies on the following references in the asserted grounds. Pet. 2–3.

Reference	Issue Date/ Publication Date	Exhibit
U.S. Patent No. 7,055,166 B1 ("Logan")	May 30, 2006[3]	Ex. 1005

[3] Logan was filed on January 27, 1999, and is prior art to the challenged claims at least under 35 U.S.C. § 102(e). *See* Ex. 1005, code (22); Pet. 3.

International Patent Appl. Pub. No. WO 1997/03521 ("De Lang")	Jan. 30, 1997[4]	Ex. 1006
U.S. Patent No. 5,893,062 ("Bhadkamkar")	Apr. 6, 1999[5]	Ex. 1007

Petitioner also relies on the Declaration of Dr. Dan Schonfeld (Ex. 1002) and Patent Owner relies on the Declaration of Dr. Charles Boncelet (Ex. 2016) to support their respective positions.

F. The Asserted Grounds

Petitioner sets forth its challenges to claims 3–7, 9, 12–14, 16, 17, 31, 33, and 34 on the following grounds. Pet. 1–3.

Reference(s)	**35 U.S.C. §**	**Claims Challenged**
Logan	102[6]	3–7, 9, 12, 13, 17, 31, 33, 34
Logan	103	14, 16, 17

[4] De Lang was filed on July 1, 1996, and is prior art to the challenged claims at least under 35 U.S.C. §§ 102(a), (b), (e). *See* Ex. 1006, code (22); Pet. 3.

[5] Bhadkamkar was filed on December 5, 1996, and is prior art to the challenged claims at least under 35 U.S.C. §§ 102(a), (e). *See* Ex. 1007, code (22); Pet. 3.

[6] Because the application leading to the '228 patent was filed before March 16, 2013, patentability is governed by the version of 35 U.S.C. §§ 102 and 103 preceding the Leahy-Smith America Invents Act ("AIA"), Pub L. No. 112-29, 125 Stat. 284 (2011).

Logan and De Lang	103	3–7, 9, 12–14, 16, 17, 31, 33, 34
Logan and Bhadkamkar	103	6, 33
Logan, De Lang, Bhadkamkar	103	6, 33

II. Analysis

A. Legal Standards

In order for a prior art reference to anticipate an invention, it must disclose every limitation of the claimed invention, either explicitly or inherently. *In re Schreiber*, 128 F.3d 1473, 1477 (Fed. Cir. 1997). Anticipation "requires that every element and limitation of the claim was previously described in a single prior art reference, either expressly or inherently, so as to place a person of ordinary skill in possession of the invention." *Sanofi-Synthelabo v. Apotex, Inc.*, 550 F.3d 1075, 1082 (Fed. Cir. 2008) (citing *Schering Corp. v. Geneva Pharms., Inc.*, 339 F.3d 1373, 1379 (Fed. Cir. 2003); *Cont'l Can Co. USA v. Monsanto Co.*, 948 F.2d 1264, 1267–69 (Fed. Cir. 1991)). "[U]nless a reference discloses within the four corners of the document not only all of the limitations claimed but also all of the limitations arranged or combined in the same way as recited in the claim, it cannot be said to prove prior invention of the thing claimed and, thus, cannot anticipate under 35 U.S.C. § 102." *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1371 (Fed. Cir. 2008).

A patent claim is unpatentable under 35 U.S.C. § 103(a) if the differences between the claimed subject

matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including: (1) the scope and content of the prior art; any differences between the claimed subject matter and the prior art; the level of ordinary skill in the art; and (4) when in evidence, objective evidence of nonobviousness.[7] *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). Consideration of the Graham factors "helps inform the ultimate obviousness determination." *Apple Inc. v. Samsung Elecs. Co.*, 839 F.3d 1034, 1048 (Fed. Cir. 2016) (en banc).

"In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable." *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review petitions to identify "with particularity . . . the evidence that supports the grounds for the challenge to each claim")). This burden of persuasion never shifts to Patent Owner. *See Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (discussing the burden of proof in *inter partes* review).

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[7] Neither party presents any argument relating to objective evidence of nonobviousness.

B. Level of Ordinary Skill in the Art

With regard to the level of ordinary skill in the art, Petitioner contends that a person of ordinary skill would have either "(a) a Master's or doctoral degree in computer science, electrical engineering, or a similar discipline" or "(b) a Bachelor's degree in computer science, electrical engineering, or a similar discipline and at least two years of work experience in content presentation systems, or a related area." Pet. 4 (citing Ex. 1002 (Schonfeld Decl.) ¶¶ 19–20). "Patent Owner accepts Petitioner's proffered level of ordinary skill in the art in analyzing Petitioner's allegations of anticipation and obviousness." PO Resp. 15. We adopt Petitioner's undisputed contention regarding the level of ordinary skill in the art. Further, we find that the prior art of record reflects the level of skill in the art at the time of the invention. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001).

C. Claim Construction

For this *inter partes* review proceeding, claim terms

> shall be construed using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. [§] 282(b), including construing the claim in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent.

Changes to the Claim Construction Standard for Interpreting Claims in Trial Proceedings Before the Patent Trial and Appeal Board, 83 Fed. Reg. 51,340,

51,340, 51,358 (Oct. 11, 2018) (amending 37 C.F.R. § 42.100(b) effective November 13, 2018) (now codified at 37 C.F.R. § 42.100(b) (2019)). Further, "[a]ny prior claim construction determination concerning a term of the claim in a civil action, or a proceeding before the International Trade Commission, that is timely made of record in the *inter partes* review proceeding will be considered."[8] *Id.*

Under the standard set forth in *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–19 (Fed. Cir. 2005) (en banc), claim terms are given their ordinary and customary meaning, as would have been understood by a person of ordinary skill in the art at the time of the invention, in light of the language of the claims, the specification, and the prosecution history of record. *See Thorner v. Sony Comput. Entm't Am. LLC*, 669 F.3d 1362, 1365–66 (Fed. Cir. 2012). There is a "heavy presumption," however, that a claim term carries its ordinary and customary meaning. *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002) (citation omitted).

We are also guided by the principle that we only construe claim terms if, and to the extent that, it is necessary for the purpose of the proceeding. *See, e.g.*, *Wellman, Inc. v. Eastman Chem. Co.*, 642 F.3d 1355, 1361 (Fed. Cir. 2011) ("[C]laim terms need only be construed 'to the extent necessary to resolve the controversy.'") (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

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[8] The District Court presiding over the litigation between the parties involving the '228 patent issued an order construing certain claim terms (Ex. 2007), which we have considered.

Petitioner proposes constructions for several claim terms, including "broadcast information," "guidance information," and "Time-Scale Modifying"/ "Time-Scale Modification." Pet. 10–11. Patent Owner proposes constructions for "guidance information," "Time-Scale Modifying"/"Time-Scale Modification," and "presentation rate," and also requests that we determine that the preambles of the challenged, independent claims are limiting. PO Resp. 16.

"broadcast information"

The term "broadcast information" is recited in challenged claims 3, 5, 12, 13, 16, 31, and 33. Ex. 1001, 42:61–46:7. Patent Owner contends that construction of 'Broadcast Information' is not necessary for the final determination of anticipation and obviousness as alleged in the Petition." *See* PO Resp. 16.[9] We agree with Patent Owner that there is no dispute that requires us to construe "broadcast information."

"guidance information"

The term "guidance information" is recited in challenged claims 3–5, 7, 9, 12–14, 16, 17, 31, and 34. Ex. 1001, 42:61–46:7. Petitioner contends "guidance information" means "information broadcast in conjunction with an audio or audio-visual work from a broadcast server to restrict, or direct, playback rates at a client device receiving the audio or audiovisual work." Pet. 10 (citing Ex. 1001, 27:56–60; Ex. 1002 ¶¶ 41–42). Petitioner proposed this same construction

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[9] The District court did not construe "broadcast information." *See* Ex. 2007, 2–4.

in the litigation involving the '228 patent and the District Court rejected it. Ex. 2007, 11–12. The District Court said:

> The fifth term is "guidance information" found in the '228 patent family. [Patent Owner] proposes "information that is broadcast to restrict or direct presentation rates." [Petitioner] propose[s] "information broadcast in conjunction with broadcast information from a broadcast server to restrict, or direct, playback rates at a client device receiving the broadcast information."
>
> The parties agree that the term includes information broadcast to restrict or direct playback or presentation rates. They disagree as to whether that information must be "broadcast in conjunction with broadcast information from a broadcast server" to a "client device receiving the broadcast information."
>
> [Petitioner] take[s] [its] language from column 27 of the '228 patent. That, however, is not a clear definition–it refers to "an aspect" of the invention. That does not clearly limit it to all aspects of the invention.
>
> In any event, the parties agree that "guidance information" is synonymous with "Presentation Rate Guidance Information" or "PRGI" in the patents. At column 28, lines 42 to 44, the '228 patent states that "PRGI is information that is used to communicate a playback rate for an entire media work or one or more specific portions of the media work." It then goes on to specify embodiments of what the presentation information may be comprised of. The language stating

> what PRGI is, however, is not an embodiment. It is a definition, and I will adopt it.

Id. (footnote omitted). In our Institution Decision, we found this reasoning persuasive and adopted the construction of "guidance information" that the District Court adopted. *See* Inst. Dec. 14–15 (citing Ex. 2007, 2; Ex. 1004, 289 (Appeal Brief filed during prosecution, stating "a client device receives guidance information; this is referred to in the specification as presentation rate guidance information ('PRGI')")). "Patent Owner agrees with the Board's construction." PO Resp. 43. Petitioner does not present additional arguments regarding this construction in its Reply. *See* Pet. Reply 13 ("[Petitioner] consents to the Board's construction."). We maintain our prior construction of "guidance information" as "information that is used to communicate a playback rate for an entire media work or one or more specific portions of the media work."

"presentation rate" & "time-scale modifying" / "time-scale modification"

We analyze the terms "presentation rate" and "time-scale modifying/time-scale modification" together. The term "presentation rate" is recited in challenged, independent claims 3, 31, and 34 and dependent claims 4–7, 9, 12–14, 17, and 33. Ex. 1001, 42:61–46:7. "Time-scale modifying"/"time-scale modification" are recited in claims 6 and 33 of the '228 patent, respectively. *Id.* at 43:12–15, 45:4–7. However, Patent Owner argues that "[t]he term 'time-scale modification' is incorporated in all the claims by virtue of the definition of 'presentation rate.'" PO Resp. 30. Patent Owner contends that "presentation rate" means "the

speed at which media is played back in a time-scale modification system" and that "time-scale modifying" /"time-scale modification" means "speeding up and slowing down the perceived rate of speech while substantially preserving both intelligibility and the perceived pitch for audio and audio-visual media." *Id.* at 29–31. Petitioner argues that neither of Patent Owner's proposed constructions should be adopted. Pet. Reply 6–10.

Patent Owner argues that its proposed construction of "presentation rate" was agreed to by the parties in the District Court litigation[10] and adopted by the District Court and "[t]herefore, the Board should construe the term 'presentation rate' here as: 'the speed at which media is played back in a time-scale modification system.'" PO Resp. 29–30. Patent Owner provides no additional reasoning or argument

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[10] Petitioner argues that it did not agree to construction of "presentation rate" as "the speed at which media is played back in a time-scale modification system." Pet. Reply 6–7 ("[A]s the district court observed, there was simply a lack of 'dispute' on the term in light of the court's construction of 'time-scale-modification.'"). However, at the claim construction hearing, the District Court asked Petitioner's counsel if there was an agreement or a dispute as to the construction of "presentation rate." *See* Ex. 1025, 109:3–110:10. Although reluctant to agree to inclusion of "in a time-scale modification system" in the construction, Petitioner's counsel consented to the District Court construing "presentation rate" as "the speed at which media is played back in a time-scale modification system." *Id.* In light of this exchange with the District Court, we determine Petitioner agreed to the construction of "presentation rate" in the District Court case.

in support of its construction of "presentation rate."[11] *Id.*

With regard to "time-scale modifying"/"time-scale modification," Patent Owner proposes the same construction that it proposed in the District Court and that was rejected by the District Court. *See* Ex. 2007, 8–10. The District Court construed "time-scale modification/time-scale modified" as meaning "speeding up or slowing down the playback rate." *Id.* at 2. Patent Owner does not explain why we should adopt the District Court's construction of "presentation rate" and at the same time incorporate into the challenged claims a definition of "time-scale modifying"/ "time-scale modification" that the District Court rejected. Adopting the District Court's construction of "presentation rate," but also incorporating a definition of "time-scale modifying"/ "time-scale modification" that was rejected by the District Court into the

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[11] Patent Owner does point out that the Board adopted the District Court's rationale and construction of "presentation rate" in its Decision on Institution in another IPR. PO Resp. 30 (citing IPR2019-01246, Paper 14 (Ex. 2012), 11). However, in that case, there was no dispute between the parties as to the construction of "presentation rate" (*see* Ex. 2012, 11) and the Board relied on the District Court's construction only in making its preliminary decision as to whether to institute trial. In its Decision on Institution, the Board noted that the case was in a preliminary stage and "the Board has not made a final determination with respect to . . . any . . . factual and legal issues" including claim construction. *Id*. at 38. IPR2019-01246 was terminated because the Patent Owner abandoned the contest prior to the Board entering a final written decision (IPR2019-01246, Paper 30) and no final determination as to claim construction was made.

challenged claims, would result in a construction inconsistent with the District Court.[12]

Petitioner's position on construction of "presentation rate" is inconsistent with the position taken by it before the District Court. In this proceeding, Petitioner argues:

> [Patent Owner's] construction improperly incorporates limitations into the claims by requiring playback to occur "in a timescale modification system." Nothing in the intrinsic or extrinsic record supports reading "timescale modification system" into the claims, except insomuch as "time-scale modification" may already be required by some of the claims (*e.g.*, claims 6 and 33).

Pet. Reply 6–7. Despite the inconsistencies in Petitioner's position, we agree with Petitioner that "timescale modification" should not be read into the challenged claims through construction of "presentation rate."

We determine that "presentation rate" should be interpreted according to its ordinary and customary meaning of "the speed of presentation." This meaning is consistent with the portion of the District Court's construction of "presentation rate" as "the speed at which media is played back." As cited previously, there is a heavy presumption that a claim term has

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[12] Patent Owner argues that the District Court's claim construction is not controlling. PO Sur-reply, 14 ("The Delaware district court's ruling should not control because the district court has already agreed that claim construction may need to be revisited to arrive at the correct construction following the IPR proceedings, suggesting that the Board may likely reach a different conclusion.") (citing Ex. 2032, 1–2).

its ordinary and customary meaning. *CCS Fitness*, 288 F.3d at 1366. We have not been presented with any evidence to overcome that heavy presumption.[13] Based on our independent analysis of the '228 patent and its file history, we do not discern any support for incorporating "in a time-scale modification system" into the meaning of "presentation rate" as recited in the claims of the '228 patent or otherwise limiting the construction of "presentation rate" from its ordinary and customary meaning. Indeed, construing "presentation rate" to include "in a time-scale modification system" would be contrary to the passage in the Specification of the '228 patent that states:

> Although the detailed description used the terms playback rate[14] and TSM rate, and the terms playback and playback apparatus, these terms should be understood to include any type of presentation rate (*i.e.*, a rate of presentation of information) and any type of presentation

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[13] Patent Owner cites paragraph 54 of the Boncelet Declaration (Ex. 2016) in its Response in support of its construction of "presentation rate." PO Resp. 30. In paragraph 54 of his Declaration (Ex. 2016), Dr. Boncelet does not refer to any intrinsic or extrinsic evidence in support of this construction but, instead, merely cites the District Court's claim construction order (Ex. 2007, 2, 10) and states, "I agree with this construction and have applied it in my analysis and opinions herein."

[14] Patent Owner acknowledges that "[p]layback rate and presentation rate are synonymous." PO Resp. 43 n.11. We agree. And, determine that according "playback rate" and "presentation rate" the same meaning supports our conclusion that "presentation rate" should be construed as having its ordinary and common meaning of "the speed of presentation" (*i.e.*, not including "in a time-scale modification system").

> apparatus. As such, these terms are to be understood as being used in the broadest sense.

Ex. 1001, 42:37–43. And, we determine that the ordinary and customary meaning of the term "presentation rate" is consistent with its use in the claims of the '228 patent. The term "presentation rate" is recited in a similar way in challenged, independent method claim 3 and apparatus claim 31:

> 3. A method for presentation of information received from a broadcaster by a client device, which device utilizes *presentation rates* to present information at various *presentation rates*, and which method comprises steps of:
>
> receiving broadcast information;
>
> receiving guidance information relating to presentation of the broadcast information;
>
> analyzing the guidance information to determine a *presentation rate*; and
>
> presenting the information at the *presentation rate*.
>
> 31. An apparatus which presents information received from a broadcaster, which apparatus utilizes *presentation rates* to present information at various *presentation rates*, and which apparatus comprises:
>
> a receiver of the broadcast information and guidance information relating to presentation of the broadcast information;
>
> a rate determiner that analyzes the guidance information to determine a *presentation rate*; and

> a presentation apparatus that, in response to the broadcast information and the *presentation rate*, presents the information.

Ex. 1001, 42:61–43:3, 44:53–64 (emphasis added). Dependent claims 6 and 33, which depend directly or indirectly from claims 3 and 31, explicitly recite "Time-Scale Modifying"/"Time-Scale Modification," respectively. *Id.* at 43:12–15, 45:4–7. Claims 6 and 33 recite:

> 6. The method of claim 5 [which depends from claim 3] wherein the step of presenting the information comprises *Time-Scale Modifying* the information in accordance with one or more *presentation rates*.
>
> 33. The apparatus of claim 31 wherein the presentation apparatus comprises *Time-Scale Modification* apparatus that presents a time-scale modified version of the broadcast information in accordance with the *presentation rate*.

Id. (emphasis added). If, as Patent Owner contends, the meaning of "presentation rate" already includes "in a time-scale modification system," it would be unnecessary to specifically recite "time-scale modifying"/ "time-scale modification" in claims 6 and 33. *Cf. Phillips*, 415 F.3d at 1315 ("the presence of a dependent claim that adds a particular limitation gives rise to a presumption that the limitation in question is not present in the independent claims"). Adding "in a time-scale modification system" to the construction of "presentation rate" conflicts with the broader use of the term "presentation rate" in the claims and the Specification of the '228 patent. We

reject Patent Owner's proposed construction of "presentation rate" because it is not supported by the language of the claims or the Specification of the '228 patent. Thus, we construe the term "presentation rate" differently than the District Court, because the records in the District Court case and in this proceeding relating to construction of "presentation rate" are different. In the District Court proceeding, there was a construction of "presentation rate" that was agreed to by the parties. *See* Ex. 1025, 109:3–110:10. In this proceeding, there is a dispute between the parties as to the construction of "presentation rate." *Compare* PO Resp. 29–30, *with* Pet. Reply 6–7. However, our conclusion that the challenged claims of the '228 patent would have been unpatentable in view of the asserted art would not be different under either our construction or the District Court's construction of "presentation rate."

As discussed above, challenged, dependent claims 6 and 33 recite "time-scale modifying"/"time-scale modification." Petitioner contends, "[t]he Board should interpret these terms as 'playback rate modifying' and 'playback rate modification,' respectively." Pet. 10. In support, Petitioner argues, "[t]his interpretation is consistent with the '228 patent specification, which uses the terms time-scale modification rate and playback rate interchangeably, and explains that time-scale modifying entails modifying a playback rate." *Id.* at 10–11 (citing Ex. 1001, 3:31–35, 5:3–7, 5:9–12, 5:64–65, 6:12, 6:33, 6:45–46, 6:48–49, 19:47–48, 21:17, 37:67, 38:59–60). Patent Owner acknowledges that Petitioner's proposed construction is consistent with the construction proffered by Petitioner in the District Court case and the construction adopted by

the District Court. PO Resp. 31 ("The district court construed the term to mean 'speeding up or slowing down the playback rate,' which is the construction Petitioner advocated in the district court, and is generally the same scope as the construction that Petitioner has advocated here: 'playback rate modifying'/'playback rate modification.'").

As noted previously, Patent Owner contends that "time-scale modifying"/"time-scale modification" means "speeding up and slowing down the perceived rate of speech while substantially preserving both intelligibility and the perceived pitch for audio and audio-visual media." PO Resp. 31. Patent Owner contends that the Specification of the '228 patent and the Specification of US Patent No. 5,175,769 ("the '769 patent") that is incorporated by reference into the Specification of the '228 patent (Ex. 1001, 6:49–54) supports its proposed construction.[15] *Id.* at 31–34. Patent Owner made the same arguments before the District Court and the District Court rejected them. *See* Ex. 2007, 8–10.

As in the District Court, "[t]he dispute here is over [Patent Owner's] attempt to read in 'preserving

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[15] The Patent Owner's reliance on the '769 patent is inconsistent with Patent Owner's later argument that an unrelated patent, even if incorporated by reference, should not be relied on to limit the scope of the '228 patent. *See* PO Resp. 43 (citing *e.Digital Corp. v. Futurewei Tech., Inc.*, 772 F.3d 723, 726 (Fed. Cir. 2014) for the proposition that "claims of unrelated patents must be construed separately, even if the unrelated patent is incorporated by reference into the patent being construed"). Patent Owner also argues, "[a]t a minimum, this construction from an unrelated patent should not be used to overcome the weight of the intrinsic record." *Id.*

both intelligibility and the perceived pitch.'" Ex. 2007, 8. However, as the District Court noted, "[t]he terms 'intelligibility' and 'pitch' do not appear in either the '903[16] or '228 patent family. In fact, the term 'pitch' does not appear in any of the asserted patent families." *Id*. The District Court said:

> Plaintiff attempts to read those terms into time-scale modification through the '769 patent, an earlier patent unrelated to the asserted patents but incorporated by reference in an example in the specification. The '769 patent is about an improvement to prior art time-scale modification methods. That it was an improvement on time-scale modification methods sheds light on what time-scale modification means generally to a person of ordinary skill. For example, the '769 patent states that "[t]he present invention relates to a method of time-scale modification ('TSM'), *i.e.*, changing the rate of reproduction of a signal" before going on to explain the improvement with more particularity.
>
> In litigation involving the '769 patent in California, the term "time-scale modification" was disputed. Plaintiff's predecessor argued that the definition of "time-scale modification" in that patent did not include preserving pitch and argued that the specification of the '769 patent provided a "clear statement" of a definition–one

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16 The '903 patent family includes four patents asserted by the Patent Owner in the District Court case. *See* Ex. 2007, 7 n.4 ("The '903 patent family includes U.S. Patent Nos. 7,683,903 ('the '903 Patent'), 8,068,108 ('the '108 Patent'), 8,345,050 ('the '050 Patent') and 9,785,400 ('the '400 Patent').").

that did not include anything about pitch. It did so in order to argue that the invention in the '769 patent was a specific type of time-scale modification that preserves pitch.

The court in California agreed with the plaintiff in that case and did not read pitch into the meaning of the general term "time-scale modification" and construed the term to mean "speeding up or slowing down the playback rate." The plaintiff in the California case stated that it "proposed a clear definition [*i.e.*, the definition Defendants here propose] drawn directly from the patent specification. . . . In fact the specification [of the '769 patent] very clearly uses the term 'time-scale modification' to refer only to the speeding up or slowing down playback of a signal." The court in California concluded that that construction was supported by the use of the term in the claims and the specification.

I find that Court's reasoning persuasive. In addition, I find that the construction of time-scale modification that does not require preservation of intelligibility and pitch is supported by the intrinsic evidence of the asserted patents here.

For example, the description of "time-scale modification" at column 2, lines 24 through 28 of the '050 specification [in the '903 patent family] states that "Presentation Time and Data Time are identical in traditional players, because traditional players can only present media content at a fixed 'normal' rate. However, when a player is enhanced with a Time-Scale Modif-

ication (TSM) capability, it can present media content at various rates."

Similarly, at column 5, lines 12 to 21, the '885 specification [in the '228 patent family] states: "Time-Scale Modification (TSM) methods are used to slow the playback rate of the audio or audiovisual work to substantially match a data drain rate required by Playback System 500 with a streaming data rate of the arriving data representing the audio or audio-visual work. As is well known to those of ordinary skill in the art, presently known methods for Time-Scale Modification ('TSM') enable digitally recorded audio to be modified so that a perceived articulation rate of spoken passages, *i.e.*, a speaking rate, can be modified dynamically during playback."[17]

None of these descriptions of time-scale modification mentions preservation of pitch or intelligibility.

That patents in the '888 family[18] refer to intelligibility does not change the result. In the background of the invention of the '888 patent, it states that "[p]resently known methods for Time-Scale Modification ('TSM') enable digitally recorded audio to be modified so that a perceived

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17 The quoted passage appears at column 5, lines 3–12, of the '228 patent.

18 The '888 patent family includes four patents asserted by the Patent Owner in the District Court case. *See* Ex. 2007, 7 n.4 ("The '888 patent family includes U.S. Patent Nos. 6,801,888 ('the '888 Patent'), 7,299,184 ('the '184 Patent'), 7,043,433 ('the '433 Patent') and 9,185,380 ('the '380 Patent').").

> articulation rate of spoken passages, *i.e.*, a speaking rate, can be modified dynamically during playback." It then goes on to discuss listener directed TSM [or LD-TSM] in which the intelligibility is preserved. That a version of TSM preserves intelligibility does not, however, mean that TSM in general also must.
>
> Similarly, that the '888 patent refers to it being well-known that "presently known methods for Time-Scale Modification ('TSM')" enable modification of articulation rate does not change the analysis. That refers to articulation rate. It's a rate–which refers to speed. And that is consistent with how that term is used in the '888 specification, which refers to articulation rate as, "*i.e.*, a speaking rate, can be modified dynamically during playback."
>
> Finally, I note that Plaintiff's construction is problematic insofar as it requires "substantially preserving pitch." It is wholly unclear what "substantially" means in the context of these patents.

Ex. 2007, 8–10 (footnotes omitted) (alterations in original). We find the District Court's reasoning persuasive and we adopt it and the District Court's construction of "time-scale modifying"/"time-scale modification" as "speeding up or slowing down the playback rate." *Id.* at 8.

Patent Owner also argues that skipping is not within the scope of "presentation rate." PO Resp. 34–43. Patent Owner contends, "the '228 Patent specification does not disclose that 'skipping' is a 'presentation rate.'" *Id.* at 37. This is incorrect. In Figure 16 of the

'228 patent,[19] "skip" is a rate or "speed value" shown under the headings "ABSOLUTE [playback rate values]" and "INCREMENTAL [playback rate values]" in table 30100. *See* Ex. 1001, 34:53–55 ("As further shown in FIG. 16, Playback Rate Look-up Table 30100 comprises absolute playback rate values and incremental playback rate values."). In addition, the Specification of the '228 patent describes methods of "playback rate adjustment for an audio-visual work" in which "frames are skipped." *Id.* at 7:26–37. This passage from the Specification of the '228 patent provides:

> As one of ordinary skill in the art can readily appreciate, whenever embodiment 1000 provides playback rate adjustments for an audio-visual work, TSM System 800 speeds up or slows down visual information to match the audio in the audio-visual work. To do this in a preferred embodiment, the video signal is "Frame-sub-sampled" or "Frame-replicated" in accordance with any one of the many methods known to those of ordinary skill in the prior art to maintain synchronization between the audio and visual portions of the audio-visual work. Thus, if one speeds up the audio and samples are requested at a faster rate, the frame stream is subsampled, *i.e. frames are skipped*.

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[19] Figure 16 relates to the embodiment shown in Figure 14 of the '228 patent. Ex. 1001, 4:22–26. Figure 14 is the embodiment in the '228 patent that Patent Owner argues relates to the challenged claims. *See, e.g.*, PO Resp. 25 n.8 ("[I]t is Figure 14 that relates to the challenged claims.").

Id. (emphasis added); *see also id.* at 6:35–41 ("In accordance with the present invention . . . [t]he Time-Scale modified output signal contains fewer samples per block of input data if Time-Scale Compression is applied."). In addition, the Specification of the '228 patent describes skipping as an alternative to fast-forwarding. *See id.* at 30:60–65 ("If the presentation of a media work occurs after the expiration date contained in the 'time-stamp information,' the outdated 'playback rate insistence information' may be ignored, overridden, or altered to allow users to *skip* or fast-forward through that portion of the work.") (emphasis added). Thus, Patent Owner's contention that the Specification of the '228 patent does not disclose that skipping is a "presentation rate" is contradicted by passages in the Specification that do so. Based on these passages in the Specification of the '228 patent, we determine that it would be inappropriate to exclude skipping from the ordinary and customary meaning of "presentation rate."

Patent Owner argues that the recitation of "skipped" in claim 9 supports its argument that skipping is not a "presentation rate." PO Resp. 39–40.[20] Claim 9 recites: "The method of claim 7 wherein the guidance information specifies that predetermined portions of a media work must be viewed at a predetermined presentation rate or *skipped*." Ex. 1001, 43:23–26 (emphasis added). Patent Owner asserts: "the claims of the '228 Patent- specifically dependent Claim 9—exclude 'skipping' from being within the

[20] Patent Owner also cites a passage from the Specification that contains language similar to claim 9. PO Resp. 39 (citing Ex. 1001, 28:17–19 ("predetermined portions of the media work must be viewed at a predetermined rate, or skipped altogether")).

scope of 'presentation rate' because 'skipping' is an alternative to presenting at a predetermined rate" and "[b]ecause Claim 9 indicates that 'portions of a media work must be viewed [at] a predetermined presentation rate or skipped,' skipped cannot fall within the scope of 'presentation rate.'" PO Resp. 39. We determine that a more natural reading of claim 9 is that "skipped" is an alternative to "viewed," not "presentation rate." "Viewed" and "skipped" are more natural alternatives because they are both past tense verbs. Interpreting claim 9 in this fashion, it reads "predetermined portions of a media work must be viewed . . . or skipped." We do not find Petitioner's argument strong enough to overcome the explicit passages in the Specification indicating that skipping is a presentation rate (*see, e.g.*, Ex. 1001, Fig. 16) or the strong presumption in favor of using the ordinary and customary meaning of claim terms.

Although it does not appear that the issue of whether the term "presentation rate" as recited in the claims of the '228 patent excludes skipping was considered by the District Court, the District Court did construe "rate which causes a portion to be skipped" from the claims of the '433 patent[21] as "a rate of infinity or other indicium that will be similarly translated which directs the presentation system to skip a portion" at the request of Patent Owner. *See* Ex. 2007, 14–15.[22] Patent Owner argues that it is

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[21] The '433 patent (US Patent No. 7,043,433) is a patent asserted in the District Court litigation but contains a different disclosure than the '228 patent and is not in the '228 patent family. *See* Ex. 2007, 7 n.4.

[22] Before the District Court, Patent Owner agreed to a construction of "presentation rate" that did not specifically

improper to rely on the "unrelated" '433 patent "to limit the scope of the '228 patent." PO Resp. 42–43. We do not do so. To the contrary, we determine that the District Court's construction supports our conclusion that the ordinary and customary meaning of "presentation rate" as recited in the claims of the '228 patent should not be limited so as to exclude a rate of infinity or skipping.

Preambles

Patent Owner contends that the preambles of independent claims 3, 31, and 34 are limiting. PO Resp. 17–29. The preambles of claims 3, 31, and 34 recite:

> 3. A method for presentation of information received from a broadcaster by a client device, *which device utilizes presentation rates to present information at various presentation rates*, and which method comprises steps of:
>
> 31. An apparatus which presents information received from a broadcaster, *which apparatus utilizes presentation rates to present information at various presentation rates*, and which apparatus comprises:
>
> 34. A method for broadcasting information to a client device, *which device utilizes presentation rates to present information at various presentation rates*, and which method comprises steps of:

Ex. 1001, 42:61–64, 44:53–56, 45:8–46:2 (emphasis added). Patent Owner's argument focuses on the

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address whether the term should exclude skipping. Ex. 1025, 109:3–13.

highlighted language in the preambles of the challenged, independent claims of the '228 patent. *See* PO Resp. 17.

Patent Owner presented the same or a similar argument in its Preliminary Response. *See* Prelim. Resp. 15 (characterizing the language in the preambles as the "'smart client' requirement of the claims"). In the Institution Decision, the Board considered this argument and preliminarily rejected it. Inst. Dec. 19 ("At least at this stage of this proceeding, we do not find the preambles of the claims limit the invention to 'smart devices.'").[23] In response to Patent Owner's argument, Petitioner argues:

> In addressing the preambles of claims 3, 31, and 34, [Patent Owner] muddies two separate issues and attempts to portray them as one. (Resp., 17-29.) The first is whether the preambles are limiting at all. The second is whether the preambles' recitation that the client device "utilizes presentation rates to present information at various presentation rates" should be further narrowed to require the client device to be capable of performing time-scale modification by itself to implement these various presentation rates. The former is irrelevant, as [Petitioner's] petition addressed the preambles, and the latter is incorrect.

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[23] It does not appear that the Patent Owner raised this claim construction issue before the District Court and it does not appear that the District Court considered this issue or made any related rulings. *See generally* Ex. 2007 (District Court's claim construction order).

Pet. Reply 3. We agree with Petitioner. As discussed below, the Petitioner has established that all the elements of the preambles of the challenged, independent claims are disclosed in the cited art.[24] And, it would be contrary to the ordinary and customary meaning of the language of the preambles and the disclosure in the Specification to limit the claims to systems in which the client device is capable of performing time-scale modification by itself to implement various presentation rates (*i.e.*, smart devices).

The relevant language in the preambles recites that a "device/apparatus utilizes presentation rates to present information at various presentation rates." Ex. 1001, 42:61–64, 44:53–56, 45:8–46:2. Considering and incorporating the ordinary and common meaning of "presentation rate" as "the speed of presentation," the preamble language becomes "a device or apparatus that utilizes the speeds of the presentation to present information at various speeds of presentations." Based on this interpretation, we determine that the preamble language, even if limiting, only requires that the device or apparatus be capable of using the speeds at which information is presented to present the information at various speeds. Accordingly, we reject Patent Owner's contention that the preambles limit the scope of the claims to devices or apparatus that are capable of performing time-scale modification ("speeding up or slowing down the playback rate") wherein the modification is performed by the device or apparatus itself. *See* PO Resp. 18–21. A device or

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[24] We need not, and do not, determine whether the preambles are limiting.

apparatus that is capable of receiving information at various speeds and presenting at various speeds meets this preamble language, even if the device or apparatus itself cannot modify the playback rate (*i.e.*, the device or apparatus is "dumb" (can only present the information at the speeds at which it is received)).

We also reject Patent Owner's contention that the intrinsic evidence (the Specification and file history) supports limiting the claims to "smart devices"—a device or apparatus that can perform time-scale modification. *See* PO Resp. 21–29. First and foremost, the Specification of the '228 patent directly contradicts this contention. The Specification of the '228 provides:

> It is within the spirit of the present invention that embodiments of the present invention include embodiments where the playback system is replaced by a distribution system, which distribution system is any device that can receive digital audio or audio-visual works and redistribute them to one or more other systems that replay or redistribute audio or audio-visual works. In such embodiments, the playback system is replaced by any one of a number of distribution applications and systems which are well known to those of ordinary skill in the art that further distribute the audio or audio-visual work. *It should be understood that the devices that ultimately receive the re-distributed data can be "dumb" devices that lack the ability to perform Time-Scale modification or "smart" devices that can perform Time-Scale Modification.*

Ex. 1001, 26:31–45 (emphasis added). Patent Owner argues that this portion of the Specification should not be used to construe the challenged, independent

claims because it relates to embodiments in the Specification in which "time-scale modification is performed at the server, and then time-scale modified versions of content are transmitted to a client device." PO Resp. 24. As discussed above, we determine that the claims are not limited to time-scale modification at the client device. And, "there is strong presumption against a claim construction that excludes a disclosed embodiment." *Nobel Biocare Servs. AG v. Instradent USA, Inc.*, 903 F.3d 1365, 1381 (Fed. Cir. 2018) (quoting *In re Katz Interactive Call Processing Pat. Litig.*, 639 F.3d 1303,1324 (Fed. Cir. 2011)). Patent Owner has not overcome this presumption.

Moreover, the description of the Figure 14 embodiment that Patent Owner relies upon (*see* PO Resp. 25 n.8) also contradicts this argument. The description of Figure 14 in the Specification provides:

> *FIG. 14 shows a block diagram of embodiment 21000* of the present invention which transmits PRGI in an "out of band" mode to client devices receiving the media data.
>
> * * *
>
> Note that *all or some components of embodiment 21000 may exist in separate locations*, which components are connected to one another via a network or any other communication means (where the use of the term means is used in the broad sense possible.)
>
> * * *
>
> TSM Rate Determiner 21700 [as shown in Figure 14 (Ex. 1001, 38:13] may process the PRGI from TSM Control Decoder 21450 according to rule-

> sets or other algorithms specified by . . . (iii) a device programmed by the broadcaster *which may exist in the client apparatus or elsewhere*.
>
> * * *
>
> Conversely, *components of embodiment 21000 may exist in separate locations* connected to one another via a network or any other communication means (where the use of the term means is used in the broadest sense possible).

Ex. 1001, 31:52–54, 32:8–10, 32:26–32, 38:50–55, 39:47–50 (emphasis added). These passages establish the claims should not be limited as Patent Owner contends.

With regard to Patent Owner's argument that the prosecution history supports its proposed, limiting construction (*see* PO Resp. 26–29), the Board considered this contention in its Institution Decision and determined otherwise. Inst. Dec. 17–18. We have considered the additional arguments and evidence in Patent Owner's Response relating to this contention showing the Applicant's reliance on the preamble to distinguish the invention from the art cited during prosecution (*see* PO Resp. 26–28), but determine it does not dictate a different result. The intrinsic evidence as a whole, the ordinary and customary meaning of the language in the preamble, and the repeated statements in the Specification not to limit the invention, as argued by Patent Owner, substantially outweigh the evidentiary value of these statements by Applicant during prosecution. This is particularly true in this case because, as pointed out in the Institution Decision (*see* Inst. Dec. 17), the Examiner relied on language outside the preamble in allowing

the independent claims. *See* Ex. 1004, 346 (Examiner's statement of reasons for allowance).

For these reasons, we determine that the preambles do not limit the scope of challenged, independent claims 3, 31, and 34 to "smart devices"—devices or apparatus that are capable of performing time-scale modification ("speeding up or slowing down the playback rate"), wherein the modification is performed by the device or apparatus itself.

D. Asserted Anticipation of Claims 3–7, 9, 12, 13, 17, 31, 33, and 34 Based on Logan

Petitioner challenges claims 3–7, 9, 12, 13, 17, 31, 33, and 34 as anticipated by Logan. Pet. 2, 11–42.

1. Logan (Ex. 1005)

Logan is titled, "Apparatus and Methods for Broadcast Monitoring." Ex. 1005, code (54). Logan is directed to "editing the content of a broadcast programming signal to provide a proprietary program signal that has been tailored to the preferences of an individual monitoring the broadcast programming signal." *Id*. at code (57) (Abstract). Logan "relates to systems and methods for monitoring broadcast programming and, more particularly, to systems and methods that can integrate broadcast programming signals with selected additional programming signals, and that can further edit the integrated signals to provide a user with a proprietary program signal." *Id*. at 1:13–18. Logan discloses a system for monitoring a video broadcast programming signal, such as a television program, and for editing the monitored program to generate a proprietary program signal having features and information tailored to the

preferences of a particular audience member. *Id.* at 7:51–56.

Figure 1 of Logan is reproduced below.

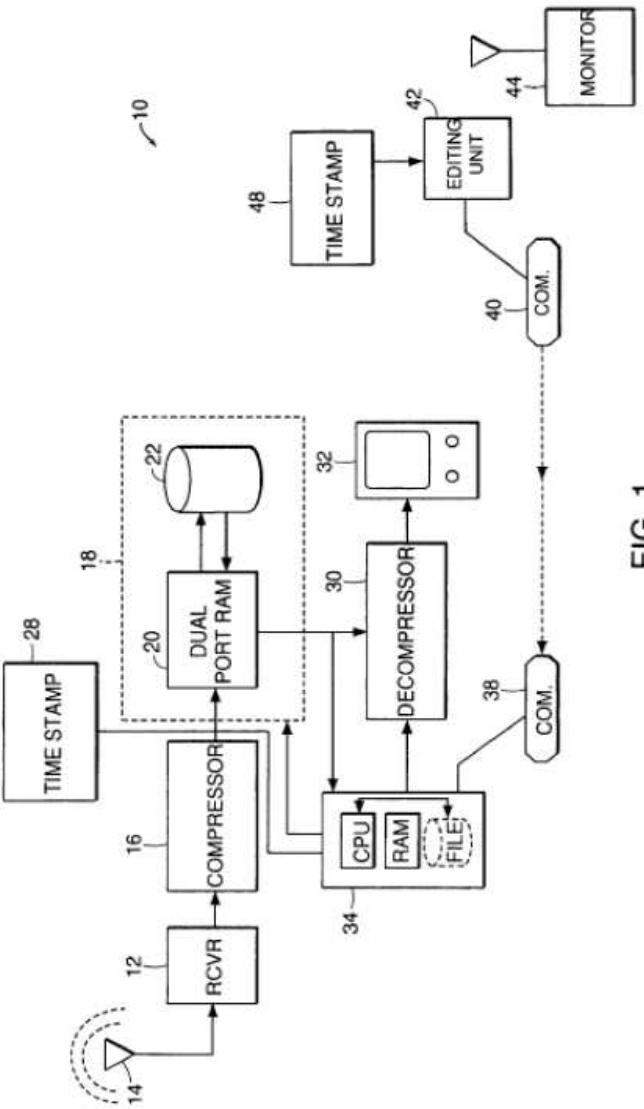

FIG. 1

Figure 1 of Logan (above) depicts system 10 for providing computer-enhanced broadcast monitoring. *Id.* at 7:49–50. As shown in Figure 1, system 10 includes receiver 12, antenna 14, compressor 16, memory system 18, dual port ram 20, persistent memory device 22, time stamp unit 28, decompressor 30, video monitor 32, processor 34, local communication system 38, remote communication system 40, editing unit 42, remote time stamp unit 48, and monitor 44. *Id.* at 7:64–8:3. Memory system 18 acts as a buffer memory for storing a compressed video signal generated by the compressor 16. *Id.* at 8:65–67. Memory system 18 includes high-speed random access electronic memory 20 depicted as a dual-port ram, and slower persistent memory 22. *Id.* at 8:67–9:3. Logan teaches that time stamp unit 28 generates a time stamp at set intervals, such as every five seconds, and the time stamp is multiplexed with the compressed broadcast signal and the multiplexed signal is stored by memory system 18 thereby providing a time-based index into the compressed programming data stored in the memory system 18. *Id.* at 9:11–21. Editing unit 42 can generate, in response to the monitored broadcast programming signal, a marking signal that can provide instructions for modifying the broadcast programming signal. *Id.* at 10:16–19. A marking signal can be any signal that provides information supplemental to the broadcast programming signal. *Id.* at 11:49–51. Marking signals can carry information on content to allow screening of violent scenes, to allow deleting of time-outs in sport shows, or to allow editing of shows to show only highlights. *Id.* at 11:54–57. Logan discloses that a broadcaster may not wish commercials to be deleted or skipped in the viewing process and may embed marking signals representative of

information that prevents portions of the broadcast programming signal from being skipped or deleted. *Id.* at 13:11–16.

2. Analysis of Claim 3

A method for presentation of information received from a broadcaster by a client device, which device utilizes presentation rates to present information at various presentation rates, and which method comprises steps of:

Petitioner asserts Logan discloses the preamble of claim 3. Pet. 11–13. In particular, Petitioner points to Logan's "broadcast programming signal," which according to Petitioner is "transmitted from a broadcaster to a user's device [and] reads on the claimed 'information received from a broadcaster by a client device.'" *Id.* at 11–12 (citing Ex. 1005, 2:26–47, 5:15–23, 5:59–6:25, 8:5–10, 8:27–47, 12:61–13:10; Ex. 1002 ¶¶ 48–50). Petitioner further asserts "while a user [of Logan's system] has the ability to fast forward, pause, etc., using local controls, marking signals may be employed to restrict or direct playback rates, thus the presentation rate (*e.g.*, whether normal speed or fast forward)," and thus a person of ordinary skill in the art "would have understood Logan to disclose a 'client device [that] utilizes presentation rates to present information at various presentation rates,' as recited in the preamble" of claim 3. *Id.* at 12–13 (citing Ex. 1005, 2:7–14, 2:26–47, 2:63–3:3, 5:59–6:25, 8:18–26, 11:51–54, 12:61–13:42, 13:11–30; Ex. 1002 ¶¶ 48–62).

Patent Owner argues that Logan does not disclose a "client device," which "device utilizes presentation rates to present information at various presentation rates." PO Resp. 45–53. Specifically, Patent Owner argues that the disclosure in Logan that discloses fast forwarding relates to an embodiment in which "the client does not *utilize presentation rates* to present information at various presentation rates—it simply plays what it gets at the speed that it gets it." *Id.* at 53. Specifically, Patent Owner argues that "Logan discloses 'fast-forward' *only* in the context of the embodiment of Logan that does not have local storage" and "[i]n these video-on-demand systems ('VoD'), modification to the broadcast programming signal, including fast forward, deleting or skipping, are implemented at the server, after being requested by the user via local controls." *Id.* This argument is based on Patent Owner's claim construction contention that the preamble limits the scope of the claims to systems in which the client device is a "smart" device that performs time-scale modification (changes the presentation rate) without the aid of any other component of the system. As discussed above, we have rejected this claim construction contention. The paragraph from Logan that refers to fast forwarding states:

> The depicted receiver unit 12 couples to the antenna 14 to receive a broadcast programming signal. A broadcast programming signal includes television programs, including traditional broadcast television, satellite television and cable television programs, radio programs, Internet broadcast programs, or any other type of program that is transmitted for reception by an audience.

> This term also includes programming content that is already stored and that could be viewed at any time, such as Internet downloads or other forms of video-on-demand, as well as material stored on DVD, CD, or video tape and distributed physically through stores or the mail. In the case of Internet downloads, or other forms of video-on-demand, there is no local storage of content. The storage takes place at a commonly-shared server, which then "dishes" out the content on demand. Typically, these systems allow the user to fast forward, pause, etc., using local controls. A marking signal of the invention is used to personalize such server-stored content in the same manner as it is used to personalize locally-stored content. The marking signal allows a user to personalize server-stored content by using the supplied marking signal in conjunction with the local controls supplied by the video-on-demand service provider.

Ex. 1005, 8:4–26. According the language in the preamble of claim 3 its ordinary and customary meaning, we find that this paragraph of Logan discloses all elements of the preamble. As disclosed in this paragraph in Logan and shown by Petitioner, the client device utilizes the normal rate of presentation and fast forwarding to present broadcast information at these two rates. Thus, this paragraph of Logan maps to the preamble without need to rely on any other embodiment or portion of its disclosure.

We find that the preponderance of the evidence establishes that Logan discloses the preamble of claim 3.

receiving broadcast information

Petitioner shows Logan discloses this limitation in the same paragraph quoted above in discussing the preamble. Pet. 13 (citing Ex. 1005, 8:4–5 ("receiver unit 12 couple[d] to the antenna 14 to receive a broadcast programming signal") (depicted in Fig. 1). Patent Owner does not argue this limitation. *See generally* PO Resp. We find Logan discloses this limitation.[25]

receiving guidance information relating to presentation of the broadcast information

Petitioner shows Logan discloses this limitation. Pet. 13–17. Petitioner relies on Logan's disclosure relating to "marking signals" in the paragraph quoted above in discussing the preamble. *Id.* at 13 ("Logan discloses a 'marking signal' that may be received by a client device and 'is used to personalize . . . server-stored content.'"). As shown in the Petition (*see id.* at 13–14), Logan further states with regard to "marking signals" that, "[t]he marking signal can, therefore, be any signal that provides information supplemental to the broadcast programming signal" (Ex. 1005, 11:49–51), and "[m]arking signals can carry information on content, to allow screening of violent scenes, to allow deleting of time-outs in sport shows, or to allow editing of shows to show only highlights" (*id.* at 11:54–57). "Marking signals" can also "provide additional

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[25] *See also In re NuVasive*, 841 F.3d 966, 974 (Fed. Cir. 2016) (explaining that the Board need not make specific findings as to claim limitations that Patent Owner does not dispute are disclosed in the prior art).

information . . . to be used for selectively deleting the commercial sequence." *Id.* at 11:22–24.

If a broadcaster does not wish to have commercials deleted or skipped, Logan discloses that marking signals can be embedded, which prevents portions of the broadcast programming signal from being skipped or deleted. *Id.* at 13:11–19. In this instance, "the marking signal may include a blocking signal," which may "prevent a user from proceeding to the next portion of the broadcast programming signal until after a predefined segment of the broadcast programming signal has been viewed." *Id.* At 13:16–22. "Alternatively, the broadcaster may mark the broadcast programming signal so that the user cannot skip to another marked segment of the broadcast programming signal until after a commercial has been viewed." *Id.* at 13:27–30. As indicated above (*supra* Section II.C.), we have construed "guidance information" to mean "information that is used to communicate a playback rate for an entire media work or one or more specific portions of the media work." We find Logan discloses "guidance information" as construed.

With regard to the "receiving" portion of this limitation, Logan states:

> These marking signals may be embedded in the programming signal itself either by using unused bandwidths, such as the vertical blanking channel in case of a TV broadcast, or by overlapping the marking signal data directly on the programming signal. The processor 34 would be able to decouple the marking signals from the programming signal, thereby allowing the marking signal to be used in the same way as if they had been communicated from the editing unit 42. Alter-

> natively, the broadcaster may send the marking signals to the user in a different broadcast, on a different channel, over the Internet or in a number of different manners and provide a means to synchronize the marking signals with the associated broadcast.

Ex. 1005, 12:64–13:10.

Patent Owner argues this limitation on the bases that the construction of "presentation rate" excludes skipping and that "in the VoD embodiment, without local storage, marking signals are not received at the client device." PO Resp. 54. Both these arguments rely on limiting claim constructions that we have not adopted. Accordingly, these arguments do not undermine Petitioner's persuasive showing.

We find Logan discloses this limitation.

analyzing the guidance information to determine a presentation rate

Petitioner shows Logan discloses this limitation. *See* Pet. 17–19. In particular, Petitioner asserts "*Logan*'s disclosure of the user's device, which is capable of analyzing the marking signal and other relevant information, and allowing or disallowing the user to employ different modes of presentation, such as playing at a default (x1) playback rate or skipping, teaches the feature of 'analyzing the guidance information to determine a presentation rate,'" as recited in claim 3. *Id.* at 19.

As discussed with regard to the preceding limitation, Logan discloses the use of marking signals that are "guidance information" as recited in claim 3. These marking signals can be used to skip or delete

commercial sequences, violent scenes, deleting time-outs in sport shows, or editing of shows to show only highlights. *See* Ex. 1005, 11:15–28, 11:54–57. The marking signals can include blocking signals to prevent a user from skipping commercials or to require a user to view a commercial before skipping to another segment. *See id*. at 13:11–30. Thus, the marking signals can be used to determine a presentation rate of the broadcast information.

Patent Owner contends "*Logan* does not disclose 'analyzing the guidance information to determine a presentation rate,'" but this contention is not supported. PO Resp. 54. The entirety of Patent Owner's argument with regard to this limitation is "[b]ecause 'marking signals' are not guidance information, *Logan* does not meet disclose [sic] this limitation." *Id.*

We find Logan discloses this limitation.

presenting the information at the presentation rate.

Petitioner shows Logan discloses this limitation in two ways. Pet. 19–21. In the first way, Logan discloses that "compressor 16 [shown in Figure 1] converts the received programming signal into a compressed digital format suitable for storing in a digital memory system, such as the depicted memory system 18." Ex. 1005, 8:49–52. Logan also discloses:

> The depicted decompressor 30 couples via a transmission path to the memory system 18 and can receive the stored compressed programming data. The decompressor 30 can be an electrical circuit card assembly that includes a CODEC chip set that implements the MPEG decoding

> process for decompressing MPEG motion video into a format suitable for display on a conventional video monitor, such as the video monitor 32 depicted in FIG. 1.

Id. at 9:22–29. In the second way, Logan discloses:

> The depicted monitor 44 [in Figure 1] can include an RF tuner for receiving the broadcast programming signal, which in this example is a television program. The monitor 44 can further include a video display element that can display to an operator at the editing unit 42 the television program being broadcast. In one embodiment, the monitor 44 is a conventional television receiver set that includes an RF tuner capable of receiving broadcast television programming signals, and a monitor element capable of displaying the television being broadcast.

Id. at 10:20–29.

As discussed above with respect to the preamble, Patent Owner contends Petitioner has not shown that the client device in Logan presents the information at multiple presentation rates. *See* PO Resp. 54–55. However, this limitation recites, "presenting the information at *the* presentation *rate*" (emphasis added). It is therefore met if the information is presented at *one* presentation rate. In addition, as noted previously, Logan discloses the user can "fast forward, pause, etc., using local controls." *Id*. at 8:19–20.

We find Logan discloses this limitation.

Conclusion as to Claim 3

For the reasons discussed above, we find Petitioner has shown that claim 3 of the '228 patent is anticipated by Logan. Patent Owner's arguments to the contrary are based on claim constructions that are not supported and do not undermine Petitioner's persuasive showing.

3. Analysis of Claim 31

Independent claim 31 contains limitations similar to the limitations of independent claim 3, except claim 31 is directed to an apparatus and claim 3 is directed to a method. *Compare* Ex. 1001, 42:61–43:2, *with id.* at 44:53–64. Petitioner relies on similar arguments and evidence for claim 31 as discussed above with respect to claim 3. *See* Pet. 35–37. Patent Owner does not present any arguments specifically directed towards Petitioner's showing with regard to claim 31. *See generally* PO Resp.

> **An apparatus which presents information received from a broadcaster, which apparatus utilizes presentation rates to present information at various presentation rates, and which apparatus comprises:**

As shown above, Logan's Figure 1 and its related description (particularly, the paragraph quoted above in the section discussing the preamble of claim 3 (Ex. 1005, 8:4–26)), discloses "receiver unit 12 couple[d] to the antenna 14 to receive a broadcast programming signal" (*id.* at 8:4–5). And, Logan discloses presenting the received information at normal and fast forward rates. *See id.* at 8:15–26. For reasons similar to those discussed above, we find Logan discloses this limitation.

a receiver of the broadcast information and guidance information relating to presentation of the broadcast information

Again, Logan discloses "receiver unit 12 couple[d] to the antenna 14 to receive a broadcast programming signal." Ex. 1005, 8:4–5. And, "as discussed above for claim 3 . . . *Logan*'s marking signal . . . disclos[es] the guidance information related to presentation of the broadcast information." Pet. 36. For reasons similar to those discussed above, we find Logan discloses this limitation.

a rate determiner that analyzes the guidance information to determine a presentation rate;

With regard to this limitation, the Petition states: "[a]s discussed above for claim 3, a POSA [person of ordinary skill in the art] would have understood *Logan*'s disclosure of the user device including a processor capable of analyzing the marking signal and other relevant information to determine the presentation rate as teaching this feature in claim 31." Pet. 36. For reasons similar to those discussed above, we find Logan discloses this limitation.

a presentation apparatus that, in response to the broadcast information and the presentation rate, presents the information

With regard to this limitation, the Petition states: "[a]s discussed above for claim 3, a POSA would have understood *Logan*'s disclosure of devices, such as a decompressor and monitor, used for presenting

personalized broadcast programming signal as teaching this limitation." Pet. 37. For reasons similar to those discussed above, we find Logan discloses this limitation.

We find that Petitioner has shown by a preponderance of the evidence that claim 31 is anticipated by Logan.

4. Analysis of Claim 34

Challenged, independent claim 34 of the '228 patent recites:

> A method for broadcasting information to a client device, which device utilizes presentation rates to present information at various presentation rates, and which method comprises steps of:
>
> > broadcasting information having a first presentation rate; and broadcasting guidance information used to determine a
> >
> > > second presentation rate for use by the client device in presentation of the information.

Ex. 1001, 45:8–46:7 (emphasis added). The preamble of claim 34 recites, in part, "[a] method for broadcasting information," and the body of claim 34 contains two steps that recite broadcasting information and broadcasting guidance information, but claim 34 does not recite any further steps (such as receiving, analyzing, and presenting the information as recited in independent, method claim 3). In other words, claim 34 only recites sending information. Thus, claim 34 has a much different, *i.e.*, broader, scope than either claim 3 or 31.

Petitioner's showing as to independent claim 34 is similar to its showing as to independent claims 3 and 31. *See* Pet. 38–42 (referring back to the arguments presented for claim 3, as discussed above). Patent Owner's arguments with regard to claim 34 are also similar to the arguments that it makes for claims 3 and 31. *See* PO Resp. 44 ("*Logan* does not disclose each and every limitation of independent claims 3 and 34 as they are arranged in the claims"), 57–58. Accordingly, for the reasons discussed above with respect to claims 3 and 31, we find that Petitioner has shown by a preponderance of the evidence that claim 34 is anticipated by Logan.

5. Analysis of Claims 4–7, 9, 12, 13, 17, and 33

Petitioner asserts that Logan teaches each of the additional limitations of dependent claims 4–7, 9, 12, 13, 17, and 33. *See* Pet. 21–35, 37–38.

a) Claim 4

Claim 4 of the '228 patent recites:

> The method of claim 3 which further comprises a step of receiving a user input presentation rate and wherein the step of analyzing includes a step of analyzing the guidance information and the user input presentation rate to determine the presentation rate.

Ex. 1001, 43:4–8. With regard to claim 4, the Petition states:

> *Logan* discloses this limitation. (Ex. 1002, ¶¶ 63-64.) As discussed above with respect to claim 3, *Logan* discloses a "processor" for "analyzing the

> guidance information." (*Supra* Sections IX.A.1.c-d; Ex. 1002, ¶¶ 52-60.) *Logan* discloses that its system "allow[s] the user to fast forward, pause, etc., using local controls." (Ex. 1005, 8:18-20.) *Logan* discloses, for example, that based on the user's payment status, the user may be allowed to "skip or delete portions of the broadcast programming signal, such as commercials, for example." (*Id.*, 13:32-33.) As such, *Logan* discloses the use of a "marking signal," which may include a "blocking signal," in conjunction with "local controls," which may allow the user to, for example, employ the "fast forward" or "pause" functionalities according to the user's authorized viewing abilities. (*Id.*, 8:18-20, 11:51- 54, 13:11-19.) *Logan* describes that "a user generates input data signals representative of instructions that will reference marking signals, which in turn are applied to the broadcast programming signal stored in buffer 140 as the signal is played back and displayed on display 144. The input signals may be representative of user-generated remote control instructions. These user-generated instructions direct the processor to skip to the next, previous, first or last marking signal, for example. The input signals may be in the form of infrared, radio-frequency, keyboard, or any other type of data transmission suitable for allowing a user to provide input into the system." (*Id.*, 21:17-33; *see also id.*, 6:46-52, 2:48-52.)

Pet. 21–22. Patent Owner does not specifically address claim 4. *See generally* PO Resp.

Petitioner's undisputed showing as to claim 4 is well-supported by the cited passages in Logan and

the cited portions of Dr. Schonfeld's Declaration. We find that claim 4 is anticipated by Logan.

b) Claim 5

Claim 5 of the '228 patent recites:

> The method of claim 3 wherein the guidance information comprises one or more presentation rates relating to one or more portions of the broadcast information.

Ex. 1001, 43:9–11. With regard to claim 5, the Petition states:

> *Logan* discloses this limitation. (Ex. 1002, ¶¶ 65-67.) As discussed above with respect to claim 3, *Logan*'s "marking signal," which may include a "blocking signal," discloses "guidance information" in the claims. (*Supra* Section IX.A.1.c-d; Ex. 1002, ¶¶ 52-60.) As also discussed above for claim 3, *Logan* specifically discloses, for example, that "the marking signal may include a blocking signal, which instructs the processor that a particular portion of the broadcast programming signal may not be deleted or skipped." (Ex. 1005, 13:16-19; *see also id.*, 2:63-3:3; *supra* Sections IX.A.1.c-d.) In this instance, the blocking signal may "prevent a user from proceeding to the next portion of the broadcast programming signal until after a predefined segment of the broadcast programming signal has been viewed." (Ex. 1005, 13:20-22.)
>
> *Logan* describes that the "predefined segment" in this case can be "any portion of the broadcast programming signal," and the broadcaster "may mark commercials so that they cannot be deleted

> from the broadcast programming signal" or "mark the broadcast programming signal so that the user cannot skip to another marked segment of the broadcast programming signal until after a commer[ci]al has been viewed." (*Id.*, 13:23- 30.) Also as discussed above for claim 3, *Logan* teaches providing a default (x1) presentation rate, which would be used to present broadcast programming signal, for example, in cases where, upon analysis of the "marking signal," which may include a "blocking signal," a user is disallowed from employing a presentation rate other than the normal (x1) rate. (*Supra* Sections IX.A.1.c-d; Ex. 1002, ¶¶ 52-60.)

Pet. 23–24. Patent Owner does not specifically address claim 5. *See generally* PO Resp.

Petitioner's undisputed showing as to claim 5 is well-supported by the cited passages in Logan and the cited portions of Dr. Schonfeld's Declaration. We find that claim 5 is anticipated by Logan.

c) Claims 6 and 33

Claims 6 and 33 of the '228 patent recite:

> 6. The method of claim 5 wherein the step of presenting the information comprises Time-Scale Modifying the information in accordance with one or more presentation rates.
>
> 33.The apparatus of claim 31 wherein the presentation apparatus comprises Time-Scale Modification apparatus that presents a time-scale modified version of the broadcast information in accordance with the presentation rate.

Ex. 1001, 43:12–15, 45:4–7. With regard to claim 6, the Petition states:

> *Logan* discloses this limitation. (Ex. 1002, ¶¶ 68-70.) As discussed above with respect to claims 3 and 5, *Logan* discloses "presenting the information" and "the one or more presentation rates." (*Supra* Sections IX.A.1.e, 3.a; Ex. 1002, ¶¶ 61-62, 65- 67.) *Logan* also discloses using presentation systems having typical "local controls," through which a user can employ certain playback functionalities, such as fast forward, to modify the playback rate. (Ex. 1005, 8:20-26.) As the '228 patent acknowledged, the purported invention of the '228 patent merely employed time-scale modification techniques well known to a POSA. (Ex. 1001, 5:7-12 ("As is well known to those of ordinary skill in the art, presently known methods for Time-Scale Modification ('TSM') enable digitally recorded audio to be modified so that a perceived articulation rate of spoken passages, *i.e.*, a speaking rate, can be modified dynamically during playback."), 6:35-38 ("In accordance with the present invention, TSM System 800 modifies the input stream of data in accordance with well known TSM methods to produce, as output, a stream of samples that represents a Time-Scale Modified signal.").) A POSA would have understood that *Logan*'s teaching of "the local controls supplied by the video-on-demand service provider," which the user employs to play broadcast programming signal at normal or fast forward speed, as allowed upon analysis of the guidance information (*supra* Sections IX.A.1.c-d), as disclosing "Time-Scale Modifying the information

> in accordance with the one or more presentation rates" in claim 6. (Ex. 1005, 8:25-26; Ex. 1002, ¶¶ 44-45, 52-60, 68-70; *supra* Section VIII.C.)

Pet. 24–25. Petitioner relies on a similar argument and the same evidence for claim 33. *See id.* at 38–40. Patent Owner's arguments relating to claim 6 and 33 are based on its claim construction contention that the claims are limited to time-scale modifying/time-scale modification that is done by the client device. PO Resp. 55–57. Patent Owner argues:

> Petitioner ignores that the Time-Scale Modification of Claims 6 and 33 must be done *by the client device*, and thus does not even attempt to prove that *Logan* discloses it. Claim 6, which depends from claim 5, which in turn depends from claim 3, requires that the "step of presenting the information comprises Time-Scale Modifying the information in accordance with the one or more presentation rates." In claim 3, the "step of presenting" is done *by the client device*. Thus, in claim 6, "Time-Scale Modifying the information" must also be done by the client device. The same is true with respect to claim 33, which requires that the "apparatus" of claim 31 also "comprises Time-Scale Modification apparatus." *See also* EX2016, ¶ 122.

PO Resp. 55. As noted above (*supra* Section II.C.), the claims are not limited to time-scale modifying/time-scale modification that is done by the client device. Petitioner's showing as to claims 6 and 33 is well-supported by the cited passages in Logan and the cited portions of Dr. Schonfeld's Declaration.

We find that the preponderance of the evidence establishes that claims 6 and 33 are anticipated by Logan.

d) Claim 7

Claim 7 of the '228 patent recites:

> The method of claim 3 wherein the guidance information comprises information to provide presentation rates related to conceptual information content.

Ex. 43:16–18. With regard to claim 7, the Petition states:

> *Logan* discloses this limitation. (Ex. 1002, ¶¶ 71-72.) As discussed above with respect to claim 3, *Logan* discloses "guidance information," which is a "marking signal" that may include a "blocking signal." (*Supra* Section IX.A.1.c; Ex. 1002, ¶¶ 52-57.) *Logan* further discloses that the "[m]arking signals can carry information on content, to allow screening of violent scenes, to allow deleting of time-outs in sports shows, or to allow editing of shows to show only highlights." (Ex. 1005, 11:54-57; *see id.*, 10:34-45 ("The operator/editor can be the user of the system, the broadcaster of the content itself, or any third party. The operator employs the input device to create a marking signal that represents locations in the compressed programming signal stored in the memory system 18 that are associated with certain attributes of the content found before or after those locations. For example, an operator can generate a marking signal that represents a location in the content stream that denotes the beginning of a new

> news item in a news broadcast."), 11:40-48.) *Logan* describes that its system may utilize data regarding "a menu of program segments, each corresponding to a particular marking signal. The computer-readable data may also include program segment information, such as a summary, the total length of the broadcast programming signal, the length of the program segment, quality rating of the program segment, number of, and type of or identity of, previous viewers of the program segment, identification of the person monitoring and marking the program, feedback from other viewers or listeners who have already seen or heard the program, etc." (*Id.*, 3:8-17; *see also id.*, 13:60-14:1, 14:9-33, 16:29-47.) *Logan* also discloses that "the broadcaster may mark commercials so that they cannot be deleted from the broadcast programming signal. Alternatively, the broadcaster may mark the broadcast programming signal so that the user cannot skip to another marked segment of the broadcast programming signal until after a commer[ci]al has been viewed." (*Id.*, 13:25-30; *see also id.*, 2:63-3:3.) As previously discussed, *Logan* teaches using its "marking signal" to restrict or direct playback rates at a client device. (*Supra* Sections IX.A.1.c-d; Ex. 1002, ¶¶ 52-60.)

Pet. 26–27. Patent Owner does not specifically address claim 7. *See generally* PO Resp.

Petitioner's undisputed showing as to claim 7 is well-supported by the cited passages in Logan and the cited portions of Dr. Schonfeld's Declaration. We find that claim 7 is anticipated by Logan.

e) Claim 9

Claim 9 of the '228 patent recites:

> The method of claim 7 wherein the guidance information specifies that predetermined portions of a media work must be viewed at a predetermined presentation rate or skipped.

Ex. 1001, 43:23–26. With regard to claim 9, the Petition states:

> *Logan* discloses this limitation. (Ex. 1002, ¶¶ 73-75.) As discussed above with respect to claims 3 and 7, *Logan* discloses a "marking signal" (*i.e.*, "guidance information"), which includes information regarding presentation rates for portions of the broadcast information. (*Supra* Sections IX.A.1.c-d, 5.a; Ex. 1002, ¶¶ 52-60, 71-72.) As mentioned above, *Logan* discloses a "marking signal" where "the broadcaster may mark the broadcast programming signal so that the user cannot skip to another marked segment of the broadcast programming signal until after a commer[ci]al has been viewed." (Ex. 1005, 13:27-30; *see also id.*, 2:63-3:3.) Also as discussed above, *Logan* teaches the default (x1) presentation rate (*supra* Sections IX.A.1.c-d), which would correspond to "a predetermined presentation rate," applying Patent Owner's own understanding of the claim in district court. (Ex. 1009, 48; *see* Ex. 1008, ¶ 150.) As such, *Logan*'s description of the "marking signal" that restricts the playback rate the user can employ so that the user must play commercials (*i.e.*, "predetermined portions of a media work") at the default (x1) presentation rate and cannot fast forward or skip them,

> discloses "predetermined portions of a media work must be viewed at a predetermined presentation rate or skipped" in claim 9, since *Logan* requires, for example, commercials to be played at a predetermined presentation rate. (Ex. 1002, ¶¶ 73-75.)

Pet. 28–29. Patent Owner does not specifically address claim 9. *See generally* PO Resp.

Petitioner's undisputed showing as to claim 9 is well-supported by the cited passages in Logan and the cited portions of Dr. Schonfeld's Declaration. We find that claim 9 is anticipated by Logan.

f) Claim 12

Claim 12 of the '228 patent recites:

> The method of claim 3 wherein the guidance information specifies that predetermined portions of the broadcast information may be presented at presentation rates that are specified by one of more of a user interactively, a device programmed by the user, and a device programmed by a broadcaster.

Ex. 1001, 43:34–39. With regard to claim 12, the Petition states:

> *Logan* discloses this limitation. (Ex. 1002, ¶¶ 76-80.) As discussed above with respect to claim 3, *Logan* discloses the "guidance information" and that the "guidance information" can be used to determine the presentation rate of the broadcast information. (*Supra* Sections IX.A.1.c-d; Ex. 1002, ¶¶ 52-60.) In particular, *Logan* describes that its "the marking signal may include a blocking

> signal, which instructs the processor that a particular portion of the broadcast programming signal may not be deleted or skipped." (Ex. 1005, 13:16-19; *see also id.*, 2:63- 3:3, 12:61-13:10.) Also as previously discussed, *Logan* describes that "[t]he marking signal allows a user to personalize server-stored content by using the supplied marking signal in conjunction with the local controls supplied by the video on-demand service provider," where "local controls" provide the user an option of, for example, fast forward, pause, etc. (*Supra* Section IX.A.1.a; Ex. 1005, 8:22-26; Ex. 1002, ¶¶ 48-50.) *Logan* further describes that "a user generates input data signals representative of instructions that will reference marking signals, which in turn are applied to the broadcast programming signal stored in buffer 140 as the signal is played back and displayed on display 144. The input signals may be representative of user-generated remote control instructions. These user-generated instructions direct the processor to skip to the next, previous, first or last marking signal, for example. The input signals may be in the form of infrared, radio-frequency, keyboard, or any other type of data transmission suitable for allowing a user to provide input into the system." (Ex. 1005, 21:17-33; *see also id.*, 6:46-52, 20:14-38; *supra* Section IX.A.2.a.)

Pet. 30–31. Patent Owner does not specifically address claim 12. *See generally* PO Resp.

Petitioner's undisputed showing as to claim 12 is well-supported by the cited passages in Logan and the cited portions of Dr. Schonfeld's Declaration. We find that claim 12 is anticipated by Logan.

g) Claim 13

Claim 13 of the '228 patent recites:

> The method of claim 3 wherein the client device uses the guidance information to provide presentation rates for portions of the broadcast information in conjunction with one or more of user interactive input, input from a device programmed by the user, and input from a device programmed by a broadcaster.

Ex. 1001, 43:40–45. With regard to claim 13, the Petition states:

> *Logan* discloses this limitation. (Ex. 1002, ¶¶ 81-82.) As discussed above with respect to claim 3, *Logan* discloses client devices, which include a processor, using the "guidance information" to determine the presentation rate of the broadcast information. (*Supra* Sections IX.A.1.c-e; Ex. 1002, ¶¶ 52-62.) Also, *Logan* describes that its "marking signal may include a blocking signal, which instructs the processor that a particular portion of the broadcast programming signal may not be deleted or skipped." (Ex. 1005, 13:16-19; *see also id.*, 2:63-3:3.) As also discussed previously, *Logan* describes that "[t]he marking signal allows a user to personalize server-stored content by using the supplied marking signal in conjunction with the local controls supplied by the video-on-demand service provider," where the "local controls" provide the user an option of, for example, fast forward, pause, etc. (*Supra* Section IX.A.1.a; Ex. 1005, 8:22-26; Ex. 1002, ¶¶ 48-50.) Also as discussed with respect to claim 12, *Logan* describes various user devices and user generated

> instructions for presenting broadcast information. (*Supra* Section IX.A.7.a; Ex. 1005, 6:46-52, 21:17-33, 20:14-38; Ex. 1002, ¶¶ 76-82.)

Pet. 32–33. Patent Owner does not specifically address claim 13. *See generally* PO Resp.

Petitioner's undisputed showing as to claim 13 is well-supported by the cited passages in Logan and the cited portions of Dr. Schonfeld's Declaration. We find that claim 13 is anticipated by Logan.

h) Claim 17

Claim 17 of the '228 patent recites:

> The method of claim 3 wherein the guidance information comprises insistence information that specifies a measure of importance of utilizing presentation rate information contained in the guidance information.

Ex. 1001, 43:61–64. With regard to claim 17, the Petition states:

> *Logan* discloses this limitation. (Ex. 1002, ¶¶ 83-84.) As discussed above with respect to claim 3, *Logan*'s "marking signal," which may include "blocking signals," discloses the "guidance information" that contains information regarding presentation rate. (*Supra* Sections IX.A.1.c-d; Ex. 1002, ¶¶ 52- 60.) *Logan* further discloses that its "marking signal" contains information regarding whether a user is allowed to employ playback options other than the normal (x1) play, such as fast forward, which would otherwise be available. (Ex. 1005, 13:11-22; 8:18-26.) For example, *Logan* teaches that "the broadcaster may

> not wish commercials to be deleted or skipped in the viewing process, and therefore may produce marking signals representative of information that prevents portions of the broadcast programming signal from being skipped or deleted." (*Id.*, 13:11-16; *see also id.*, 2:62-3:3, 11:9-28, 13:16-30.)

Pet. 34. Patent Owner does not specifically address claim 17. *See generally* PO Resp.

Petitioner's undisputed showing as to claim 17 is well-supported by the cited passages in Logan and the cited portions of Dr. Schonfeld's Declaration. We find that claim 17 is anticipated by Logan.

6. Summary as to the Asserted Anticipation of Claims 3–7, 9, 12, 13, 17, 31, 33, and 34 Based on Logan

We have fully considered Petitioner's showing that claims 3–7, 9, 12, 13, 17, 31, 33, and 34 are anticipated by Logan and all the contrary arguments by Patent Owner. As indicated above with respect to each claim challenged on this ground, we find that Petitioner has shown by a preponderance of the evidence that claims 3–7, 9, 12, 13, 17, 31, 33, and 34 of the '228 patent are anticipated by Logan.

E. Asserted Obviousness of Claims 14, 16, and 17 in View of Logan

Petitioner challenges claims 14, 16, and 17 as having been obvious in view of Logan. Pet. 2, 42–48 (designated "Ground II" in the Petition). Patent Owner's entire response to this ground is: "The claims challenged in Ground II (obviousness) depend from challenged independent claim 3. Therefore, based on

Patent Owner's response to Ground I, the claims addressed by Ground II are also patentable." PO Resp. 59. As discussed above, we have considered Patent Owner's arguments related to claim 3 and Ground I (anticipation by Logan) but find that they do not undermine Petitioner's persuasive showing. As a result, we find the preponderance of the evidence shows that claim 3 is anticipated by Logan. Patent Owner presents no arguments specifically directed to the additional limitations recited in claims 14, 16, and 17. *See generally id.* As discussed below, Petitioner's obviousness challenge to claims 14, 16, and 17 is well-supported, and we conclude claims 14, 16, and 17 would have been obvious in view of Logan.

1. Claim 14

Claim 14 of the '228 patent recites:

> The method of claim 3 wherein the guidance information comprises a presentation rate along with an indication that the presentation rate should take effect immediately upon receipt.

Ex. 1001, 43:46–49. With regard to claim 14, the Petition states:

> *Logan* discloses or suggests this limitation. (Ex. 1002, ¶¶ 97-100.) As discussed above with respect to claim 3, *Logan* discloses the "guidance information" including information regarding presentation rate. (*Supra* Section IX.A.1.c-d; Ex. 1002, ¶¶ 52-60.) *Logan* also describes "broadcaster-embedded marking signals" which are transmitted to the viewer along with the broadcast program. (Ex. 1005, 13:11-30; *see also id.*, 2:56- 59.) In particular, as *Logan* describes an example, in

which the allowed and disallowed presentation rate is already assigned for predetermined portions of the broadcast program, playing such content with the broadcaster-embedded marking signals would by default be played at the presentation rate preset by the broadcaster. (*Id.*; *see also id.*, 2:63-3:3.)

* * *

To the extent that the Patent Owner may argue that *Logan* does not explicitly disclose the "indication" for the presentation rate to take effect immediately upon receipt, it would have been obvious over *Logan*. (Ex. 1002, ¶¶ 99-100.) As discussed above for claim 3 in Ground 1 *Logan* teaches broadcaster-embedded marking signals that specify the preset presentation rate predetermined by the broadcaster. (*Supra* Section IX.A.1.c; Ex. 1002, ¶¶ 52-57.) While *Logan* may not explicitly disclose that such signals include an indication they should take effect immediately upon receipt, a POSA would have understood that to be the intention of *Logan*, and would have been motivated to implement *Logan* in this way. (Ex. 1002, ¶¶ 99-100.) This is so because *Logan* relies on the marking signals to control the playback rate associated with particular types of content as such content is broadcast to a user. (Ex. 1005, 11:54-57.) A POSA would have understood that it would not have made sense for the marking signals to take effect any time other than immediately, since otherwise their purpose would be defeated (*e.g.*, while a broadcaster may wish to prevent a user from skipping commercials, as discussed above, if the

> marking signals did not take effect immediately than the user would not be prevented from skipping commercials). (Ex. 1002, ¶¶ 99-100.) Indeed, *Logan* discloses that a user may have to pay for this functionality (Ex. 1005, 13:34-38), and a POSA would have recognized that it would have thus been undesirable for the functionality not to take effect immediately. (*Id.*) A POSA would have recognized this to be a simple design choice that would not have otherwise affected how *Logan* functions. (*Id.*) Moreover, a POSA would have been motivated to make such modification to provide an explicit indication to provide more playback settings for the broadcaster as well as the viewer. (*Id.*) For example, providing such an explicit indication would allow the system to take into account other factors in determining which playback rate input should take precedent. (*Id.*) *See KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 416 (2007).

Pet. 42–44. Petitioner's undisputed showing as to claim 14 is well-supported by the cited passages in Logan and the cited portions of Dr. Schonfeld's Declaration. And, we find Petitioner's reasoning as to how claim 14 would have been obvious in view of Logan to be sound. We find that claim 14 would have been obvious in view of Logan.

2. Claim 16

Claim 16 of the '228 patent recites:

> The method of claim 3 wherein the guidance information comprises a title of the broadcast information and one or more of time value, sample counts, timing-marks, segues, and indicators

> that identify segments or portions of the broadcast information.

Ex. 1001, 43:56–60. With regard to claim 16, the Petition states:

> *Logan* discloses or suggests this limitation. (Ex. 1002, ¶¶ 101-104.) As discussed above with respect to claim 3, *Logan*'s "marking signal" discloses the "guidance information." (*Supra* Sections IX.A.1.c-d; Ex. 1002, ¶¶ 52-60.) Moreover, as discussed above, the "[m]arking signals can carry information on content, to allow screening of violent scenes, to allow deleting of time-outs in sport shows, or to allow editing of shows to show only highlights." (Ex. 1005, 11:54-57.) Marking signals can also "be generated to provide additional information concerning the broadcast programming signal to be used for selectively deleting [a] commercial sequence." (*Id.*, 11:22-24.) Therefore, the system disclosed in *Logan*, for example, "can remove from the captured broadcast programming signal a sequence of commercials that occurs intermittently within the broadcast programming signal." (*Id.*, 11:25-28; *see also id.*, 13:16-30 (discussing marking of commercials).) Therefore, *Logan* discloses "guidance information comprises . . . indicators that identify segments or portions of the broadcast information," as claimed.
>
> To the extent that the Patent Owner may argue that *Logan* does not explicitly disclose the "guidance information" including the "title of the broadcast information," it would have been obvious over *Logan*. (Ex. 1002, ¶¶ 102-104.) For example, *Logan* describes that its system may utilize data

> regarding "a menu of program segments, each corresponding to a particular marking signal. The computer-readable data may also include program segment information, such as a summary, the total length of the broadcast programming signal, the length of the program segment, quality rating of the program segment, number of, and type of or identity of, previous viewers of the program segment, identification of the person monitoring and marking the program, feedback from other viewers or listeners who have already seen or heard the program, etc." (Ex. 1005, 3:8-17; *see also id.*, 13:60-14:1, 14:9-33.) *Logan* also describes that "[t]he marking signal could also include text describing the content of the news segment to follow." (*Id.*, 10:43-45.)

Pet. 44–46. Petitioner's undisputed showing as to claim 16 is well-supported by the cited passages in Logan and the cited portions of Dr. Schonfeld's Declaration. And, we find Petitioner's reasoning as to how claim 16 would have been obvious in view of Logan to be sound. We find that claim 16 would have been obvious in view of Logan.

3. Claim 17

Claim 17 of the '228 patent recites:

> The method of claim 3 wherein the guidance information comprises insistence information that specifies a measure of importance of utilizing presentation rate information contained in the guidance information.

Ex. 1001, 43:61–64. With regard to claim 17, the Petition states:

Logan discloses or suggests this limitation. (Ex. 1002, ¶¶ 105-108.) To the extent that Patent Owner may argue that *Logan* does not explicitly disclose the "insistence information that specifies the measure of importance" feature, it would have been obvious over *Logan*. (*Id.*) As discussed above with respect to claim element 3(d) (*supra* Section IX.A.1.d), *Logan* teaches that its marking signal, which may include a blocking signal, includes information that determines a presentation rate, such as a presentation rate for a commercial by allowing or disallowing a user to fast forward. A POSA reading *Logan* would have readily understood that this information is a form of "insistence information" that indicates the "measure of importance" of whether the user can use certain playback functionalities. (Ex. 1002, ¶¶ 58-60, 105-108.) As such, it would have been obvious for a POSA to have modified *Logan*'s marking signal and blocking signal to include, for example, certain numerical values specifying level of importance in insisting that only particular presentation rate should be allowed for one or more portions of the broadcast program. (*Id.*)

Indeed, such modification would have been an obvious variation of *Logan*'s system because *Logan*'s teaching of marking signal already relates to how the presentation of a broadcast program should be played. (*Id.*) It was well known in the art, for example, to include an additional data point that provides an explicit indication representative of the level of importance that a particular playback rate must be observed. (*Id.*)

Pet. 47–48. Petitioner's undisputed showing as to claim 17 is well-supported by the cited passages in Logan and the cited portions of Dr. Schonfeld's Declaration. And, we find Petitioner's reasoning as to how claim 17 would have been obvious in view of Logan to be sound. We find that claim 17 would have been obvious in view of Logan.

4. Summary as to Asserted Obviousness of Claims 14, 16, and 17 in View of Logan

We conclude, based on Petitioner's arguments and evidence, that Petitioner has shown by a preponderance of the evidence claims 14, 16, and 17 would have been obvious in view of Logan.

F. Asserted Obviousness of Claims 3–7, 9, 12–14, 16, 17, 31, 33, and 34 in View of Logan and De Lang

Petitioner contends that "[t]o the extent that *Logan* is not found to disclose the claimed 'guidance information,' it would have been obvious to combine the teachings of *Logan* and *De Lang* to implement this feature." Pet. 49 (citing Ex. 1002 (Schonfeld Decl.) ¶¶ 110–118). As discussed above, we find that Logan discloses "guidance information" as recited in the challenged claims and that Logan anticipates the challenged claims of the '228 patent. However, for completeness, we consider all grounds of unpatentability presented in the Petition.

In opposing this ground of unpatentability, Patent Owner also relies on its claim construction argument that the independent claims are limited by the preambles to "a client device/apparatus which itself

'utilizes presentation rates to present information at various presentation rates.'" PO Resp. 59, *see also id. at* 61–63. As noted above, we are not persuaded by this claim construction argument and do not construe the preambles of the independent claims as requiring that the client device/apparatus is capable of performing time-scale modification by itself to implement various presentation rates (*i.e.*, smart devices). And, Patent Owner acknowledges that De Lang teaches a system in which the server alters the presentation rate of a media work ("normal, fast display, slow display, winding, rewinding, pause, etc.") "in response to a presentation rate change request by a user at the client device" and that "[t]he *De Lang* client device presents the broadcast information it receives at the rate at which it was encoded at the server and received by the client." PO Resp. 62.

Considering the arguments and evidence of the parties, we conclude that Petitioner has shown by a preponderance of the evidence that claims 3–7, 9, 12–14, 16, 17, 31, 33, and 34 would have been obvious in view of Logan and De Lang.

1. De Lang (Ex. 1006)

De Lang relates to "a video-on-demand system, comprising a video server for transmitting a selected television signal and provided with means for playing back the television signal in one of a plurality of playback modi defined by operating signals" and "a user station for receiving and displaying the television signal, and provided with an operating circuit for generating and transmitting said operating signals to the server." Ex. 1006, 1:1–5. Figure 3 of De Lang is reproduced below.

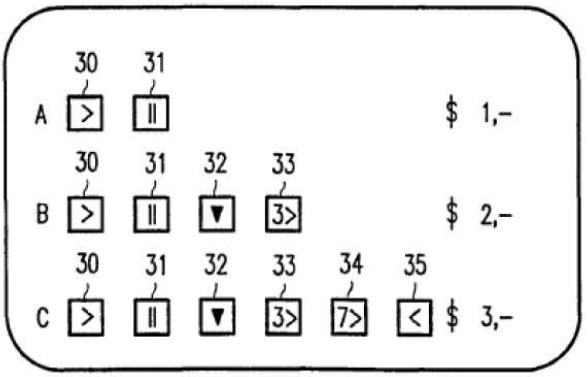

FIG. 3

Figure 3 of De Lang (above) depicts a menu of possibilities for selecting operating data. *Id.* at 2:30. The menu in Figure 3 includes three selection possibilities: selection A, which has only two operating facilities "play" and "stop" denoted by pictograms 30 and 31; selection B, which is more expensive and also provides the possibility of still pictures (pictogram 32) and display at threefold speed (pictogram 33); and selection C, which is the most expensive and provides further functions such as display at a sevenfold speed (pictogram 34) and reverse display (pictogram 35). *Id.* at 4:10–18.

2. Analysis of Independent Claims 3, 31, and 34

A shown above, independent claims 3, 31, and 34 contain limitations reciting "guidance information." Method claim 3 recites, "receiving guidance information relating to presentation of the broadcast information" and "analyzing the guidance information to determine a presentation rate." Ex. 1001, 42:66–43:2. Apparatus claim 31 recites, "a receiver of the broadcast information and guidance information relating to presentation of

the broadcast information" and "a rate determiner that analyzes the guidance information to determine a presentation rate." *Id.* at 44:57–61. Method claim 34 recites, "broadcasting guidance information used to determine a second presentation rate for use by the client device in presentation of the information." *Id.* at 46:5–7.

With regard to whether De Lang teaches "guidance information," Petitioner relies on De Lang's disclosure of a menu in which a user may choose one of three options for playback (*see* Ex. 1006, Fig. 3) and the teachings that "the video server is therefore adapted to transmit operating data to the user station for defining the available playback modi. The operating circuit in the user station is adapted to receive and store the operating data and to generate the corresponding operating signals" (*see id.* at 1:23–26). Pet. 49. The Petition provides the following explanation as to how De Lang processes the user's menu choice to play back the media work:

> *De Lang* further explains that "[t]he selection made by the user is transmitted to the server as a control signal C (*see* Fig. 1)," which is then "received by the server in a step 21," and "[i]n response . . . , the server performs a step 22 in which it transmits operating data corresponding to the selection made to the user station as an operating signal D (see Fig. 1)." (*Id.*, 4:18-22.) This selection allows for a subsequent operation in which "playback of the selected television program is started in a step 24 and the supervisor waits, in a step 25, for an operating signal from the user station. When such an operating signal is received, for example a 'fast display' signal,

> the relevant playback mode is performed in a step 26." (*Id.*, 4:29-5:7.)
>
> The end result in *De Lang* is similar to that in *Logan*. That is, the user is provided certain viewing abilities based, for example, on the user's payment of fees. According to *De Lang*, "a television program interrupted by commercials may be transmitted with operating data rendering only the playback functions 'play' and 'pause' possible. Alternatively, a television program may be transmitted with operating data rendering fast display possible. The latter television program may also comprise commercials, but these can now be skipped by the user or displayed fast." (*Id.*, 1:27-2:5.) In other words, *De Lang* not only allows for commercials to be skipped, but also expressly allows for commercials to be displayed at a higher presentation rate.

Id. at 50–51. We have construed "guidance information" as "information that is used to communicate a playback rate for an entire media work or one or more specific portions of a media work." *Supra* Section II.C. We find that the "operating data" and "operating signal(s)" of De Lang teach "guidance information" as recited in the challenged claims.

With regard to how the relevant teachings of Logan and De Lang are combined, the Petition states, "[b]oth *Logan* and *De Lang* relate to video playback systems that allow personalization, and in viewing *Logan*, a POSA would have had reason to look to *De Lang* to, for example, to [sic] provide users particular playback rate options and implement more detailed levels of user authority that allow personalizing playback" and "a POSA would have appreciated that

De Lang's teaching of multiple levels of viewing authority corresponding to differing payment amounts and differing playback rate options (*e.g.*, fast forward by (x3), fast forward by (x7), reverse) would provide the system in *Logan* with the additional benefit of providing the user express selections of playback options." Pet. 51–52 (citing Ex. 1002 (Schonfeld Decl.) ¶¶ 111–118). With regard to the motivation to combine the relevant teachings of Logan and De Lang, the Petition provides that "to combine the teachings of *Logan* and *De Lang* [would] improve the playback system disclosed in *Logan*" by allowing the user "to select a specific level of authorization and a suite of playback options, including specific presentation rates" and "[a] POSA would have understood *De Lang* as furthering the goal of *Logan* as *De Lang* also discloses the guidance information that explicitly restricts or directs the playback rates at the client device." *Id.* at 52–53.

Patent Owner argues that "Petitioner fails to explain how the proposed guidance information of De Lang would be applied in each instance in which appears [sic] in the challenged claims." PO Resp. 60. Specifically, Patent Owner faults the Petitioner for failing to explain how the menu of De Lang would be implemented in the system of Logan to meet the "guidance information" limitations of the challenged, independent claims. *Id.* at 60–61. However, the Petition provides:

> A POSA would have recognized that in view of *De Lang*, it would have been a predictable and simple modification of *Logan*'s system to have the user select a specific level of authorization and a suite of playback options, including specific

> presentation rates, and accordingly determine whether and to what extent the user can alter its viewing abilities, such as skipping or fast forwarding commercials. (*Id.*) For instance, a POSA would have appreciated that since the marking signal in *Logan* already includes data as to how a video should be played that is sent to the user's device, and since *De Lang* discloses that the express levels of authorized presentation rates are likewise transmitted to the user's device, it would have been a straightforward modification to include levels of authorized presentation rates, like those described in *De Lang*, in the marking signal of *Logan*. (*Id.*) A POSA would have recognized this to be a combination of known prior art elements, according to known methods, to yield predictable results. (*Id.*) *See KSR*, 550 U.S. at 416.

Pet. 52. We find Petitioner's reasoning and explanation sufficient to explain how a skilled artisan would combine the teachings of the cited references. Accordingly, we do not find Patent Owner's argument undermines Petitioner's persuasive showing.

3. Analysis of Dependent Claims 4–7, 9, 12–14, 16, 17, and 33

With regard to the challenged, dependent claims, Petitioner relies on Logan for teaching or suggesting all the features of these claims (*see* Pet. 53–54) and further provides argument and evidence to show how the Logan-De Lang combination teaches or suggests the limitations recited in the challenged, dependent claims (*see id.* at 54–59). Patent Owner does not specifically challenge Petitioner's showing with regard

to the challenged, dependent claims and the combination of Logan and De Lang. *See* PO Resp. 59–63. Petitioner's undisputed showing as to the dependent is well-supported and we conclude that these claims are unpatentable.

4. Summary as to Asserted Obviousness of Claims 3–7, 9, 12–14, 16, 17, 31, 33, and 34 in View of Logan and De Lang

Having considered the arguments and evidence of the parties, we conclude that Petitioner has shown by a preponderance of the evidence that claims 3–7, 9, 12–14, 16, 17, 31, 33, and 34 would have been obvious in view of Logan and De Lang.

G. Asserted Obviousness of Claims 6 and 33 in View of Logan and *Bhadkamkar*

Claims 6 and 33 specifically recite "Time-Scale Modifying" and "Time-Scale Modification," respectively. Ex. 1001, 43:12–15, 45:4–7. Petitioner presents this ground of unpatentability in order to show unpatentability under the limiting constructions of "presentation rate" and "time-scale modifying/time/scale modification" proposed by Patent Owner. *See* Pet. 59–62. As discussed above, we have not adopted the limiting constructions of "presentation rate" and "time-scale modifying/time/scale modification" proposed by Patent Owner. *See supra* Section II.C. However, for completeness, we consider all grounds of unpatentability presented in the Petition.

1. Bhadkamkar (Ex. 1007)

Bhadkamkar is titled "Variable Rate Video Playback with Synchronized Audio," and describes

techniques for varying a display rate of an audiovisual display, for example, by "modify[ing] an original set of audio data in accordance with a target display rate, then modify[ing] a related original set of video data to conform to the modifications made to the audio data set, such that the modified audio and video data sets are synchronized." Ex. 1007, codes (54), (57). The target display rate can be faster or slower than a normal display rate at which an audiovisual display system generates an audiovisual display from the original sets of audio and video data. *Id.* The target display rate can be established solely by a user instruction, by analysis of the audiovisual data, or by modification of a user-specified nominal target display rate based upon analysis of the audiovisual data. *Id.*

2. Claims 6 and 33

For the most part, Petitioner relies on Logan as teaching the limitations of claims 6 and 33. Pet. 59 ("Logan discloses all the limitations of claim 6."), 62 ("Logan discloses or suggests all the limitations of claim 33."). With regard to Bhadkamkar, the Petition states:

> *Bhadkamkar*, discloses various time-scale modification techniques that may be used in order to modify the display rate, including conventional time-scale modification methods where "the apparent display rate of an audiovisual display has been varied by deleting or repeating video data (*e.g.*, video frames) in a uniform manner, as appropriate, and deleting or repeating audio data in a uniform manner that corresponds to the treatment of the video data (*e.g.*, if the

> apparent display rate of the video display is speeded up to 2 times the original display rate by, for example, eliminating every other video frame, then the audio display is likewise speeded up by eliminating every other audio sample or every other set of a predetermined number of audio samples.)." (Ex. 1007, 1:60-2:2.) *Bhadkamkar* also discloses other time-scale modification techniques that improve upon the conventional ones. (*See, e.g., id.*, 2:31-5:16, 10:5-39, 12:17-24.)

Id. at 60. With regard to combining the teachings of Logan and Bhadkamkar, Petitioner asserts, "a POSA would have recognized that it would be beneficial to implement the time-scale modification techniques taught in Bhadkamkar to the system disclosed in Logan to improve the process of modifying playback rates." *Id.* at 61 (citing Ex. 1002 (Schonfeld Decl.) ¶¶ 130–132).

Here again, Patent Owner relies on its claim construction argument that the claims are limited to a "client device, which has the ability to utilize and alter the presentation rate of broadcast information." PO Resp. 63. Specifically, Patent Owner argues that, in Bhadkamkar (as in Logan and De Lang), "the content is dished out *from the server* at whatever rate the user requests—whether that requested rate is simple fast forward or a faster or slower TSM rate" and "[t]he client device then plays it at the rate it was encoded and sent by the server and received by the client device." *Id.* at 64. As noted above, we are not persuaded by this claim construction argument and do not construe the preambles of the independent claims as requiring that the client device/apparatus is capable of performing time-scale modification by

itself to implement various presentation rates (*i.e.*, smart devices).

Considering the arguments and evidence of the parties, we conclude that Petitioner has shown by a preponderance of the evidence that claims 6 and 33 would have been obvious in view of the combination of Logan and Bhadkamkar.

H. Asserted Obviousness of Claims 6 and 33 in View of Logan, *De Lang, and Bhadkamkar*

Claims 6 and 33 specifically recite "Time-Scale Modifying" and "Time-Scale Modification," respectively. Ex. 1001, 43:12–15, 45:4–7. Petitioner relies on this ground of unpatentability "[t]o the extent that Patent Owner may argue that claims 6 and 33 would not have been obvious over either combination [of Logan and De Lang or Logan and Bhadkamkar], they would still have been obvious over Logan, in view of De Lang and Bhadkamkar." Pet. 62 (citing Ex. 1002 (Schonfeld Decl.) ¶¶ 135–137). Although we have found for Petitioner under previously considered grounds, we consider this additional ground for completeness.

Petitioner contends, "*Logan* in combination with *De Lang* and *Bhadkamkar* discloses or suggests the features of claims 6 and 33 for at least the same reasons as presented above for these claims in Grounds 3 and 4 [(*i.e.*, obviousness based on Logan and De Lang, and obviousness based on Logan and Bhadkamkar)]" and "[t]he same analyses presented above for these claims in Grounds 3 and 4 are also applicable for combining *Logan* and *De Lang* and *Bhadkamkar*." Pet. 62–63. Petitioner asserts:

As demonstrated above, a POSA would have been motivated to combine *Logan* with *De Lang* and *Bhadkamkar* to implement the system disclosed in *Logan* with the features of the specific indications of presentation rates as explicitly disclosed in *De Lang* and with the time-scale modification techniques disclosed in *Bhadkamkar*. (*Id.*) For instance, a POSA would have recognized that *Bhadkamkar*'s teaching of time-scale modifying techniques can be implemented in user devices to effectuate the various playback rates as specifically indicated by *De Lang*'s teachings, which together would improve *Logan*'s system of providing personalized broadcast program presentation. (*Id.*) A POSA would have recognized that providing the user with various levels of advanced playback rate options furthers the goal of providing personalization of broadcasting program for the users discussed in *Logan*. (*Id.*) The resulting combination would have been a combination of known elements in known ways that would have yielded predictable results. *See KSR*, 550 U.S. at 416.

* * *

[A] POSA would have understood that *Logan* discloses or suggests modifying the playback rate of a particular portion of the broadcast programming signal to a rate that is not the default (x1) rate, and a POSA would have recognized that implementing *Bhadkamkar*'s teaching of time-scale modification techniques would have improved the combined *Logan-De Lang* system to provide the user more particularized and advanced playback rate modification options for particular portions of a

> broadcast program. (Ex. 1002, ¶¶ 110-127.) It would have been a routine exercise for a POSA to recognize such benefits and to modify the *Logan-De Lang* system to implement *Bhadkamkar*'s teachings to provide personalized presentation of broadcast programs. (*Id.*) *See KSR*, 550 U.S. at 416.

Id. at 63–64. Patent Owner argues that Petitioner has failed to establish why a skilled artisan would combine the relevant teachings of the three cited references. PO Resp. 64–66. We find Petitioner's argument more persuasive. We find Petitioner has presented persuasive reasoning and evidence that shows why the combination would have been made by a skilled artisan.

Considering the arguments and evidence of the parties, we conclude that Petitioner has shown by a preponderance of the evidence that claims 6 and 33 would have been obvious in view of the combination of Logan, De Lang, and Bhadkamkar.

III. Conclusion[26]

For the foregoing reasons, we conclude that a preponderance of the evidence establishes that: (1) claims 3–7, 9, 12, 13, 17, 31, 33, and 34 are anticipated by Logan; (2) claims 14, 16, and 17 would have been obvious in view of Logan; (3) claims 3–7, 9, 12–14, 16, 17, 31, 33, and 34 would have been obvious in view of Logan and De Lang; (4) claims 6 and 33 would have been obvious in view of Logan and Bhadkamkar; and (5) claims 6 and 33 would have been obvious in view of Logan, De Lang, and Bhadkamkar.[27]

IV. Order

In consideration of the foregoing, it is hereby:

ORDERED that claims 3–7, 9, 12–14, 16, 17, 31, 33, and 34 of the '228 patent are unpatentable.

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[26] Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this decision, we draw Patent Owner's attention to the April 2019 *Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding*. *See* 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. *See* 37 C.F.R. § 42.8(a)(3), (b)(2).

[27] In the Petitioner's Reply, Petitioner argues that Patent Owner's "arguments are subject to issue preclusion and the estoppel of 37 C.F.R. § 42.73(d) because the challenged claims of the '228 patent are not patentably distinct from the claims of a related patent that have already been found unpatentable." Pet. Reply 1–2. As we conclude that the challenged claims of the '228 patent are unpatentable on the merits of Petitioner's challenge, we do not consider this argument.

In summary:

Claims	**3–7, 9, 12, 13, 17, 31, 33, 34**
35 U.S.C. §	102
Reference(s)/Basis	Logan
Claims Shown Unpatentable	3–7, 9, 12, 13, 17, 31, 33, 34
Claims Not shown Unpatentable	
Claims	**14, 16, 17**
35 U.S.C. §	103
Reference(s)/Basis	Logan
Claims Shown Unpatentable	14, 16, 17
Claims Not shown Unpatentable	
Claims	**3–7, 9, 12–14, 16, 17, 31, 33, 34**
35 U.S.C. §	103
Reference(s)/Basis	Logan, De Lang
Claims Shown Unpatentable	3–7, 9, 12–14, 16, 17, 31, 33, 34
Claims Not shown Unpatentable	
Claims	**6, 33**
35 U.S.C. §	103
Reference(s)/Basis	Logan, Bhadkamkar

Claims Shown Unpatentable	6, 33
Claims Not shown Unpatentable	
Claims	**6, 33**
35 U.S.C. §	103
Reference(s)/Basis	Logan, De Lang, Bhadkamkar
Claims Shown Unpatentable	6, 33
Claims Not shown Unpatentable	
Overall Outcome	3–7, 9, 12–14, 16, 17, 31, 33, 34

OPINION CONCURRING FILED BY ADMINISTRATIVE PATENT JUDGE PETRAVICK

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GOOGLE LLC,

Petitioner,

v.

VIRENTEM VENTURES, LLC,

Patent Owner.

IPR2019-01244

Patent 6,598,228 B2

Before: Meredith C. PETRAVICK, Jennifer MEYER CHAGNON, and Terrence W. McMILLIN, Administrative Patent Judges.

Opinion Concurring Filed by Administrative Patent Judge Petravick.

I concur with the result of the majority decision.

The majority decision treats all the language in the challenged independent claims as having patentable

weight in its analysis. I write separately to point out that limitations, such as "guidance information," as recited in claim 34 are non-functional descriptive material (NFDM) and are entitled to no patentable weight.

Challenged independent claim 3 recites "[a] method for presentation of information received from a broadcaster by a client device, which device utilizes presentation rates to present information at various presentation rates." Ex. 1001, 42:61–43:3. Challenged independent claim 31 recites an apparatus that corresponds to the method of claim 3. *Id.* at 44:53–64. Challenged independent claim 34 is unlike claims 3 and 31 as it is directed to a method of broadcasting information and not a method of presentation of information by a client device. Claim 34 of the '228 patent recites:

> *A method for broadcasting information* to a client device, which device utilizes presentation rates to present information at various presentation rates, and which method comprises steps of:
>
> > broadcasting information having a first presentation rate; and
> >
> > broadcasting guidance information used to determine a second presentation rate for use by the client device in presentation of the information.

Ex. 1001, 45:8–46:7 (emphasis added). The preamble of claim 34 recites, "[a] method for broadcasting information" and the body of claim 34 contains two steps that recite broadcasting information. But claim 34 does not recite any further steps of using the

information, such a client device receiving, analyzing, and presenting the information as recited in independent claims 3 and 31. In other words, claim 34 only recites broadcasting or sending information.

I determine that the limitations related to the character of content of the information being broadcast (*e.g.*, "guidance information used to determine a second presentation rate for use by the client device in presentation of the information") in claim 34 recite non-functional descriptive material (NFDM) that is entitled to little or no patentable weight.[28] Thus, claim 34 has a much different scope than either claim 3 or 31. Non-functional descriptive material (NFDM) in a claim cannot be relied upon to establish patentability over the prior art. *Ex parte Mathias*, 84 USPQ2d 1276, 1279 (BPAI 2005) (informative) ("[N]onfunctional descriptive material cannot lend patentability to an invention that would have otherwise been anticipated by the prior art."), *aff'd*, 191 F. App'x 959 (Fed. Cir. 2006) (Rule 36); *Ex parte Curry*, 84 USPQ2d 1272, 1274 (BPAI 2005) (informative) ("Nonfunctional descriptive material cannot render nonobvious an invention that would have otherwise been obvious."), *aff'd*, No. 06-1003 (Fed. Cir. June 12, 2006) (Rule 36).

The Federal Circuit has held that, in determining whether claim language is NFDM, "the relevant question is whether 'there exists any new and unobvious functional relationship between the [printed] matter and the substrate.'" *King Pharm., Inc. v. Eon*

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[28] This issue was raised by the Board at the oral argument and both parties were accorded an opportunity to address this issue. Tr. 30–31, 46–54.

Labs, Inc., 616 F.3d 1267, 1279 (Fed. Cir. 2010) (citations omitted). *King Pharmaceuticals* involved a method patent related to the administration of a drug in which the claimed methods recited "informing the patient" that administration of the drug with food increased absorption of the drug.[29] *Id.* at 1277. The patentee argued that the patent should not have been found invalid because it was never found that the "informing" limitation was disclosed in the prior art. *Id.* at 1278. The Federal Circuit affirmed the finding that the claim was invalid as anticipated by prior art showing administration of the drug with food because the "informing" limitation did not depend on the method of administering the drug with food and the method did not depend on the "informing" limitation. *Id.* at 1279. In other words, the relationship between the "informing" limitation and the method of administering the drug with food was not functional. *Id.*

In *In re Distefano*, the Federal Circuit explained:

> The first step of the printed matter analysis is the determination that the limitation in question is in fact directed toward printed matter. Our past cases establish a necessary condition for

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[29] An independent method claim of the patent at issue "requir[ed] the administration of 'a therapeutically effective amount of metaxalone in a pharmaceutical composition with food.'" *King Pharma.*, 616 F.3d at 1274. The dependent claim at issue recited the additional limitation of "informing the patient that administration of a therapeutically effective amount of metaxalone in a pharmaceutical composition with food results in an increase in the maximal plasma concentration (Cmax) and extent of absorption (AUC(last)) of metaxalone compared to administration without food." *Id.* at 1277.

> falling into the category of printed matter: a limitation is printed matter only if it claims the content of information

and

> [o]nly if the limitation in question is determined to be printed matter does one turn to the question of whether the printed matter nevertheless should be given patentable weight. Printed matter is given such weight if the claimed informational content has a functional or structural relation to the substrate.

In re Distefano, 808 F.3d 845, 848–851 (Fed. Cir. 2015).

In *Ex parte Nehls*, 88 USPQ2d 1883, 1891 (BPAI 2008) (precedential), our predecessor Board of Patent Appeals and Interferences found that "merely information being manipulated by a computer" that "do[es] not affect how the method of the prior art is performed" "is properly considered to be nonfunctional" descriptive material (NFDM). *Nehls* involved a patent on a system for identifying nucleic acid fragments.[30]

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[30] The claims at issue in *Nehls* recited:

> 13. A computer-based system for identifying nucleic acid fragments of the human genome of commercial importance comprising the following elements:
>
> a) a data storage means comprising the sense or antisense sequence of at least 18 contiguous nucleotides of any one of SEQ ID NOS:9-1,008;
>
> b) search means for comparing a target sequence to each of the sequences of the data storage means of step a) to identify homologous sequence(s); and
>
> c) retrieval means for obtaining said homologous sequence(s) of step (b).

Id. At 1884. The issue was whether the specific sequence of nucleotides (SEQ ID Nos 9-1008) recited in the claim was NFDM. *Id*. at 1888–89. The Board determined that "the descriptive material (SEQ ID NOs) recited in the claims [wa]s not functional material." *Id*. at 1891. The Board reasoned:

> There is no evidence that SEQ ID NOs 9-1008 functionally affect the process of comparing a target sequence to a database by changing the efficiency or accuracy or any other characteristic of the comparison. Rather, the SEQ ID NOs are merely information being manipulated by a computer; the SEQ ID NOs are inputs used by a computer program that calculates the degree of similarity between a target sequence and each of the sequences in a database. The specific SEQ ID NOs recited in the claims do not affect how the method of the prior art is performed–the method is carried out the same way regardless of which specific sequences are included in the database.
>
> * * *
>
> The recited sequences are not functionally related to the computer system carrying out the comparison because the computer compares a target sequence to a database the same way regardless of whether the database includes any of SEQ ID Nos 9-1008: the SEQ ID NOs and the

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14. The system of claim 13, wherein said data storage means comprises a combination of nucleic acid sequences comprising SEQ ID NOS:9-1,008.

Nehls, 88 USPQ2d 1883.

> computer do not depend on each other for their function.

Id. (footnotes omitted).

As shown above, claim 34 contains only two method steps, both reciting broadcasting information. Ex. 1001, 45:8–46:7. These method steps are carried out in the same way regardless of the specific information being broadcast. *See, e.g.*, Ex. 1001, 27:55–31:51 (describing the recipient devices, not the broadcaster, using the guidance information). The function of "broadcasting information" (preamble) does not depend on the content of the "broadcast[] information" (first step of claim 34) or the "broadcast[] guidance information" (second step of claim 34). The "information" (first step of claim 34) and the "guidance information" (second step of claim 34) do not change or affect the function of "broadcasting information" (preamble). The method steps of "broadcasting information having a first presentation rate" (first step of claim 34) or of "broadcasting guidance information used to determine a second presentation rate for use by the client device in presentation of the information" (second step of claim 34) are not functionally different because of the nature or content of the data being broadcast. These steps would be functionally identical no matter the nature of the data being broadcast. We determine that the recited "broadcasting information having a first presentation rate" (first step of claim 34) and the "broadcasting guidance information used to determine a second presentation rate for use by a client device in presentation of the information" (second step of claim 34) in the context of claim 34 are non-functional descriptive material (NFDM).

Patent Owner acknowledges that "Logan teaches broadcasting signals." Tr. 52:9–10. As the "broadcasting information" limitations of claim 34 recite the content of information and, in claim 34, do not functionally affect the "method of broadcasting information," the "broadcast[] information" is nonfunctional descriptive material (NFDM) that cannot serve to distinguish the claimed invention from the prior art. The "broadcast[] information" lacks a new (or nonobvious) functional relationship to the "broadcasting information" steps.

Accordingly, for this additional reason, I find that Petitioner has shown by a preponderance of the evidence that claim 34 is anticipated by Logan and obvious in view of Logan and De Lang.

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USPTO FINAL WRITTEN DECISION
IPR2019-01245, '188 PATENT
(JANUARY 26, 2021)

Paper 41
Date: January 26, 2021

UNITED STATES PATENT AND
TRADEMARK OFFICE

BEFORE THE PATENT TRIAL
AND APPEAL BOARD

GOOGLE LLC,

Petitioner,

v.

VIRENTEM VENTURES, LLC,

Patent Owner.

IPR2019-01245
Patent 7,100,188 B2

Before: Meredith C. PETRAVICK,
Terrence W. McMILLIN, and Garth D. BAER,
Administrative Patent Judges.

JUDGMENT
Final Written Decision
Determining All Challenged Claims Unpatentable
35 U.S.C. § 318(a)

McMILLIN, Administrative Patent Judge.

I. Introduction

A. Background and Summary

Google LLC ("Petitioner")[1] filed a Petition to institute an *inter partes* review of claims 1, 2, 4, and 7 of U.S. Patent No. 7,100,188 B2 (Ex. 1001, the "'188 patent") pursuant to 35 U.S.C. § 311 *et seq*. Paper 2 ("Petition" or "Pet."). Virentem Ventures, LLC ("Patent Owner") filed a Preliminary Response to the Petition. Paper 10 ("Prelim. Resp."). On February 4, 2020, we instituted trial. Paper 14 ("Inst. Dec."). Patent Owner filed a Response. Paper 27 ("PO Resp."). Petitioner filed a Reply. Paper 29 ("Pet. Reply"). Patent Owner filed a Sur-reply. Paper 31 ("PO Sur-reply"). An oral argument was held on November 9, 2020, and a transcript was entered into the record. Paper 40 ("Tr.").

We have jurisdiction to conduct this *inter partes* review under 35 U.S.C. § 6. This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. For the reasons discussed herein, we determine that Petitioner has shown, by a preponderance of the evidence, that claims 1, 2, 4, and 7 of the '188 patent are unpatentable.

B. Related Matters

The parties indicate that the '188 patent has been asserted in the following case filed in the United States District Court for the District of Delaware on November 9, 2018: *Virentem Ventures, LLC v. YouTube,*

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[1] Petitioner identifies Google LLC and YouTube LLC as the real parties-in-interest to this proceeding. Pet. 1.

LLC, Case No. 1:18-cv-00917. Pet. 1; Paper 4, 1. The District Court case has been stayed through the issuance of final written decisions by the Board. Ex. 2044, 1.

C. The '188 Patent

The '188 patent is titled, "Method and Apparatus for Controlling Time-Scale Modification During Multi-Media Broadcasts." Ex. 1001, code (54). By way of background, the '188 patent explains that digitally encoded audio and audio-visual works are stored as data on servers (such as file servers or streaming media servers) that are accessible via the Internet for users to download. *Id*. at 1:30-33. The '188 patent further explains that streaming is a multimedia play-back technique that involves downloading data and initiating playback before the entire work has been received. *Id*. at 1:50-52. Streaming is advantageous because the viewer/listener does not need to wait for the entire work to be downloaded before any portion of the work may be played. *Id*. at 1:54-62. The '188 patent identifies two disadvantages of streaming: (1) playback is often interrupted when the flow of data is interrupted due to network traffic, congestion, transmission errors, and the like; and (2) a user or client is required to poll for additional data according to its rate of use of the data, and thus a user or client using data at a rapid rate has to make additional requests for data at a higher rate than a user or client using the data at a slower rate. *Id*. at 1:62-2:8. The '188 patent describes two prior art methods for broadcasting a work from a media server to multiple clients requesting data at arbitrary times. *Id*. at 2:9-13. A first prior art approach is to re-broadcast the work at regular intervals, which is problematic because

clients must join a re-broadcast in the middle of the audio or audio-visual work currently being broadcast, or wait for the next re-broadcast to begin. *Id*. at 2:14-22. A second prior art method initiates a re-broadcast of the audio or audio-visual work each time a client requests to view the audio or audio-visual work, so clients don't have to wait to view the start of the work. *Id*. at 2:24-28. A problem with the second method is that the media server must monitor, track and fulfill the request of each client requesting data individually, which causes a dramatic increase in server load and limits the media server's capacity. *Id*. at 2:28-35. The '188 patent further describes a need in the art for control of presentation rates of broadcast multi-media. *Id*. at 2:46-48. As an example, users may wish to have important public service or emergency broadcasts played at playback rates below the normal playback rate to aid in comprehension. *Id*. at 2:48-54. The '188 patent further describes a need in the art for providing different delivery times for specific types of content, such as commercial advertisements, station identification, violence, nudity, adult language, program schedule information, and program information pertaining to audience suitability or content. *Id*. at 2:60-67.

One embodiment of the '188 patent is a method for presenting broadcast information comprising steps of (a) receiving broadcast information; (b) receiving guidance information relating to presentation of the broadcast information; (c) paying for a capability to alter or override at least a portion of the guidance information; (d) receiving user input to alter or override at least some of the guidance information; (e) analyzing the guidance information, the capability, and

the user input to provide one or more presentation rates; and (f) presenting the information at the one or more presentation rates. *Id.* at 3:7-17. Figure 2 of the '188 patent is reproduced below.

FIG. 2

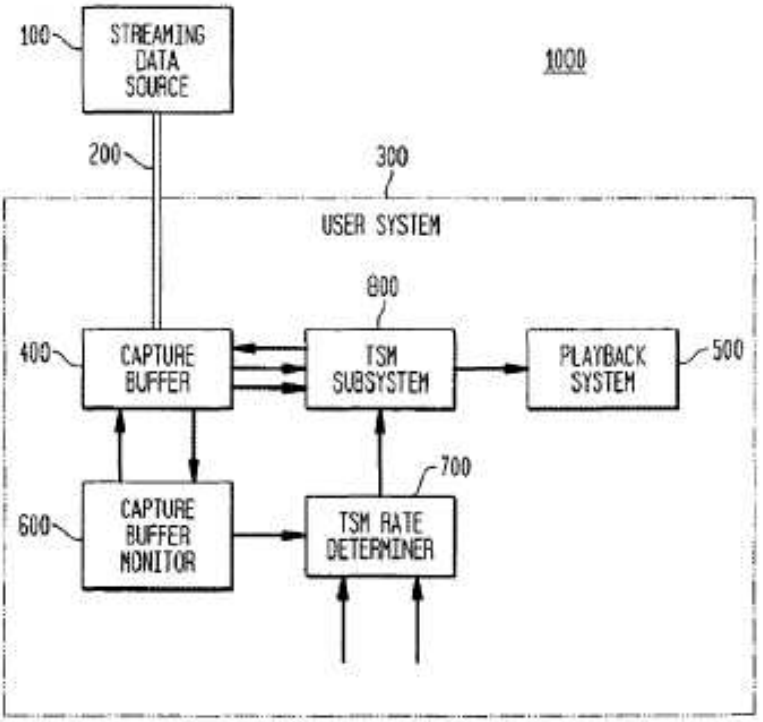

Figure 2, above, depicts "a block diagram of an embodiment of the present invention, which provides substantially continuous playback of an audio or audio-visual work received from a source having non-deterministic delays such as a server (for example, a file server or a streaming media server) broadcasting data via the Internet." *Id.* at 3:25-30. Streaming data source 100 provides data representing an audio or audio-visual work through network 200 to User System

300 (US 300), which data is received at a non-deterministic rate by US 300 as input to Capture Buffer 400. *Id*. at 4:48-52. Capture Buffer 400 may be a FIFO (First In First Out) buffer existing, for example, in a general purpose memory store of US 300. *Id*. at 4:53-56. Data input to Capture Buffer 400 is buffered for a predetermined amount of time, for example, from one second to several seconds. *Id*. at 5:9-13. Then, Time-Scale Modification (TSM) methods are used to slow the playback rate of the audio or audio-visual work to substantially match a data drain rate required by Playback System 500 with a streaming data rate of the arriving data representing the audio or audio-visual work. *Id*. at 5:13-17. If a delay occurs during transmission of the audio or audio-visual work from network 200 to US 300 the playback rate is automatically slowed to reduce the amount of data drained from Capture Buffer 400 per unit time. *Id*. at 5:25-33. This technique advantageously provides more time for data to arrive at US 300 before the data in Capture Buffer 400 is exhausted, which would cause Playback System 500 to pause. *Id*. at 5:33-38.

Capture Buffer 400 receives media data input from network 200 and media stream data requests from TSM System 800. *Id*. at 5:39-43. Capture Buffer 400 outputs, to TSM System 800, a stream of data representing portions of an audio or audiovisual work and a stream of location information used to identify the position in the stream of data. *Id*. at 5:44-48. Capture Buffer 400 also receives requests for information about the amount of data stored therein from Capture Buffer Monitor 600 and responds with the amount of data stored therein. *Id*. at 5:39-50.

TSM Rate Determiner 700 receives a signal from Capture Buffer Monitor 600 that represents the amount of data present in Capture Buffer 400. *Id.* at 5:60-64. TSM Rate Determiner 700 produces as output a rate signal representing a TSM rate, or playback rate, which can help better balance the data consumption rate of Playback System 500 with an arrival rate of data at Capture Buffer 400. *Id.* at 6:6-10. TSM System 800 modifies the input stream of data in accordance with well-known TSM methods to produce, as output, a stream of samples that represents a Time-Scale Modified signal. *Id.* at 6:46-49.

The '188 patent further describes the use of Presentation Rate Guidance Information ("PRGI") that is broadcast in conjunction with an audio or audio-visual work from a broadcast server to restrict, or direct, playback rates at a client device receiving the audio or audio-visual work. *Id.* at 28:10-14. PRGI is information that is used to communicate a playback rate for an entire media work or one or more specific portions of the media work. *Id.* at 28:63-65. PRGI may include "presentation rate insistence information" that specifies the importance of utilizing the "presentation rate information" contained in the PRGI. *Id.* at 29:43-45. For example, "presentation rate insistence information" may comprise codes that indicate distinct levels such as, "mandatory," "strongly-encouraged," "suggested," and "optional." *Id.* at 29:45-49. As other examples, the "presentation rate insistence information" may comprise a number on a standard scale known to all recipient devices or a number, representing an increment, decrement, or scale factor that is applied to the current insistence level and

that should take effect immediately upon receipt. *Id.* at 29:49-57.

Figure 14 of the '188 patent is reproduced below.

FIG. 14

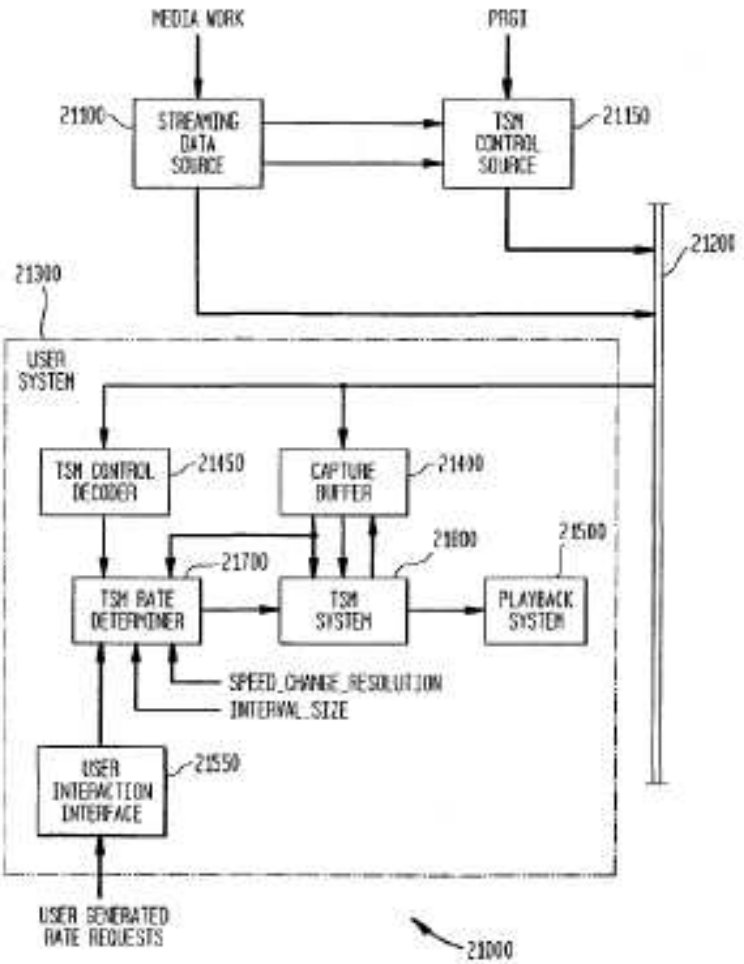

Figure 14, above, depicts a system 21000 including TSM Control Source 21150, which receives PRGI

information and outputs PRGI information to identified client devices. *Id.* at 32:50-33:1. User System 21300 accesses Network 21200 and receives information containing media data and the PRGI from Streaming Data Source 21100 and TSM Control Source 21150, respectively, via Network 21200. *Id.* at 33:53-57. In one embodiment of the '188 patent, the number 3 represents "mandatory," the number 2 represents "strongly-encouraged," the number 1 represents "suggested," and the number 0 represents "optional." In this embodiment, User System 213000 allows playback rate values with accompanying insistence values less than 3 to be overridden by user input, whereas playback rate values that have an accompanying insistence value of 3 would not be alterable either by user input, or apparatus in User System 21300 since these values are deemed mandatory. *Id.* at 36:36-43. The '188 patent further describes that users may pay to change the state of their User Systems and thus obtain the ability to alter or override the suggested guidance information provided by TSM Control Source 21150. *Id.* at 36:48-51. For example, User System 21300 may employ a time-base service in which the user of the recipient device must pay for the ability to override the guidance information provided by TSM Control Source for a fixed amount of time. *Id.* at 36:59-63.

D. Challenged Claims

Petitioner challenges claims 1, 2, 4, and 7 of the '188 patent. Pet. 2-3. Of the challenged claims, claim 1 is the only independent claim. Ex. 1001, 43:6-43:38. Claim 1 recites:

> 1. A method for presentating [sic] information received from a broadcaster by a client device, which client device utilizes presentation rates to present information at various presentation rates, and which method comprises steps of:
>
> receiving broadcast information;
>
> receiving guidance information relating to presentation of the broadcast information;
>
> analyzing the guidance information and state values accessed by the client device to provide one or more presentation rates, which state values may be used to alter or override at least a portion of the guidance information; and
>
> presenting the information at the one or more presentation rates.

Id. at 43:6-19. Claims 2 and 4 depend directly from claim 1 and claim 7 depends from claim 2. *Id.* at 43:20-38.

E. Prior Art and Asserted Grounds

Petitioner asserts that claims 1, 2, 4, and 7 would have been unpatentable on the following grounds:

Claim(s) Challenged	35 U.S.C. §[2]	Reference(s)/Basis
1, 2, 7	102	Logan[3]

[2] Because the application leading to the '188 patent was filed before March 16, 2013, patentability is governed by the versions of 35 U.S.C. §§ 102 and 103 preceding the Leahy-Smith America Invents Act ("AIA"), Pub L. No. 112-29, 125 Stat. 284 (2011).

4	103	Logan
1, 2, 4, 7	103	Logan, De Lang[4]

II. Analysis

A. Legal Standards

In order for a prior art reference to anticipate an invention, it must disclose every limitation of the claimed invention, either explicitly or inherently. *In re Schreiber*, 128 F.3d 1473, 1477 (Fed. Cir. 1997). Anticipation "requires that every element and limitation of the claim was previously described in a single prior art reference, either expressly or inherently, so as to place a person of ordinary skill in possession of the invention." *Sanofi-Synthelabo v. Apotex, Inc.*, 550 F.3d 1075, 1082 (Fed. Cir. 2008) (citing *Schering Corp. v. Geneva Pharms., Inc.*, 339 F.3d 1373, 1379 (Fed. Cir. 2003); *Cont'l Can Co. USA v. Monsanto Co.*, 948 F.2d 1264, 1267-69 (Fed. Cir. 1991)). "[U]nless a reference discloses within the four corners of the document not only all of the limitations claimed but also all of the limitations arranged or combined in the same way as recited in the claim, it cannot be said to prove prior invention of the thing claimed and, thus, cannot anticipate under 35 U.S.C. § 102." *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1371 (Fed. Cir. 2008).

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[3] US Patent No. 7,055,166 B1 filed Jan. 27, 1999 (Ex. 1005).

[4] International Patent Application Publication No. WO 97/03521 published Jan. 30, 1997 (Ex. 1006).

A patent claim is unpatentable under 35 U.S.C. § 103(a) if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including: (1) the scope and content of the prior art; any differences between the claimed subject matter and the prior art; the level of ordinary skill in the art; and (4) where in evidence, objective evidence of nonobviousness.[5] *Graham v. John Deere Co.*, 383 U.S. 1, 17- 18 (1966). Consideration of the Graham factors "helps inform the ultimate obviousness determination." *Apple Inc. v. Samsung Elecs. Co.*, 839 F.3d 1034, 1048 (Fed. Cir. 2016) (en banc).

"In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable." *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review petitions to identify "with particularity . . . the evidence that supports the grounds for the challenge to each claim")). This burden of persuasion never shifts to Patent Owner. *See Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (discussing the burden of proof in *inter partes* review).

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[5] Neither party presents any argument relating to objective evidence of nonobviousness.

B. Level of Ordinary Skill in the Art

Petitioner contends that a person of ordinary skill would have either "(a) a Master's or doctoral degree in computer science, electrical engineering, or a similar discipline" or "(b) a Bachelor's degree in computer science, electrical engineering, or a similar discipline and at least two years of work experience in content presentation, or a related area." Pet. 3-4 (citing Ex. 1002 (Schonfeld Decl.) ¶¶ 19-20). Patent Owner does not dispute Petitioner's proffer regarding the level of skill in the art. PO Resp. 13 ("Patent Owner accepts Petitioner's proferred level of ordinary skill in the art in analyzing Petitioner's allegations of anticipation and obviousness."). We adopt Petitioner's undisputed contention regarding the level of ordinary skill in the art. Further, we find that the prior art of record reflects the level of skill in the art at the time of the invention. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001).

C. Claim Construction

In an *inter partes* review proceeding, claim terms

> shall be construed using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. [§] 282(b), including construing the claim in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent.

Changes to the Claim Construction Standard for Interpreting Claims in Trial Proceedings Before the Patent Trial and Appeal Board, 83 Fed. Reg. 51,340,

51,340, 51,358 (Oct. 11, 2018) (amending 37 C.F.R. § 42.100(b) effective November 13, 2018) (now codified at 37 C.F.R. § 42.100(b) (2019)). Further, "[a]ny prior claim construction determination concerning a term of the claim in a civil action, or a proceeding before the International Trade Commission, that is timely made of record in the *inter partes* review proceeding will be considered."[6] *Id.*

Under the standard set forth in *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312-19 (Fed. Cir. 2005) (en banc), claim terms are given their ordinary and customary meaning, as would have been understood by a person of ordinary skill in the art at the time of the invention, in light of the language of the claims, the specification, and the prosecution history of record. *See Thorner v. Sony Comput. Entm't Am. LLC*, 669 F.3d 1362, 1365-66 (Fed. Cir. 2012). There is a "heavy presumption," however, that a claim term carries its ordinary and customary meaning. *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002) (citation omitted).

We are also guided by the principle that we only construe claim terms if, and to the extent that, it is necessary for the purpose of the proceeding. See, e.g., *Wellman, Inc. v. Eastman Chem. Co.*, 642 F.3d 1355, 1361 (Fed. Cir. 2011) ("[C]laim terms need only be construed 'to the extent necessary to resolve the controversy.'") (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

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[6] The District Court presiding over the litigation between the parties involving the '188 patent issued an order construing certain claim terms (Ex. 2012), which we have considered.

Petitioner proposes constructions for "broadcast information," "guidance information," and "state value."[7] Pet. 8-10. Patent Owner contends construction of "broadcast information" is unnecessary; contends the preamble of challenged, independent claim 1 is limiting; and proposes a construction for "presentation rate." PO Resp. 13-35. And, Patent Owner proposes a construction for "time-scale modification," a term that is not recited in any claim of the '188 patent, because, Patent Owner argues, "[t]he term 'time-scale modification' is incorporated in all of the claims by virtue of the definition of 'presentation rate.'" *Id.* at 24.

"broadcast information"

The term "broadcast information" is recited in challenged, independent claim 1. Ex. 1001, 43:6-19. Petitioner contends: "[t]he Board should apply the ordinary and customary meaning in view of the specification—i.e., 'information received from a broadcaster.'" Pet. 9. Petitioner provides no reasoning or argument in support of its proposed ordinary and customary meaning (*id.*) that we determine departs from the ordinary and customary meaning because it limits the term to information that is received. But, there is no dispute between the parties relating to the meaning or construction of "broadcast information." *See* PO Resp. 13-14 ("Patent Owner contends that construction of 'Broadcast Information' is not necessary for the final determination of anticipation and

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[7] As discussed *infra*, there is no dispute between the parties as to the constructions of "guidance information" and "state value." PO Resp. 35-36; Pet. Reply 13.

obviousness as alleged in the Petition.").[8] Although we disagree with Petitioner and determine that the ordinary and customary meaning is not limited to information that is received,[9] we agree with Patent Owner that there is no dispute that requires us to further construe "broadcast information."

"guidance information"

The term "guidance information" is recited in challenged, independent claim 1. Ex. 1001, 43:6-19. Petitioner contends "guidance information" means "information broadcast in conjunction with an audio or audio-visual work from a broadcast server to restrict, or direct, playback rates at a client device receiving the audio or audiovisual work." Pet. 10. Petitioner proposed this same construction in the litigation involving the '188 patent and the District Court rejected it. Ex. 2012, 11-12. The District Court said:

> The fifth term is "guidance information" found in the '228 patent family. [Patent Owner] proposes "information that is broadcast to restrict or direct presentation rates." [Petitioner] propose[s] "information broadcast in conjunction with broadcast information from a broadcast server to

[8] The District court did not construe "broadcast information." *See* Ex. 2012, 2-4.

[9] If we were to incorporate Petitioner's proposed construction ("information received from a broadcaster" into the limitation of challenged, independent claim 1 reciting "receiving broadcast information," it would read, "receiving information received from a broadcaster," and, thus, become redundant and confusing.

> restrict, or direct, playback rates at a client device receiving the broadcast information."
>
> The parties agree that the term includes information broadcast to restrict or direct playback or presentation rates. They disagree as to whether that information must be
>
> "broadcast in conjunction with broadcast information from a broadcast server" to a "client device receiving the broadcast information."
>
> [Petitioner] take[s] [its] language from column 27 of the '228 patent. That, however, is not a clear definition — it refers to "an aspect" of the invention. That does not clearly limit it to all aspects of the invention.
>
> In any event, the parties agree that "guidance information" is synonymous with "Presentation Rate Guidance Information" or "PRGI" in the patents. At column 28, lines 42 to 44, the '228 patent states that "PRGI is information that is used to communicate a playback rate for an entire media work or one or more specific portions of the media work." It then goes on to specify embodiments of what the presentation information may be comprised of. The language stating what PRGI is, however, is not an embodiment. It is a definition, and I will adopt it.

Id. (footnote omitted). We find this reasoning persuasive and adopt the construction of "guidance information" that the District Court adopted. *See id.* at 2. "Patent Owner agrees with the Board's[10] [and the District

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10 The Board adopted the District Court's reasoning and construction in the Institution Decision. Inst. Dec. 16.

Court's] construction." PO Resp. 35. In its Reply, Petitioner consents to the Board's (and the District Court's) construction. Pet. Reply 13 ("While [Petitioner] believes its construction of 'guidance information' as discussed in the Petition is correct (Pet., 10), [Petitioner] consents to the Board's [and the District Court's] construction of the same term."). Accordingly, we construe "guidance information" as "information that is used to communicate a playback rate for an entire media work or one or more specific portions of the media work."

"state values"

The term "state values" is recited in challenged claims 1, 2, and 4. Ex. 1001, 43:6-22, 43:25-29. With regard to "state value," the parties propose the Board adopt the following construction: "a value that represents a level of service the user has purchased, or the feature set or model of user system purchased by the user." Pet. 10; PO Resp. 36. This proposed construction is supported by the Specification of the '188 patent, which states: "state values . . . represent a level of service the user has purchased, or the feature set or model of User System 21300 purchased by the user." Ex. 1001, 36:24-27. In addition, this construction was agreed to by the parties in the District Court litigation between them involving the '188 patent and has been adopted by the District Court. *See* Ex. 2012, 1-2. For purposes of this institution decision, we adopt this construction.

"presentation rate" and "time-scale modification"

We analyze the terms "presentation rate" and "time-scale modification" together. The term "presentation rate" is recited in challenged claims 1 and 7. Ex. 1001, 43:6-19, 43:36-38. "Time-scale modification" is not recited in any claim of the '188 patent. *Id.* at 43:6-44:38. However, Patent Owner argues that "[t]he term 'time-scale modification' is incorporated in all the claims by virtue of the definition of 'presentation rate.'" PO Resp. 23-24. Patent Owner contends that "presentation rate" means "the speed at which media is played back in a time-scale modification system" and that "time-scale modification" means "speeding up and slowing down the perceived rate of speech while substantially preserving both intelligibility and the perceived pitch for audio and audio-visual media." *Id.* Petitioner argues that neither of Patent Owner's proposed constructions should be adopted. Pet. Reply 6-10.

Patent Owner argues that its proposed construction of "presentation rate" was agreed to by the parties in the District Court litigation[11] and the

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[11] Petitioner argues that it did not agree to construction of "presentation rate" as "the speed at which media is played back in a time-scale modification system." Pet. Reply 6 ("[A]s the district court observed, there was simply a lack of 'dispute' on the term in light of the court's construction of 'time-scale-modification.'"). However, at the claim construction hearing, the District Court asked Petitioner's counsel if there was an agreement or a dispute as to the construction of "presentation rate." *See* Ex. 1025, 109:3-110:10. Although reluctant to agree to inclusion of "in a time-scale modification system" in the construction, Petitioner's counsel consented to the District Court construing "presentation rate" as "the speed at which media is played back in a time-

adopted by the District Court. PO Resp. 23. Patent Owner provides no additional reasoning or argument in support of its construction of "presentation rate."[12] *Id*.

With regard to "time-scale modification," Patent Owner proposes a construction that it proposed in the District Court and that was rejected by the District Court. Ex. 2012, 8-10. The District Court construed "time-scale modification/time-scale modified" as meaning "speeding up or slowing down the playback rate." *Id*. at 2. Patent Owner does not explain why we should adopt the District Court's construction of "presentation rate" and at the same time incorporate into the challenged claims a definition of "time-scale

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scale modification system." *Id*. In light of this exchange with the District Court, we determine Petitioner agreed to construction of "presentation rate" in the District Court case. Prior to the hearing, Petitioner argued that "presentation rate" needed no construction as "[i]t is simply the rate of presentation of information." Ex. 2011, 8; *see also* PO Resp. 27.

[12] Patent Owner does point out that the Board adopted the District Court's rationale and construction of "presentation rate" in its Decision on Institution in another IPR. PO Resp. 23 (citing IPR2019-01246, Paper 14 (Ex. 2015), 11). However, in that case, there was no dispute between the parties as to the construction of "presentation rate" (*see* Ex. 2015, 11) and the Board relied on the District Court's construction only in making its preliminary decision as to whether to institute trial. In its Decision on Institution, the Board noted that the case was in a preliminary stage and "the Board has not made a final determination with respect to . . . any . . . factual and legal issues" including claim construction. *Id*. at 38. IPR2019-01246 was terminated because the Patent Owner abandoned the contest prior to the Board entering a final written decision (IPR2019-01246, Paper 30) and no final determination as to claim construction was made.

modification" that the District Court rejected. By incorporating a definition of "time-scale modification" that was rejected by the District Court into the challenged claims by adopting the District Court's construction of "presentation rate," we would be construing the claims in a manner inconsistent with the District Court.[13]

Petitioner's position on construction of "presentation rate" is inconsistent with the position it took before the District Court. In this proceeding, Petitioner argues, "[Patent Owner's] construction improperly incorporates limitations into the claims by requiring playback to occur 'in a timescale modification system.' Nothing in the intrinsic or extrinsic record supports reading 'timescale modification system' into the claims." Pet. Reply 6-7. Despite the inconsistencies in Petitioner's position, we agree with Petitioner that "time-scale modification" should not be read into the challenged claims through construction of "presentation rate."

We determine that "presentation rate" should be interpreted according to its ordinary and customary meaning of "the speed of presentation." We believe this meaning is consistent with the portion of the District Court's construction of "presentation rate" as "the speed at which media is played back." As cited previously, there is a heavy presumption that a claim

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[13] Patent Owner argues that the District Court's claim construction is not controlling. PO Sur-reply 13 ("The Delaware district court's ruling should not control because the district court has already agreed that claim construction may need to be revisited to arrive at the correct construction following the IPR proceedings, suggesting that the Board may likely reach a different conclusion.") (citing Ex. 2044, 1-2).

term has its ordinary and customary meaning. *CCS Fitness*, 288 F.3d at 1366. We have not been presented with any evidence to overcome that heavy presumption. Patent Owner cites no intrinsic or extrinsic evidence in support of its proposed construction but instead relies entirely on the agreement of the parties in District Court. PO Resp. 23. Based on our independent analysis of the '188 patent and its file history, we do not discern any support for incorporating "in a time-scale modification system" into the meaning of "presentation rate" as recited in the claims of the '188 patent or otherwise limiting the construction of "presentation rate" from its ordinary and customary meaning. Indeed, construing "presentation rate" to include "in a time-scale modification system" would be contrary to the passage in the Specification of the '188 patent that states:

> Although the detailed description used the terms playback rate[14] and TSM rate, and the terms playback and playback apparatus, *these terms should be understood to include any type of presentation rate* (i.e., a rate of presentation of information) and any type of presentation apparatus. As such, *these terms are to be understood as being used in the broadest sense*.

Ex. 1001, 42:60-66 (emphasis added). And, finally, while Patent Owner does not explicitly abandon its

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14 Patent Owner acknowledges that "[p]layback rate and presentation rate are synonymous." PO Resp. 35 n.9. We agree. And, determine that according "playback rate" and "presentation rate" the same meaning supports our conclusion that "presentation rate" should be construed as having its ordinary and common meaning of "the speed of presentation" (*i.e.*, not including "in a time-scale modification system").

argument from its Response that the construction of "presentation rate" includes "in a time-scale modification system," Patent Owner states in its Sur-reply that "at a minimum, 'presentation rate' should be construed as 'the speed at which media is played back' in accord with portion [sic] of the agreed construction that Petitioner does not challenge here." PO Sur-reply 10.

Thus, we construe the term "presentation rate" differently than the District Court, because the records in the District Court case and in this proceeding relating to construction of "presentation rate" are different. In the District Court proceeding, there was a construction of "presentation rate" that was agreed to by the parties. *See Ex.* 1025, 109:3-110:10. In this proceeding, there is a dispute between the parties as to the construction of "presentation rate." *Compare* PO Resp. 23, *with* Pet. Reply 6-7. However, our conclusion that the challenged claims of the '188 patent would have been unpatentable in view of the asserted art would not be different under either our construction or the District Court's construction of "presentation rate."

Having determined that the proper construction of "presentation rate" in the challenged claims of the '188 patent does not include "in a time-scale modification system," we nonetheless construe "time-scale modification" in light of Petitioner's agreement before the District Court to the construction of "presentation rate" as "the speed at which media is played back in a time-scale modification system." We reject Patent Owner's proposed construction of "time-scale modification system," because we discern no basis for limiting the claims of the '188 patent to

"speeding up and slowing down the perceived rate of speech while substantially preserving both intelligibility and the perceived pitch for audio and audio-visual media" through recitation of "presentation rate" as requested by Patent Owner. *See* PO Resp. 24-27.

As in the District Court, "[t]he dispute here is over [Patent Owner's] attempt to read in 'preserving both intelligibility and the perceived pitch.'" Ex. 2012, 8. However, as the District Court noted, "[t]he terms 'intelligibility' and 'pitch' do not appear in either the '903 or '228 patent family.[15] In fact, the term 'pitch' does not appear in any of the asserted patent families." *Id*. The District Court said:

> [Patent Owner] attempts to read those terms into time-scale modification through the '769 patent, an earlier patent unrelated to the asserted patents but incorporated by reference in an example in the specification. The '769 patent is about an improvement to prior art time-scale modification methods. That it was an improvement on time-scale modification methods sheds light on what time-scale modification means generally to a person of ordinary skill. For example, the '769 patent states that "[t]he present invention relates to a method of time-scale modification ('TSM'), i.e., changing the rate of reproduction of a signal" before going on to explain the improvement with more particularity.
>
> In litigation involving the '769 patent in California, the term "time-scale modification" was disputed. [Patent Owner's] predecessor argued that the

15 The '188 patent is in the '228 patent (US Patent No. 6,598,228) family. *See* Ex. 1001, code (63).

definition of "time-scale modification" in that patent did not include preserving pitch and argued that the specification of the '769 patent provided a "clear statement" of a definition - one that did not include anything about pitch. It did so in order to argue that the invention in the '769 patent was a specific type of time-scale modification that preserves pitch.

The court in California agreed with the plaintiff in that case and did not read pitch into the meaning of the general term "timescale modification" and construed the term to mean "speeding up or slowing down the playback rate." The plaintiff in the California case stated that it "proposed a clear definition [16] i.e., the definition [Petitioners] here propose[17] drawn directly from the patent specification. . . . In fact the specification [17] of the '769 patent][17] very clearly uses the term 'time-scale modification' to refer only to the speeding up or slowing down playback of a signal." The court in California concluded that that construction was supported by the use of the term in the claims and the specification.

I find that Court's reasoning persuasive. In addition, I find that the construction of time-scale modification that does not require preservation of intelligibility and pitch is supported by the intrinsic evidence of the asserted patents here.

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16 Bracket in original.

> For example, the description of "time-scale modification" at column 2, lines 24 through 28 of the '050 specification[[17] in the '903 patent family][17] states that "Presentation Time and Data Time are identical in traditional players, because traditional players can only present media content at a fixed 'normal' rate. However, when a player is enhanced with a Time-Scale Modification (TSM) capability, it can present media content at various rates."
>
> Similarly, at column 5, lines 12 to 21, the '885 specification [in the '228 patent family][17] states: "Time-Scale Modification (TSM) methods are used to slow the playback rate of the audio or audiovisual work to substantially match a data drain rate required by Playback System 500 with a streaming data rate of the arriving data representing the audio or audio-visual work. As is well known to those of ordinary skill in the art, presently known methods for TimeScale Modification ('TSM') enable digitally recorded audio to be modified so that a perceived articulation rate of spoken passages, i.e., a speaking rate, can be modified dynamically during playback."[18]

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17 The quoted passage appears at column 5, lines 13-22, of the '188 patent

18 The '888 patent family includes four patents asserted by the Patent Owner in the District Court case. *See* Ex. 2012, 7 n.4 ("The '888 patent family includes U.S. Patent Nos. 6,801,888 ('the '888 Patent'), 7,299,184 ('the '184 Patent'), 7,043,433 ('the '433 Patent') and 9,185,380 ('the '380 Patent').").

> None of these descriptions of time-scale modification mentions preservation of pitch or intelligibility.
>
> That patents in the '888 family[18] refer to intelligibility does not change the result. In the background of the invention of the '888 patent, it states that "[p]resently known methods for Time-Scale Modification ('TSM') enable digitally recorded audio to be modified so that a perceived articulation rate of spoken passages, i.e., a speaking rate, can be modified dynamically during playback." It then goes on to discuss listener directed TSM [or LD-TSM] in which the intelligibility is preserved. That a version of TSM preserves intelligibility does not, however, mean that TSM in general also must.
>
> Similarly, that the '888 patent refers to it being well-known that "presently known methods for Time-Scale Modification ('TSM')" enable modification of articulation rate does not change the analysis. That refers to articulation rate. It's a rate — which refers to speed. And that is consistent with how that term is used in the '888 specification, which refers to articulation rate as, "i.e., a speaking rate, can be modified dynamically during playback."
>
> Finally, I note that [Patent Owner's] construction is problematic insofar as it requires 'substantially preserving pitch." It is wholly unclear what "substantially" means in the context of these patents.

Ex. 2012, 8-10 (footnotes omitted). We find the District Court's reasoning persuasive and we adopt it and the

District Court's construction of "time-scale modification" as "speeding up or slowing down the playback rate." *Id*. at 8.

Patent Owner also argues that skipping is not within the scope of "presentation rate." PO Resp. 27-35. Patent Owner contends, "the '188 Patent specification does not disclose that 'skipping' is a 'presentation rate.'" *Id*. at 31. This is incorrect. In Figure 16 of the '188 patent,[19] "skip" is a rate or "speed value" shown under the headings "ABSOLUTE [playback rate values" and "INCREMENTAL [playback rate values]" in table 30100. *See* Ex. 1001, 35:9-11 ("As further shown in FIG. 16, Playback Rate Look-up Table 30100 comprises absolute playback rate values and incremental playback rate values.") In addition, the Specification of the '188 patent describes methods of "playback rate adjustment for an audio-visual work" in which "frames are skipped." *Id*. at 7:37-48. This passage from the Specification of the '188 patent provides:

> As one of ordinary skill in the art can readily appreciate, whenever embodiment 1000 provides playback rate adjustments for an audio-visual work, TSM System 800 speeds up or slows down visual information to match the audio in the audio-visual work. To do this in a preferred embodiment, the video signal is "Frame-sub-sampled" or "Frame-replicated" in accordance

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[19] Figure 16 relates to the embodiment shown in Figure 14 of the '188 patent. Ex. 1001, 4:24-27. Figure 14 is the embodiment in the '188 patent that Patent Owner argues relates to the challenged claims. *See, e.g.*, PO Resp. 20 n.4 ("[I]t is Figure 14 that relates to the challenged claims.").

> with any one of the many methods known to those of ordinary skill in the prior art to maintain synchronization between the audio and visual portions of the audio-visual work. Thus, if one speeds up the audio and samples are requested at a faster rate, the frame stream is subsampled, i.e. *frames are skipped*.

Id. (emphasis added); *see also id*. at 6:46-52 ("In accordance with the present invention. . . . The Time-Scale modified output signal contains fewer samples per block of input data if Time-Scale Compression is applied."). In addition, the Specification of the '188 patent describes skipping as an alternative to fast-forwarding. *See id*. at 31:16-21 ("If the presentation of a media work occurs after the expiration date contained in the 'time-stamp information,' the outdated 'playback rate insistence information' may be ignored, overridden, or altered to allow users to *skip* or fast-forward through that portion of the work.") (emphasis added). Thus, Patent Owner's contention that the Specification of the '188 patent does not disclose that skipping is a "presentation rate" is contradicted by passages in the Specification that do so. Based on these passages in the Specification of the '188 patent, we determine that it would be inappropriate to exclude skipping from the ordinary and customary meaning of "presentation rate."

Although it does not appear that the issue of whether the term "presentation rate" as recited in the claims of the '188 patent excludes skipping was considered by the District Court, the District Court did construe "rate which causes a portion to be skipped"

from the claims of the '433 patent[20] (US Patent No. 7,043,433) as "a rate of infinity or other indicium that will be similarly translated which directs the presentation system to skip a portion" at the request of Patent Owner. *See* Ex. 2012, 14- 15.[21] Patent Owner argues that it is improper to rely on the "unrelated" '433 patent "to construe the scope of the '188 patent." PO Resp. 30-31. However, we determine that, along with the Specification of the '188 patent, the District Court's construction supports our conclusion that the ordinary and customary meaning of "presentation rate" as recited in the claims of the '228 patent should not be limited so as to exclude a rate of infinity or skipping.

Preamble of Claim 1

Patent Owner contends that the preamble of challenged, independent claim 1 is limiting. PO Resp. 14-23. The preamble of claim 1 recites:

> A method for presentation of information received from a broadcaster by a client device, *which client device utilizes presentation rates to present information at various presentation rates*, and which method comprises steps of:

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[20] The '433 patent (US Patent No. 7,043,433) is a patent asserted in the District Court litigation but contains a different disclosure than the '188 patent and is not in the '228 patent family. *See* Ex. 2012, 7 n.4.

[21] Before the District Court, Patent Owner agreed to a construction of "presentation rate" that did not specifically address whether the term should exclude skipping. Ex. 1025, 109: 3-13.

Ex. 1001, 43:6-9 (emphasis added). Patent Owner's argument focuses on the highlighted language in the preamble of claim 1. *See* PO Resp. 14.

Patent Owner presented the same or a similar argument in its Preliminary Response. *See, e.g.,* Prelim. Resp. 21 (characterizing the language in the preamble as the "'smart client' limitation"). In the Institution Decision, the Board considered this argument and preliminarily rejected it. Inst. Dec. 20 ("At least at this stage of this proceeding, we do not find the preambles of the claims limit the invention to 'smart devices.'").[22]

In response to this argument, Petitioner argues:

> In addressing the preamble of claim 1, [Patent Owner] muddies two separate issues and attempts to portray them as one. (Resp., 14-23.) The first is whether the preambles are limiting at all. The second is whether the preambles' recitation that the client device "utilizes presentation rates to present information at various presentation rates" should be further narrowed to require the client device to be capable of performing time-scale modification by itself to implement these various presentation rates. The former is irrelevant, as [Petitioner's] petition addressed the preambles, and the latter is incorrect.

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[22] It does not appear that the Patent Owner raised this claim construction issue before the District Court and it does not appear that the District Court considered this issue or made any related rulings. *See generally* Ex. 2012 (District Court's claim construction order).

Pet. Reply 3. We agree with Petitioner. As discussed below, Petitioner has established that all the elements of the preamble of challenged, independent claim 1 are disclosed in the cited art. And, it would be contrary to ordinary and customary meaning of the language of the preamble and the disclosure in the Specification to limit the claims to systems in which the client device is capable of performing time-scale modification by itself to implement various presentation rates (i.e., smart devices).

The relevant language in the preamble recites that a "client device utilizes presentation rates to present information at various presentation rates." Ex. 1001, 43:7-9. Considering and incorporating the ordinary and common meaning of "presentation rate" as "the speed of presentation," the preamble language becomes a "client device that utilizes the speeds of presentation to present information at various speeds of presentations." Based on this interpretation, we determine that the preamble language, if limiting, only requires that the client device be capable of using the speeds at which information is presented to present the information at various speeds. Accordingly, we reject Patent Owner's contention that the preamble limits the scope of the claims to client devices that are capable of performing time-scale modification ("speeding up or slowing down the playback rate") wherein the modification is performed by the client device itself. *See* PO Resp. 14-23. A client device that is capable of receiving information at various speeds and presenting at various speeds meets this preamble language, even if the client device itself cannot modify the playback rate (i.e., the

client device is "dumb" (can only present the information at the speeds at which it is received)).

We also reject Patent Owner's contention that the intrinsic evidence (the Specification and file history) supports limiting the claims to "smart devices"—a client device that can perform time-scale modification. *See* PO Resp. 17-23. First and foremost, the Specification of the '188 patent directly contradicts this contention. The Specification of the '188 provides:

> It is within the spirit of the present invention that embodiments of the present invention include embodiments where the playback system is replaced by a distribution system, which distribution system is any device that can receive digital audio or audio-visual works and redistribute them to one or more other systems that replay or redistribute audio or audio-visual works. In such embodiments, the playback system is replaced by any one of a number of distribution applications and systems which are well known to those of ordinary skill in the art that further distribute the audio or audio-visual work. *It should be understood that the devices that ultimately receive the re-distributed data can be "dumb" devices that lack the ability to perform Time-Scale modification or "smart" devices that can perform Time-Scale Modification*.

Ex. 1001, 26:51-65 (emphasis added). Patent Owner, in reliance on "the limiting nature of the preamble," argues that this portion of the Specification should not be used to construe claim 1, because it relates to embodiments in the Specification in which "time-scale modification is performed at the server, and then time-scale modified versions of content are transmitted

to a client device." PO Resp. 19. As discussed above, we determine that the language of the preamble does not limit claim 1 to time-scale modification at the client device. And, "there is strong presumption against a claim construction that excludes a disclosed embodiment." *Nobel Biocare Servs. AG v. Instradent USA, Inc.*, 903 F.3d 1365, 1381 (Fed. Cir. 2018) (quoting *In re Katz Call Processing Pat. Litig.*, 639 F.3d 1303,1324 (Fed. Cir. 2011). Patent Owner has not overcome this presumption.

Moreover, the description of the Figure 14 embodiment that Patent Owner relies upon (*see* PO Resp. 18-19) also contradicts this argument. The description of Figure 14 in the Specification provides:

> *FIG. 14 shows a block diagram of embodiment 21000* of the present invention which transmits PRGI in an "out of band" mode to client devices receiving the media data.
>
> * * *
>
> Note that *all or some components of embodiment 21000 may exist in separate locations*, which components are connected to one another via a network or any other communication means (where the use of the term means is used in the broadest sense possible.)
>
> * * *
>
> TSM Rate Determiner 21700 [as shown in Figure 14 (Ex. 1001, 38:13-14)] may process the PRGI from TSM Control Decoder 21450 according to rule-sets or other algorithms specified by . . . (iii) a device programmed by the broadcaster *which may exist in the client apparatus or elsewhere*.

* * *

> Conversely, *components of embodiment 21000 may exist in separate locations* connected to one another via a network or any other communication means (where the use of the term means is used in the broadest sense possible).

Ex. 1001, 32:8-10, 32:26-31, 38:50-55, 39:47-50 (emphasis added). Although these passages are sufficient to show the claims should not be limited as Patent Owner contends, there are multiple other passages in the Specification that contradict Patent Owner's proposed construction.

With regard to Patent Owner's argument that the prosecution history supports its proposed, limiting construction (*see* PO Resp. 21-23), the Board considered this contention in its Institution Decision and determined otherwise. Inst. Dec. 17-19. We have considered the additional arguments and evidence in Patent Owner's Response relating to this contention showing the Applicant's reliance on the preamble to distinguish the invention from the art cited during prosecution (*see* PO Resp. 21-23), but determine it does not dictate a different result. The intrinsic evidence as a whole, the ordinary and customary meaning of the language in the preamble, and the repeated statements in the Specification not to limit the invention as argued by Patent Owner substantially outweigh the evidentiary value of these statements by Applicant during prosecution. This is particularly true in this case because, as pointed out in the Institution Decision (*see* Inst. Dec. 17), the Examiner relied on language outside the preamble in allowing the independent claims. *See* Ex. 1004, 15 (Examiner's statement of reasons for allowance).

For these reasons, we determine that the preamble does not limit the scope of challenged, independent claim 1 to "smart devices"— client devices that are capable of performing time-scale modification ("speeding up or slowing down the playback rate") wherein the modification is performed by the client device itself.

D. Asserted Anticipation of Claims 1, 2, and 7 Based on Logan

Petitioner challenges claims 1, 2, and 7 as anticipated by Logan. Pet. 2, 11-25.

1. Logan (Ex. 1005)

Logan was filed on January 27, 1999, and issued on May 30, 2006. Ex. 1005, codes (22), (45). The earliest priority date claimed for the '188 patent is based on a filing date of May 26, 1999. Ex. 1001, code (63). Therefore, Logan is prior art to the '188 patent under at least 35 U.S.C. § 102(e)(2). *See* Pet. 3. Logan was not considered by the Office during prosecution of the '188 patent. Ex. 1001, code (56); *see* Pet. 3. Patent Owner does not contest the prior art status of Logan. *See generally* PO Resp.

Logan is titled, "Apparatus and Methods for Broadcast Monitoring." Ex. 1005, code (54). Logan is directed to "editing the content of a broadcast programming signal to provide a proprietary program signal that has been tailored to the preferences of an individual monitoring the broadcast programming signal." *Id*. at code (57) (Abstract). Logan "relates to systems and methods for monitoring broadcast programming and, more particularly, to systems and methods that can integrate broadcast programming

signals with selected additional programming signals, and that can further edit the integrated signals to provide a user with a proprietary program signal." *Id*. at 1:13-18. Logan discloses "a system for monitoring a video broadcast programming signal, such as a television program, and for editing the monitored program to generate a proprietary program signal having features and information tailored to the preferences of a particular audience member." *Id*. at 7:51-56. Figure 1 of Logan is reproduced below.

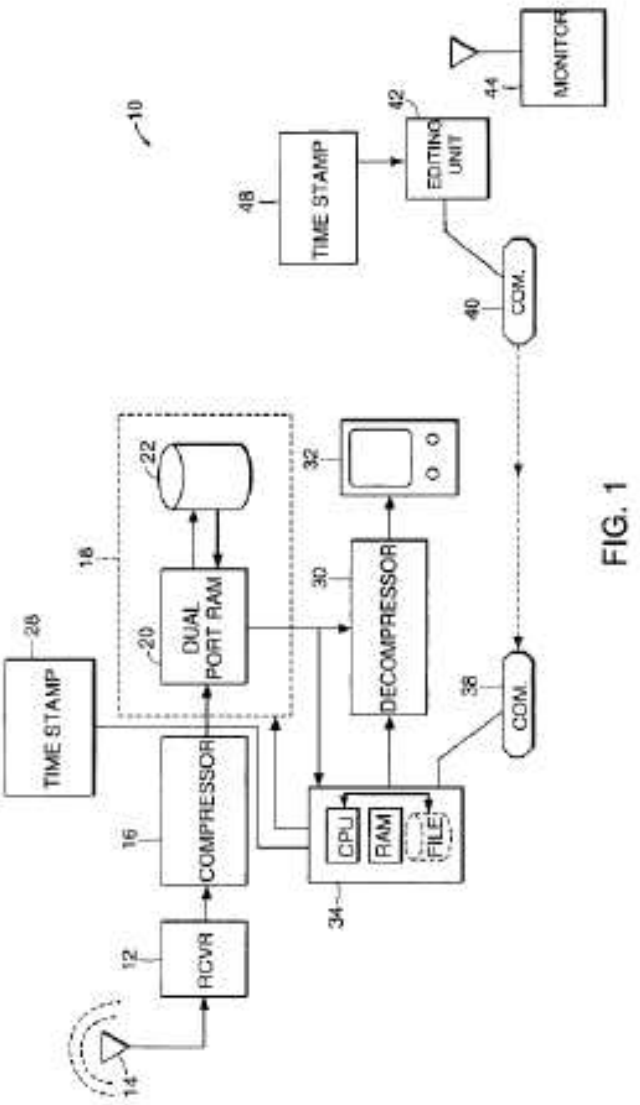

FIG. 1

Figure 1 of Logan (above) depicts a system 10 according to the invention for providing computer-enhanced broadcast monitoring. *Id.* at 7:49-50. As shown in

Figure 1, system 10 includes a receiver 12, an antenna 14, a compressor 16, a memory system 18, a dual port ram 20, a persistent memory device 22, a time stamp unit 28, a decompressor 30, a video monitor 32, a processor 34, a local communication system 38, a remote communication system 40, an editing unit 42, a remote time stamp 48, and a monitor 44. *Id.* at 7:64-8:3. Memory system 18 acts as a buffer memory for storing a compressed video signal generated by the compressor 16. *Id.* at 8:65-67. Memory system 18 includes high-speed random access electronic memory 20 depicted as a dual-port ram, and a slower persistent memory 22. *Id.* at 8:67-9:3. Logan describes that time stamp unit 28 generates a time stamp at set intervals, such as every five seconds, and the time stamp is multiplexed with the compressed broadcast signal and the multiplexed signal is stored by memory system 18 thereby providing a time based index into the compressed programming data stored in the memory system 18. *Id.* at 9:11- 21. Editing unit 42 can generate, in response to the monitored broadcast programming signal, a marking signal that can provide instructions for modifying the broadcast programming signal. *Id.* at 10:16-19. A marking signal can be any signal that provides information supplemental to the broadcast programming signal. *Id.* at 11:49-51. Marking signals can carry information on content, to allow screening of violent scenes, to allow deleting of time-outs in sport shows, or to allow editing of shows to show only highlights. *Id.* at 11:54-57. Logan discloses that a broadcaster may not wish commercials to be deleted or skipped in the viewing process and may embed marking signals representative of information that prevents portions of the broadcast programming signal from being skipped or deleted. *Id.* at 13:11-16.

2. Analysis of Independent Claim 1

> **A method for presentating [sic] information received from a broadcaster by a client device, which client device utilizes presentation rates to present information at various presentation rates, and which method comprises steps of:**

Petitioner asserts Logan discloses the preamble of claim 1. Pet. 11-12. In particular, Petitioner points to Logan's "broadcast programming signal," which according to Petitioner is "transmitted from a broadcaster to a user's device [and] reads on the claimed 'information received from a broadcaster by a client device.'" *Id*. at 11-12 (citing Ex. 1005, 2:26-47, 5:15-23, 5:59-6:25, 8:5-10, 8:27-47, 12:61-13:10; Ex. 1002 ¶¶ 49-51). Petitioner further asserts, "while a user [of Logan's system] has the ability to fast forward, pause, etc., using local controls, marking signals may be employed to restrict or direct playback rates, thus the presentation rate (e.g., whether normal speed or fast forward)," and thus a person of ordinary skill in the art "would have understood Logan to disclose a 'client device [that] utilizes presentation rates to present information at various presentation rates,' as recited in the preamble" of claim 1. *Id*. at 12 (citing Ex. 1005, 2:7-14, 2:26-47, 2:63-3:3, 5:59-6:25, 8:18-26, 11:51-54, 12:61-13:42; Ex. 1002 ¶¶ 50-64).

Patent Owner argues that Petitioner has failed to show that Logan discloses "a client device, which client device utilizes presentation rates to present information at various presentation rates" as recited

in the preamble of claim 1. PO Resp. 37-46. Specifically, Patent Owner argues that the disclosure in Logan that discloses fast forwarding relates to an embodiment in which "the client does not *utilize presentation rates* to present information at various presentation rates—it simply plays what it gets at the speed it gets it." *Id*. at 38-39. Patent Owner argues that "*Logan* discloses 'fast-forward' *only* in the context of the embodiment of Logan that does not have local storage" and "[i]n these video-on-demand systems ('VoD'), modification to the broadcast programming signal, including fast forward, deleting or skipping, are implemented at the server, after being requested by the user via local controls." *Id*. at 38. This argument is based on Patent Owner's claim construction contention that the preamble limits the scope of the claims to systems in which the client device is a "smart" device that performs time-scale modification (changes the presentation rate) without the aid of any other component of the system. As discussed above (*supra* Section II.C.), we have rejected this claim construction contention.

The paragraph from Logan that refers to fast forwarding states:

> The depicted receiver unit 12 couples to the antenna 14 to receive a broadcast programming signal. A broadcast programming signal includes television programs, including traditional broadcast television, satellite television and cable television programs, radio programs, Internet broadcast programs, or any other type of program that is transmitted for reception by an audience. This term also includes programming content that is already stored and that could be viewed

> at any time, such as Internet downloads or other forms of video-on-demand, as well as material stored on DVD, CD, or video tape and distributed physically through stores or the mail. In the case of Internet downloads, or other forms of video-on-demand, there is no local storage of content. The storage takes place at a commonly-shared server, which then "dishes" out the content on demand. Typically, these systems allow the user to *fast forward*, pause, etc., using local controls. A marking signal of the invention is used to personalize such server-stored content in the same manner as it is used to personalize locally-stored content. The marking signal allows a user to personalize server-stored content by using the supplied marking signal in conjunction with the local controls supplied by the video-on-demand service provider.

Ex. 1005, 8:4-26 (emphasis added). According the ordinary and customary meaning of the language in the preamble of claim 1, we find that this paragraph discloses all elements of the preamble. As disclosed in this paragraph in Logan and shown by Petitioner, the client device utilizes the normal rate of presentation and fast forwarding to present broadcast information at these two rates. Thus, this paragraph of Logan maps to the preamble without need to rely on any other embodiment or portion of its disclosure.

We find that the preponderance of the evidence establishes that Logan discloses the preamble of claim 1.

receiving broadcast information

Petitioner shows Logan discloses this limitation in the same paragraph quoted above in discussing the preamble. Pet. 13 (citing Ex. 1005, 8:4-5 ("receiver unit 12 couple[d] to the antenna 14 to receive a broadcast programming signal") (depicted in Fig. 1). Patent Owner does not argue this limitation. *See generally* PO Resp. We find Logan discloses this limitation.

receiving guidance information relating to presentation of the broadcast information

Petitioner shows Logan discloses this limitation. Pet. 13-17. Petitioner relies on Logan's disclosure relating to "marking signals" in the paragraph quoted above in discussing the preamble. *Id.* at 13 ("Logan discloses a 'marking signal' that may be received by a client device and 'is used to personalize . . . server-stored content.'"). As shown in the Petition (*see id.* at 13-14), Logan further states with regard to "marking signals" that, "[t]he marking signal can, therefore, be any signal that provides information supplemental to the broadcast programming signal" (Ex. 1005, 11:49-51) and, "[m]arking signals can carry information on content, to allow screening of violent scenes, to allow deleting of time-outs in sport shows, or to allow editing of shows to show only highlights" (*id.* at 11:54-57). "Marking signals" can also "provide additional information . . . to be used for selectively deleting the commercial sequence." *Id.* at 11:22-24.

If a broadcaster does not wish to have commercials deleted or skipped, Logan discloses that marking signals can be embedded, which prevents portions of the broadcast programming signal from being skipped

or deleted. *Id.* at 13:11-19. In this instance, "the marking signal may include a blocking signal," which may "prevent a user from proceeding to the next portion of the broadcast programming signal until after a predefined segment of the broadcast programming signal has been viewed." *Id.* at 13:16-22. "Alternatively, the broadcaster may mark the broadcast programming signal so that the user cannot skip to another marked segment of the broadcast programming signal until after a commercial has been viewed." *Id.* at 13:27-30. As indicated above (*supra* Section II.C.), we have construed "guidance information" to mean "information that is used to communicate a playback rate for an entire media work or one or more specific portions of the media work." We find Logan discloses "guidance information" as construed.

With regard to the "receiving" portion of this limitation, Logan states:

> These marking signals may be embedded in the programming signal itself either by using unused bandwidths, such as the vertical blanking channel in the case of a TV broadcast, or by overlaying the marking signal data directly on the programming signal. The processor 34 would be able to decouple the marking signals from the programming signal, thereby allowing the marking signal to be used in the same way as if they had been communicated from the editing unit 42. Alternatively, the broadcaster may send the marking signals to the user in a different broadcast, on a different channel, over the Internet or in a number of different manners and provide a means to synchronize the marking signals with the associated broadcast.

Ex. 1005, 12:64-13:10.

Patent Owner argues this claim limitation on the basis that the construction of "presentation rate" excludes skipping and "in the VoD embodiment, without local storage, marking signals are not received at the client device." PO Resp. 46-47. Both these arguments rely on limiting claim constructions that we have not adopted. Accordingly, these arguments do not undermine Petitioner's persuasive showing.

We find Logan discloses this limitation.

> analyzing the guidance information and state values accessed by the client device to provide one or more presentation rates, which state values may be used to alter or override at least a portion of the guidance information;[23]

Petitioner contends that Logan's description of a "user's device, which is capable of analyzing the marking signal and information regarding the level of service the user has purchased, and performing the altering or overriding function . . . teach[es] the 'analyzing the guidance information and state values accessed by the client device' as recited in claim 1." Pet. 19. And, Petitioner contends:

> *Logan*'s disclosure of keeping or removing a blocking signal from a marking signal based on

[23] In our analysis of this limitation, we rely on the constructions of the terms "guidance information" and "state values" set forth above (*supra* Section II.C.). "Guidance information" was construed to mean "information that is used to communicate a playback rate for an entire media work or one or more specific portions of the media work." "State value" was construed to mean "a value that represents a level of service the user has purchased, or the feature set or model of user system purchased by the user."

> a level of service the user has purchased, or the feature set or model of user system purchased by the user as teaching the feature of using 'state values' 'to alter or override at least a portion of the guidance information' as recited in claim 1.

Id. Petitioner cites to passages in Logan to support these contentions. *See id*. at 17-20.

As discussed with regard to the previous limitation, Logan discloses the use of marking signals that are "guidance information" as recited in claim 1. These marking signals can be used to skip or delete commercial sequences and violent scenes, delete time-outs in sport shows, or edit shows to show only highlights. *See* Ex. 1005, 11:15-28, 11:54-57. And the marking signals can include blocking signals to prevent a user from skipping commercials or to require a user to view a commercial before skipping to another segment. *See id*. at 13:11-30. Thus, the marking signals can be used to direct the presentation rate of the broadcast information.

With regard to "state values," Logan discloses that "the broadcaster [may] allow[] users to pay to skip or delete portions of the broadcast programming signal, such as commercials, for example" and "[u]pon such payment, the user's processor is adapted to remove the blocking signal from the marking signal so as to allow for the skipping and deletion of a segment of the broadcast programming signal denoted by the blocking signal, such as a commercial, for example." *Id*. at 13:31-38. We determine that these passages in Logan disclose "state values [which are accessed and analyzed by the client device and which]

may be used to alter or override at least a portion of the guidance information" as recited in claim 1.

With regard to "analyzing the guidance information" as recited in this limitation, Patent Owner presents the same or similar arguments as presented for the preceding "receiving guidance information" limitation. *See* PO Resp. 47 ("Because 'marking signals' are not guidance information as discussed above, Logan does not meet disclose [sic] this limitation"), 48 ("[I]n the VoD embodiment, without local storage, marking signals are not received at the client device and state values cannot be accessed by the client device."). As discussed above, these arguments are based on claim constructions that we have not adopted, and thus do not undermine Petitioner's persuasive showing.

In addition, Patent Owner argues that, "[a]lthough Logan does not disclose allowing a purchaser to pay to skip or delete, it does not disclose a 'value.'" PO Resp. 47-48. This conclusory statement is not supported by any explanation or reasoning. *Id*. In the Reply, Petitioner responds, "[a]s discussed in the Petition, *Logan* teaches that a user's processor would analyze the level of service the user has purchased, or the feature set or model of user system purchased by the user, and thus such would necessarily be reflected by a 'value.'" Pet. Reply 18-19. We agree with Petitioner and reject this argument by Patent Owner.

We determine that Logan discloses this limitation.

presenting the information at the one or more presentation rates.

Petitioner contends that Logan discloses this limitation in the following two passages (Pet. 20-22):

> The depicted decompressor 30 couples via a transmission path to the memory system 18 and can receive the stored compressed programming data. The decompressor 30 can be an electrical circuit card assembly that includes a CODEC chip set that implements the MPEG decoding process for decompressing MPEG motion video into a format suitable for display on a conventional video monitor, such as the video monitor 32 depicted in FIG. 1.
>
> * * *
>
> The depicted monitor 44 [in Figure 1] can include an RF tuner for receiving the broadcast programming signal, which in this example is a television program. The monitor 44 can further include a video display element that can display to an operator at the editing unit 42 the television program being broadcast. In one embodiment, the monitor 44 is a conventional television receiver set that includes an RF tuner capable of receiving broadcast television programming signals, and a monitor element capable of displaying the television being broadcast.

Ex. 1005, 9:22-29, 10:20-29.

Patent Owner contends "the claimed device must have the ability to present at multiple rates." PO Resp. 48. However, this limitation recites "presenting the information at the *one* or more presentation

rates" (emphasis added). It is therefore met if the information is presented at one presentation rate. In addition, as noted previously, Logan discloses the user can "fast forward, pause, etc., using local controls." Ex. 1005, 8:19-20.

We find Logan discloses this limitation.

Conclusion as to Claim 1

For the reasons discussed above, we find Petitioner has shown that claim 1 of the '188 patent is anticipated by Logan.

3. Analysis of Claim 2

Claim 2 recites:

> The method of claim 1 which further comprises a step of the user paying for predetermined values of the state values.

Ex. 1001, 43:20-22. With regard to claim 2, the Petition states:

> *Logan* discloses a system that may "allow[] users to pay to skip or delete portions of the broadcast programming signal, such as commercials," and when a user makes "such payments, the user's processor is adapted to remove the blocking signal from the marking signal so as to allow for the skipping and deletion of a segment of the broadcast programming signal denoted by the blocking signal, such as a commercial, for example." (Ex. 1005, 13:31-38.) *Logan* also discloses another example where the users may "pay additional fees to receive premium program content" and describes that "[t]he processor of a user who does not pay fees for the premium

> program" would make "the program skip over the premium segments," but "the processor is adapted, upon of [sic] a fee, to . . . allow[] viewing of the segments." (*Id.*, 13:43-44, 13:48-53.) In another example, *Logan* describes that upon earning credits by watching commercials, the user may use those credits "to buy the ability to remove blocking signals" so that the user can subsequently skip commercials. (*Id.*, 13:41-42.)

Pet. 22-23. Patent Owner does not specifically discuss claim 2 or challenge Petitioner's showing with regard to claim 2. *See generally* PO Resp.

Based on this record, we find Logan discloses the limitation set forth claim 2. Logan anticipates claim 2.

4. Analysis of Claim 7

Claim 7 recites:

> The method of claim 2 wherein the predetermined values enable user input to specify an enhanced presentation rate for commercials.

Ex. 1001, 43:36-38. With regard to claim 7, the Petition states:

> *Logan* discloses, for example, that based on the user's payment status, the user may be allowed to "skip or delete portions of the broadcast programming signal, such as commercials, for example." (Ex. 1005, 13:32-33.) *Logan* also discloses that the user receives credits for watching commercials and that credits can "be used to buy the ability to remove blocking signals received in connection with subsequent

> programs," which allows the user to skip commercials in subsequent programs. (*Id*., 13:41-42.)

Pet. 24. Patent Owner does not specifically discuss claim 7 or challenge Petitioner's showing with regard to claim 7. *See generally* PO Resp.

Based on this record, we find Logan discloses the limitation set forth claim 7. Logan anticipates claim 7.

Summary

For these reasons, we find that the preponderance of the evidence establishes that Logan anticipates claims 1, 2, and 7 of '188 patent.

E. Asserted Obviousness of Claim 4 in View of Logan

Petitioner asserts that Logan renders obvious claim 4. Pet. 25-26. Claim 4 recites:

> The method of claim 1 which further comprises a step of the user paying for predetermined values of the state values, which predetermined values are effective for a predetermined period of time or for a predetermined number of presentations.

Ex. 1001, 43:25-29. With regard to claim 4, Petitioner contends that "Logan discloses allowing the user to pay for certain predetermined viewing abilities in personalizing broadcast programming signals." Pet. 25 (citing Ex. 1005, 13:31-38, 13:41-42, 13:48-53; Ex. 1002 ¶¶ 71-73). The Petition further states:

> *Logan* describes a system in which a user "receives credits for watching and not skipping

> commercials" and that "[s]uch credits could, for example, then be used to buy the ability to remove blocking signals received in connection with subsequent programs." (Ex. 1005, 13:39-42.) In other words, *Logan* suggests that credits can be used up to provide this enhanced ability for a certain number of subsequent programs. (Ex. 1002, ¶¶ 72-73.) Moreover, a POSA would have recognized that it would have been typical, and indeed expected, to limit any purchased ability to a certain period of time or number of presentations. (Ex. 1002, ¶¶ 72-73.) For instance, a POSA would have recognized that subscription-based services and/or limited-duration services were common at the time, and that such services would have limited any purchased ability to a certain period of time or number of presentations. (*Id.*)
>
> Furthermore, a POSA would have recognized that modifying *Logan*'s system to limit any purchased ability to a certain period of time or number of presentations would have involved routine and predictable implementations, namely, the system would simply revert back to the state it was in prior to the purchase (e.g., precluding a user from skipping commercials through the use of blocking signals). (*Id.*) This would have been an obvious design choice, and indeed a POSA would have been motivated to modify Logan to improve the payment-for-credit system disclosed in Logan. (*Id.*) *See KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 416 (2007).

Id. at 26. Petitioner's showing with regard to claim 4 is well-supported and persuasive.

Patent Owner's entire presentation with regard to this ground and claim 4 is, "[f]or the same reasons set forth . . . above [with regard to claim 1], *Logan* fails to disclose or render obvious the other elements of dependent claim 4." PO Resp. 48. Patent Owner provides no additional reasoning or argument in support of this conclusory statement. This statement is unsupported and does not undermine Petitioner's persuasive showing.

The preponderance of the evidence establishes that claim 4 would have been obvious in view of Logan.

F. Asserted Obviousness of Claims 1, 2, 4, and 7 over Logan and De Lang

Petitioner contends claims 1, 2, 4, and 7 of the '188 patent would have been obvious in view of Logan and De Lang. Pet. 3, 27-36.

1. De Lang (Ex. 1006)

De Lang was published on January 30, 1997. Ex. 1006, code (43). The earliest priority date claimed for the '188 patent is based on a filing date of May 26, 1999. Ex. 1001, code (63). Therefore, De Lang is prior art to the '188 patent under at least 35 U.S.C. § 102(b). *See* Pet. 3. De Lang was not considered by the Office during prosecution of the '188 patent. Ex. 1001, code (56); *see* Pet. 3. Patent Owner does not contest the prior art status of De Lang. *See generally* PO Resp.

De Lang relates to "a video-on-demand system, comprising a video server for transmitting a selected television signal and provided with means for playing back the television signal in one of a plurality of

playback modi defined by operating signals" and "a user station for receiving and displaying the television signal, and provided with an operating circuit for generating and transmitting said operating signals to the server." Ex. 1006, 1:1-5. Figure 3 of De Lang is reproduced below.

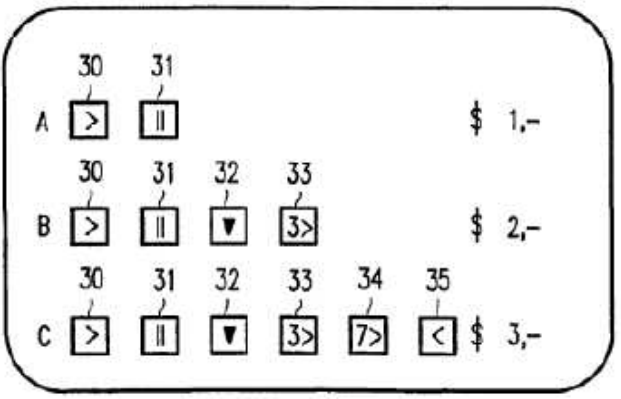

FIG. 3

Figure 3 of De Lang (above) depicts a menu of possibilities for selecting operating data. *Id*. at 2:30. The menu in Figure 3 includes three selection possibilities: selection A has only two operating facilities "play" and "stop" denoted by pictograms 30 and 31; selection B is more expensive and also provides the possibility of still pictures (pictogram 32) and display at threefold speed (pictogram 33); and selection C is the most expensive and provides further functions such as display at a sevenfold speed (pictogram 34) and reverse display (pictogram 35). *Id*. at 4:10-18.

2. Analysis of Independent Claim 1

Petitioner contends that "[t]o the extent that Logan is not found to disclose the claimed 'guidance

information' and/or 'state values,' it would have been obvious to combine the teachings of *Logan* and *De Lang* to implement this feature." Pet. 27 (citing Ex. 1002 (Schonfeld Decl.) ¶¶ 46, 49-64, 75-82). As discussed above, we find that Logan discloses "guidance information" and "state values" as recited in the challenged claims and that Logan anticipates claims 1, 2, and 7 and renders obvious claim 4 of the '188 patent. However, for completeness, here we consider all grounds of unpatentability presented in the Petition.

In opposing this ground of unpatentability, Patent Owner relies on its claim construction argument that independent claim 1 is limited by the preamble to "a client device which itself 'utilizes presentation rates to present information at various presentation rates.'" PO Resp. 49, *see also id. at* 51-52. As noted above (*supra* Section II.C.), we are not persuaded by this claim construction argument and do not construe the preambles of the independent claims as requiring that the client device be capable of performing time-scale modification by itself to implement various presentation rates (i.e., smart devices). And, Patent Owner acknowledges that De Lang teaches a system in which the server alters the presentation rate of a media work ("normal, fast display, slow display, winding, rewinding, pause, etc.") "in response to a presentation rate change request by a user at the client device," and "[t]he *De Lang* client device presents the broadcast information it receives at the rate at which it was encoded at the server and received by the client." *Id.* at 51.

With regard to "guidance information" and "state values," independent claim 1 recites:

> receiving *guidance information* relating to presentation of the broadcast information;
>
> analyzing the *guidance information* and *state values* accessed by the client device to provide one or more presentation rates, which *state values* may be used to alter or override at least a portion of the *guidance information*.

Ex. 1001, 43:11-17 (emphasis added). With regard to whether De Lang teaches "guidance information" and "state values," Petitioner relies on De Lang's disclosure of a menu in which a user may choose one of three options for playback (*see* Ex. 1006, Fig. 3) and the teachings that "the video server is therefore adapted to transmit operating data to the user station for defining the available playback modi. The operating circuit in the user station is adapted to receive and store the operating data and to generate the corresponding operating signals" (*see id*. at 1:23-26). Pet. 27-28. The Petition provides the following explanation as to how De Lang processes the user's menu choice to play back the media work:

> *De Lang* further explains that "[t]he selection made by the user is transmitted to the server as a control signal C (*see* Fig. 1)," which is then "received by the server in a step 21," and "[i]n response . . . , the server performs a step 22 in which it transmits operating data corresponding to the selection made to the user station as an operating signal D (*see* Fig. 1)." (*Id*., 4:18-22.) This selection allows for a subsequent operation in which "playback of the selected television program is started in a step 24 and the supervisor waits, in a step 25, for an operating signal from the user station. When such an

> operating signal is received, for example a 'fast display' signal, the relevant playback mode is performed in a step 26." (*Id.*, 4:29-5:7.)
>
> The end result in *De Lang* is similar to that in *Logan*. That is, the user is provided certain viewing abilities based, for example, on the user's payment of fees. According to *De Lang*, "a television program interrupted by commercials may be transmitted with operating data rendering only the playback functions 'play' and 'pause' possible. Alternatively, a television program may be transmitted with operating data rendering fast display possible. The latter television program may also comprise commercials, but these can now be skipped by the user or displayed fast." (*Id.*, 1:27-2:5.) In other words, *De Lang* not only allows for commercials to be skipped, but also expressly allows for commercials to be displayed at a higher presentation rate.

Id. at 28-29. Petitioner contends that "[a] POSA [person of ordinary skill in the art] would have understood *De Lang*'s disclosures of Selections A, B, and C as teaching a specific indication of user's viewing authority, or 'state values' as recited in the claims." *Id*. at 29. We have construed "guidance information" as "information that is used to communicate a playback rate for an entire media work or one or more specific portions of a media work" and "state values" as "a value that represents a level of service the user has purchased, or the feature set or model of user system purchased by the user." *Supra* Section II.C. We find De Logan teaches

"guidance information" and "state values" as recited in the challenged claims.

With regard to how the relevant teachings of Logan and De Lang are combined, Petitioner states, "[b]oth *Logan* and *De Lang* relate to video playback systems that allow personalization, and in viewing *Logan*, a POSA would have had a reason to look to De Lang to, for example, to [*sic*] provide users particular playback rate options and implement more detailed levels of user authority that allow personalizing playback" and "a POSA would have appreciated that *De Lang*'s teaching of multiple levels of viewing authority corresponding to differing payment amounts and differing playback rate options (*e.g.*, fast forward by (x3), fast forward by (x7), reverse) would provide the system in *Logan* with the additional benefit of providing the user express selections of playback options." Pet. 29-30 (citing Ex. 1002 (Schonfeld Decl.) ¶¶ 76-82). With further regard to the motivation to combine the relevant teachings of *Logan* and *De Lang*, Petitioner provides that "to combine the teachings of Logan and De Lang [would have] improve[d] the playback system disclosed in *Logan*" by allowing the user "to select a specific level of authorization and a suite of playback options, including specific presentation rates" and "[a] POSA would have understood De Lang as furthering the goal of *Logan* as *De Lang* also discloses the guidance information that explicitly restricts or directs the playback rates at the client device." *Id*. at 30-31.

Patent Owner argues that "Petitioner fails to explain how the proposed guidance information of *De Lang* would be applied in each instance in which appears [sic] in the challenged claims." PO Resp. 49.

Specifically, Patent Owner faults Petitioner for failing to explain how the menu of De Lang would be implemented in the system of Logan to meet the "guidance information" limitations of claim 1. *Id*. at 49-51. However, the Petition provides:

> [A] POSA would have recognized that in view of *De Lang*, it would have been a predictable and simple modification of *Logan*'s system to have the user select a specific level of authorization and a suite of playback options, including specific presentation rates, and accordingly determine whether and to what extent the user can alter its viewing abilities, such as skipping or fast forwarding commercials. (*Id*.) For instance, a POSA would have appreciated that since the marking signal in *Logan* already includes data as to how a video should be played that is sent to the user's device, and since *De Lang* discloses that the express levels of authorized presentation rates are likewise transmitted to the user's device, it would have been a straightforward modification to include levels of authorized presentation rates, like those described in *De Lang*, in the marking signal of *Logan*. (*Id*.) A POSA would have recognized this to be a combination of known prior art elements, according to known methods, to yield predictable results. (*Id*.) *See KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 416 2007.

Pet. 30-31. We find Petitioner's reasoning and explanation persuasive and sufficient to explain how a skilled artisan would have combined the teachings of the cited references. Accordingly, we do not find

Patent Owner's contrary arguments sufficient to undermine Petitioner's persuasive showing.

3. Analysis of Dependent Claims 2, 4, and 7

With regard to the challenged, dependent claims, Petitioner relies on Logan for teaching or suggesting all the features of these claims; shows that De Lang provides further teachings that relate to the limitations of these claims; and provides argument and evidence to show how and why the relevant teachings of Logan and De Lang would be combined as recited in these claims. *See* Pet. 32-36. Patent Owner does not specifically challenge Petitioner's showing with regard to the challenged, dependent claims and the combination of Logan and De Lang. *See* PO Resp. 48-52.

4. Summary as to Asserted Obviousness of Claims 1, 2, 4, and 7 in View of Logan and De Lang

Having considered the arguments and evidence of the parties, we conclude that claims 1, 2, 4, and 7 would have been obvious in view of Logan and De Lang.

III. Conclusion[24]

For the foregoing reasons, we conclude that Petitioner has established that claims 1, 2, and 7 are anticipated by Logan, claim 4 would have been obvious in light of Logan, and claims 1, 2, 4, and 7 would have been obvious in light of Logan and De Lang.

IV. Order

In consideration of the foregoing, it is hereby:

ORDERED that claims 1, 2, 4, and 7 of the '188 patent are unpatentable.

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[24] Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this decision, we draw Patent Owner's attention to the April 2019 *Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding*. *See* 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. *See* 37 C.F.R. § 42.8(a)(3), (b)(2).

In summary:

Claims	**1, 2, 7**	**4**	**1, 2, 4, 7**
35 U.S.C. §	102	103	103
Reference(s)/ Basis	Logan	Logan	Logan, De Lang
Claims Shown Unpatentable	1,2,7	4	1,2,4,7
Claims Not shown Unpatentable			
Overall Outcome			1,2,4,7

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USPTO FINAL WRITTEN DECISION
IPR2019-01237, '050 PATENT
(FEBRUARY 2, 2021)

Paper 39
Entered: February 2, 2021

UNITED STATES PATENT AND
TRADEMARK OFFICE

BEFORE THE PATENT TRIAL
AND APPEAL BOARD

GOOGLE LLC,

Petitioner,

v.

VIRENTEM VENTURES, LLC,

Patent Owner.

IPR2019-01237

Patent 8,345,050 B2

Before: Meredith C. PETRAVICK,
Terrence W. McMILLIN, and Garth D. BAERA,
Administrative Patent Judges.

JUDGMENT
Final Written Decision
Determining All Challenged Claims Unpatentable
35 U.S.C. § 318(a)

BAER, Administrative Patent Judge.

I. Introduction

Google LLC ("Petitioner") filed a petition to institute an *inter partes* review of claims 1–4, 8, 20, 25, 31, 32, 34, 36, 40–43, and 45 of U.S. Patent No. 8,345,050 B2 (Ex. 1001, the " '050 patent") pursuant to 35 U.S.C. § 311 *et seq*. Paper 1 ("Petition" or "Pet."). Virentem Ventures, LLC ("Patent Owner") filed a preliminary response to the Petition. Paper 11 ("Preliminary Response"). On February 5, 2020, we instituted trial. Paper 16 ("Inst. Dec."). Patent Owner filed a Response. Paper 27 ("PO Resp."). Petitioner filed a Reply. Paper 29 ("Pet. Reply"). Patent Owner filed a Sur-reply. Paper 32 ("PO Sur-reply"). An oral argument was held on November 18, 2020, and a transcript was entered into the record. Paper 38 ("Tr.").

We have jurisdiction to conduct this *inter partes* review under 35 U.S.C. § 6. This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. For the reasons below, we determine that Petitioner has shown, by a preponderance of evidence, claims 1–4, 8, 20, 25, 31, 32, 34, 36, 40–43, and 45 of the '050 patent are unpatentable.

A. Related Matters

The parties indicate that the '050 patent has been asserted in the following case filed in the United States District Court for the District of Delaware:

Virentem Ventures, LLC v. YouTube, LLC, Case No. 1:18-cv-00917. Pet. 1; Paper 3, 1.

B. The '050 Patent

The '050 patent is titled "Management of Presentation Time in a Digital Media Presentation System with Variable Rate Presentation Capability." Ex. 1001, code (54).

By way of background, the '050 patent explains that traditional digital rendering systems, such as RealNetworks RealPlayer digital media players, maintain an internal variable during playback of media content that reflects a current presentation time, which is referred to as "Current Time." *Id.* at 1:39–43. Current Time reflects a current position in the media content, starting at zero at the beginning of the media content. *Id.* at 1:43–48. The '050 patent explains that Current Time conflates two different properties of media playback: (1) "Presentation Time," which is the time elapsed since the beginning of the media content presentation, and (2) "Content Time," which is the location in the media content stream that is currently being played. *Id.* at 1:67–2:15. The '050 patent also describes that "Data Time" is a time value associated with each content element "specifying how long it would take to reach that location, starting from the beginning of the media content, and playing at normal rate." *Id.* at 2:20–23. The '050 patent explains that "Presentation Time and Data Time are identical in traditional players, because traditional players can only present media content at a fixed 'normal' rate." *Id.* at 2:24–26. In the case of media players enhanced with Time-Scale Modification (TSM) capability, the player can present media content at various rates, and thus, Presentation Time and Data Time may diverge. *Id.* at 2:26–30. For example, a player with TSM functionality could play a 60 second

clip in only 30 seconds if the content is presented at a fixed rate that is twice the normal rate. *Id.* at 2:30–34.

The '050 patent describes two problems resulting from the possible disparity between Presentation Time and Data Time in media players with TSM functionality. *Id.* at 2:35–36. A first problem is that "the significance of the time value distributed to multiple objects is, in general, ambiguous." *Id.* at 2:44–45. A second problem "is that Data Time does not, in general, equal Presentation Time, and the calculation, storage, and distribution of a single time value is inadequate to specify both values." *Id.* at 2:45–50. In particular, the '050 patent explains that it is common for media players to rely on an audio renderer to calculate and update the Current Time value. *Id.* at 2:51–63. When "a media player does in fact acquire the Current Time value from the audio renderer, the value that the audio renderer will return to the system will typically be the Presentation Time." *Id.* at 2:64–67. This creates a problem in media players with TSM functionality because "most of the rest of the system needs Data Time," and thus, "most of the rest of the system can no longer employ the value returned by the audio renderer object." *Id.* at 2:67–3:2.

The invention manages "Presentation Time in a digital rendering system for presentation of temporally-ordered data when the digital rendering system includes a Variable Rate Presentation capability." *Id.* at 3:9–3:12. Figure 1 of the '050 patent is reproduced below.

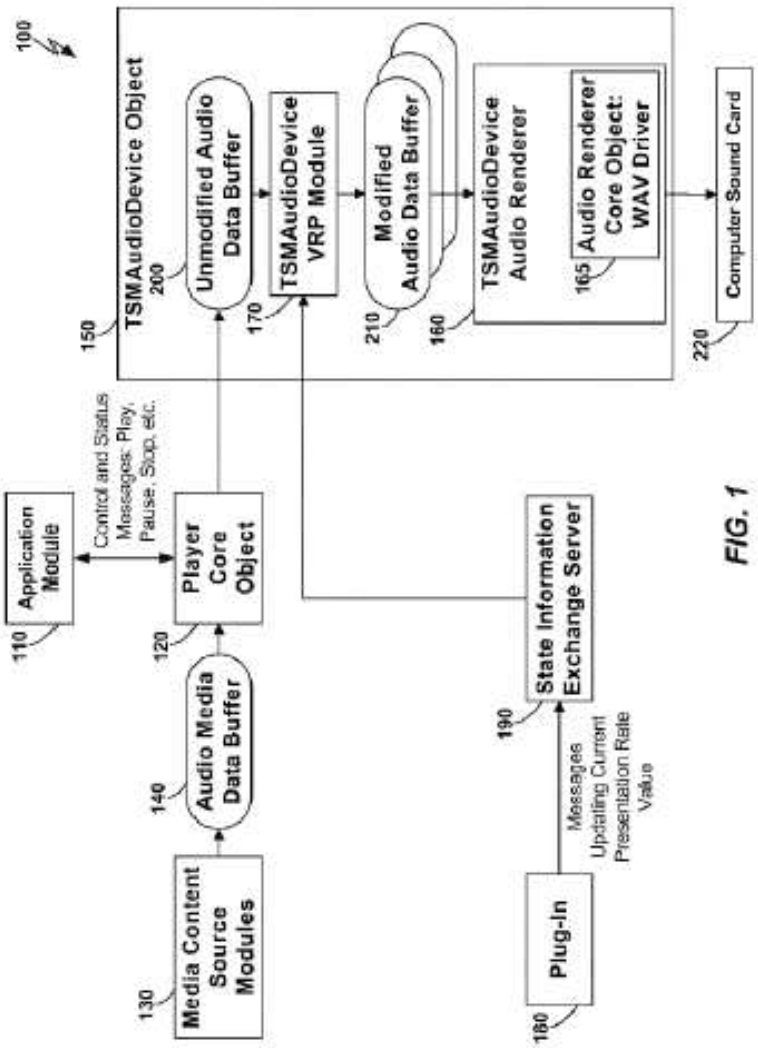

FIG. 1

Figure 1, above, depicts "a block diagram of a Presentation System embodied as a RealNetworks RealPlayer application running on a computer." *Id.* at 5:41–43. Presentation System 100 includes an

application module 110 that communicates control and status messages (*e.g.*, Play, Pause, Stop), to Player Core object 120. *Id.* at 6:14–22. "Temporal Sequence Presentation Data" or "Presentation Data" is embodied as streaming media content and is delivered to the RealPlayer application. *Id*. at 6:22–28. Presentation Data are received by media content source module(s) 130 and are placed in audio media data buffers 140. *Id.* at 6:29–33. TSMAudioDevice object 150 combines functions of the Renderer for audio data (TSMAudioDevice Audio Renderer 160) and a Variable Rate Presentation Module. *Id.* at 6:64–7:2.

The '050 patent notes that although the RealNetworks RealPlayer application does not natively include support for variable rate playback, plug-in 180 adds variable rate playback capability to the RealPlayer application. *Id.* at 7:6–10. Plug-in 180 communicates with TSMAudioDevice object 150 by sending messages that specify a desired playback or presentation rate through an object called State Information Exchange Server 190 ("SIX Server 190"). *Id.* at 7:16–19. TSMAudioDevice object 150 accepts messages from SIX Server 190 that specify a desired playback or presentation rate. *Id.* at 7:20–22. The '050 patent notes that Player Core object 120 of the RealPlayer application includes methods to query the Current Time, and Player Core object 120 interprets all returned times as Data Times. *Id.* at 7:64–8:6. To support the concept of Presentation Times that are different than Data Times, according to one embodiment of the '050 patent, TSMAudioDevice object 150 performs conversion of Presentation Time into Data Time (as needed by Player Core object 120). *Id.* at 8:6–8:14.

C. Challenged Claims

Petitioner challenges claims 1–4, 8, 20, 25, 31, 32, 34, 36, 40–43, and 45 of the '050 patent. Pet. 3. Of the challenged claims, claims 1, 8, 20, 25, and 36 are independent. Claim 1 is illustrative and recites:

> 1. A method, performed by at least one machine, for rendering temporal sequence presentation data in a machine-implemented rendering system, the temporal sequence presentation data being tangibly stored in a first computer-readable medium, the method comprising steps of:
>
> (A) maintaining a value of a presentation time parameter tangibly stored in a second computer-readable medium and representing an amount of time elapsed during rendering of a portion of the temporal sequence presentation data;
>
> (B) providing the value of the presentation time parameter to a first component of the rendering system;
>
> (C) maintaining a value of a data time parameter tangibly stored in a third computer-readable medium and representing an amount of time required by the rendering system to render the portion of the temporal sequence presentation data at a default presentation rate;
>
> (D) providing the value of the data time parameter to a second component of the rendering system; wherein the value of the presentation time parameter is not

equal to the value of the data time parameter; and

(E) rendering at least a part of the temporal sequence presentation data using time-scale modification (TSM).

Ex. 1001, 23:35–57.

D. Asserted Grounds of Unpatentability

Petitioner asserts the following grounds of unpatentability. Pet. 3.

Claims Challenged	35 U.S.C. §[1]	Reference(s)/Basis
1–4, 8, 20, 25, 31, 32, 34, 36, 40–43, 45	§ 103(a)	Nelson[2]
25, 31, 32, 34, 36, 40–43, 45	§ 103(a)	Nelson, Covell[3]

II. Analysis

A. Level of Skill in the Art

Petitioner contends that a person of ordinary skill would have either "(a) a Master's or doctoral

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[1] The Leahy-Smith America Invents Act ("AIA") amended 35 U.S.C. §§ 102 and 103. *See* Pub. L. No. 112-29, 125 Stat. 284, 285–88 (2011). As the application that issued as the '050 patent was filed before the effective date of the relevant amendments, the pre-AIA versions of §§ 102 and 103 apply.

[2] US Patent No. 5,719,786 (Ex. 1006) issued Feb. 17, 1998.

[3] US Patent No. 5,828,994 (Ex. 1007) issued Oct. 27, 1998.

degree in computer science, electrical engineering, or a similar discipline" or "(b) a Bachelor's degree in computer science, electrical engineering, or a similar discipline and at least two years of work experience in content presentation systems, or a related area." Pet. 3–4 (citing Ex. 1002 (Schonfeld Decl.) ¶¶ 19–20). "Patent Owner accepts Petitioner's proffered level of ordinary skill in the art in analyzing Petitioner's allegations of obviousness." PO Resp. 25 (citing Ex. 2016 (Boncelet Decl.) ¶¶ 30–32). We agree with and adopt Petitioner's proposal because it is consistent with the '050 patent, as well as the problems and solutions in the prior art of record. *See Daiichi Sankyo Co., Ltd. v. Apotex, Inc.*, 501 F.3d 1254, 1256 (Fed. Cir. 2007).

B. Claim Construction

In an *inter partes* review, claims are "construed using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. § 282(b), including construing the claim in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent." *See* Changes to the Claim Construction Standard for Interpreting Claims in Trial Proceedings Before the Patent Trial and Appeal Board, 83 Fed. Reg. 51,340, 51,340, 51,358 (Oct. 11, 2018) (amending 37 C.F.R. § 42.100(b) effective November 13, 2018) (now codified at 37 C.F.R. § 42.100(b) (2019)). In applying a district court-type claim construction, we are guided by the principle that the words of a claim "are generally given their ordinary and customary meaning," as understood by a person of ordinary skill in the art at the time of the

invention. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (en banc) (citation omitted). "In determining the meaning of the disputed claim limitation, we look principally to the intrinsic evidence of record, examining the claim language itself, the written description, and the prosecution history, if in evidence." *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1014 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312–17). There is a "heavy presumption," however, that a claim term carries its ordinary and customary meaning. *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002) (citation omitted).

We are also guided by the principle that we only construe claim terms if, and to the extent that, it is necessary for the purpose of the proceeding. *See, e.g.*, *Wellman, Inc. v. Eastman Chem. Co.*, 642 F.3d 1355, 1361 (Fed. Cir. 2011) ("[C]laim terms need only be construed 'to the extent necessary to resolve the controversy.'") (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

1. "maintaining a value of a presentation time parameter . . . representing an amount of time elapsed during rendering of a portion of the temporal sequence presentation data"

Patent Owner requests that we give this term its plain meaning. PO Resp. 25–26 ("Patent Owner does not believe that this limitation requires construction apart from the plain meaning of the words of the claim."). Patent Owner states that it raises this term as a claim construction issue because it believes we misconstrued it in our Institution Decision. *Id.* at

26–27. Patent Owner focuses its argument on the "during rendering" portion of the term and argues that in our Institution Decision, we read the term as if it said "during [and after] rendering." *Id.* at 27.

Petitioner responds that Patent Owner's argument is based on a false premise and that the Board did not interpret the claims as suggested by Patent Owner. Pet. Reply 1 ("[N]either [Petitioner] nor the Board has interpreted the claim in this way. Rather, the real dispute centers on what 'during rendering' means."). Petitioner argues that, to the extent there is a dispute regarding the interpretation of this term, the dispute can be resolved by looking at the definition of "Presentation Time" as set forth in the specification of the '050 patent. *Id.* at 1–2. We agree with Petitioner.

At column 2, lines 1–6, the '050 patent defines "Presentation Time" as "time elapsed since the beginning of the media content presentation" and provides an example: "if the media has been playing for one minute, the value of Presentation Time is 60,000 milliseconds." The '050 patent provides this further example to highlight the difference between "Presentation Time" and "Data Time:"

> Presentation Time and Data Time are identical in traditional players, because traditional players can only present media content at a fixed "normal" rate. However, when a player is enhanced with a Time-Scale Modification (TSM) capability, it can present media content at various rates. Because of this, Presentation Time and Data Time are no longer the same. For example, if a 60-second clip of media content is presented at a fixed rate that is twice normal rate, at the end of the clip the Data Time is 60,000 milliseconds,

> but the Presentation Time is 30,000 milliseconds. This is because it only takes 30 seconds to play the 60-second clip.

Ex. 1001, 2:24–34. In accordance with the specification's definition and description, we determine that "Presentation Time" means "time elapsed since the beginning of the media content presentation." In addition, to the extent that Patent Owner's proffered construction of "time elapsed during rendering" precludes time extending beyond its initial rendering, *see* PO Sur-reply 3 (arguing that "the 'presentation time parameter' cannot be 'time elapsed during rendering of a portion of the temporal sequence presentation data' plus additional time after rendering is complete"), we reject it. Rather, consistent with the specification's definition above, "during rendering" is the "time elapsed since the beginning of the presentation" of the portion or element of interest.

2. "presentation rate"

Patent Owner proposes we construe "presentation rate" as "the speed at which media is played back in a timescale modification system." PO Resp. 34. According to Patent Owner, the parties agreed to this construction in related District Court litigation. *Id.* at 33–34. Patent Owner provides no additional reasoning or argument in support of its construction and does not explain why the parties' alleged district-court agreement should be binding here, where there is no such agreement. *See* Pet. Reply 6–7. We disagree with Patent Owner's construction to the extent it requires the claimed presentation rate must be in a timescale modification system. Nothing in the intrinsic

or extrinsic record supports reading "timescale modification system" into the claims.

3. "time-scale modification"

Patent Owner proposes we construe "time-scale modification" to mean "speeding up and slowing down the perceived rate of speech while substantially preserving both intelligibility and the perceived pitch for audio and audio-visual media." PO Resp. 36. In support of its construction, Patent Owner cites a specification passage that describes "decreas[ing] or increas[ing] the samples in a particular way *so as to leave the perceptual and linguistic information in the buffers unchanged*." PO Resp. 35–36 (citing Ex. 1001, 7:35–50).

We decline to read in preserving intelligibility or perceived pitch as those terms do not appear in the claims or even in Patent Owner's cited specification reference. Moreover, the passage Patent Owner cites is explicitly designated as an example and related to a commercial embodiment. *See* Ex. 1001, 7:20–36. The '050 patent states that the specification's embodiments are not limiting. *Id*. at 22:44–47. Accordingly, we decline to adopt Patent Owner's proposed construction. Rather, we agree with Petitioner's plain-meaning construction of "time scale modification" as "playback rate modification." *See* Pet. 11.

Although the parties propose additional terms for construction, *see* Pet. 5–11; PO Resp. 25–34, we determine no further explicit claim construction is necessary for our unpatentability determination.

C. Asserted Prior Art

1. Nelson (Ex. 1006)

Nelson was filed on February 3, 1993, and issued on February 17, 1998. Ex. 1006, codes (22), (45). The earliest priority date claimed by the '050 patent is based on an application, which matured into U.S. Patent No. 6,791,550, filed on December 11, 2001. Ex. 1001, code (60). The '550 patent claims priority to a provisional application filed on December 12, 2000. *Id*. Therefore, Nelson is prior art to the '050 patent under 35 U.S.C. § 102(b). *See* Pet. 3. Patent Owner does not contest the prior art status of Nelson. *See generally* PO Resp.

Nelson is titled "Digital Media Data Stream Network Management System." Ex. 1006, code (54). Nelson is directed to a "computer-based media data processor for controlling transmission of digitized media data in a packet switching network." *Id*. at code (57) (Abstract). Nelson "relates to the management of digitized media stream data, *e.g.*, digitized video, and particularly relates to the capture, storage, distribution, access and presentation of digital video within a network computing environment." *Id*. at 1:7–10. Nelson discloses a digital video management system (DVMS) that provides the ability to capture, store, transmit, access, process and present live or stored media stream data, independent of its capture or storage location, in either a stand-alone or a network environment. *Id*. at 5:45–50.

Figure 4 of Nelson is reproduced below.

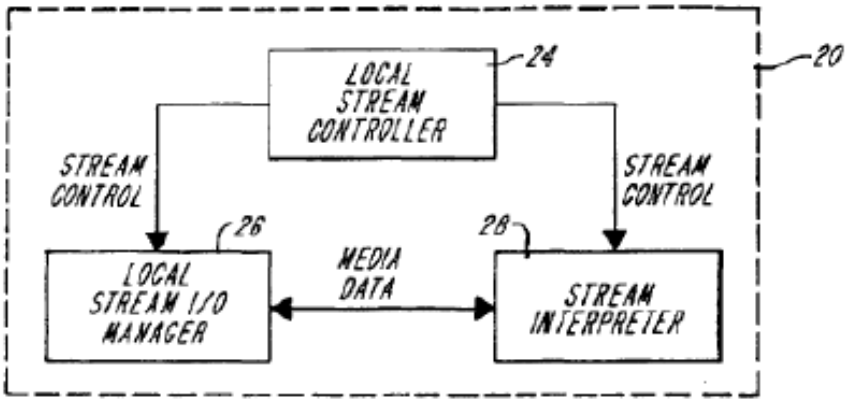

FIG. 4

Figure 4 of Nelson (above) is a schematic diagram of a network implementation of the digital video management system (DVMS). *Id.* at 5:4–6. The description of Figure 4 states:

> [T]he local DVMS manager 20 consists of three modules: the stream controller 24, stream input/output (I/O) manager 26, and the stream interpreter 28. This modularity is exploited in the DVMS design to separate the flow of data in a media data streams from the flow of control information for that media stream through the system. Based on this data and control separation, streams data and stream control information are each treated as producing distinct interactions among the three manager modules, which operate as independent agents.

Id. at 7:57–66. The description of Figure 4 further states:

> The stream interpreter module 28 is responsible for managing the dynamic computer-based representation of audio and video as that representation is manipulated in a standalone computer or a computer linked into a packet network. This dynamic management includes synchronization of retrieved audio and video streams, and control of the rate at which the audio and video information is presented during a presentation sequence.

Id. at 8:25–32. Figure 5 of Nelson is reproduced below.

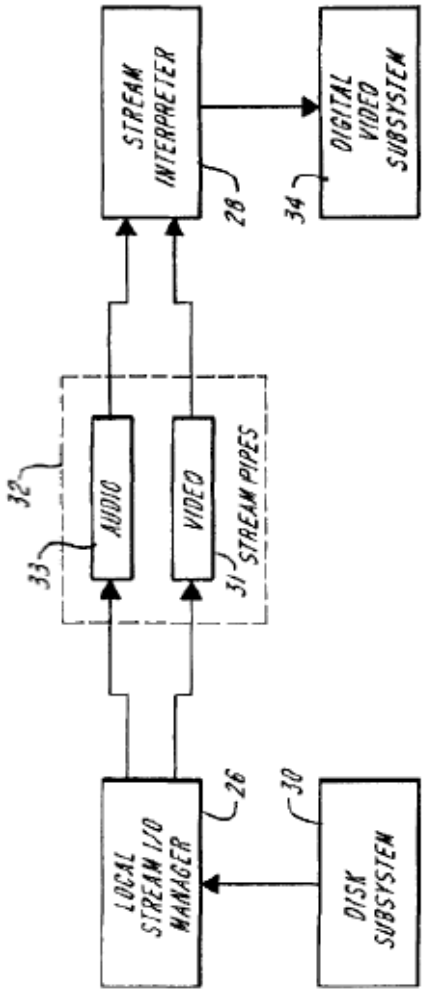

FIG. 5

Figure 5 of Nelson (above) depicts a stream flow when the DVMS requests access to audio or video streams. *Id.* at 9:62–63. The description of Figure 5 states:

> The stream I/O manager 26 module retrieves the requested streams from a stream input 30; this

> stream input comprises a storage access point, *e.g.*, a computer file or analog video source. The stream I/O manager then separates the retrieved streams according to the specified file format of each stream. If two streams, *e.g.*, audio and video streams, which are accessed were interleaved in storage, the stream I/O manager dynamically separates the streams to then transform them to distinct internal representations, each comprising a descriptor which is defined based on their type (*i.e.* audio or video). Once separated, the audio and video stream data are handled both by the stream I/O manager and the stream interpreter as distinct constituent streams within a stream group. The stream I/O manager 26 then exchanges the stream data, comprising sequences of presentation units, with the stream interpreter 28 via a separate queue of presentation units called a stream pipe 32, for each constituent stream; an audio stream pipe 33 is thus created for the audio presentation units, and a video stream pipe 31 is created for the video presentation units. Each audio stream (of a group of audio streams) has its own pipe, and each video stream has its own pipe. During playback of streams, the stream I/O manager continually retrieves and produces presentation units from storage and the stream interpreter continuously consumes them, via the stream pipes, and delivers them to a digital media data subsystem for, *e.g.*, presentation to a user.

Id. at 9:63–10:22. "[T]he digital video management system of the invention provides synchronization of audio to video, and in general, synchronization between

any two or more dynamic stream[s] being presented." *Id.* at 12:16–21.

Nelson's Figure 6 is reproduced below.

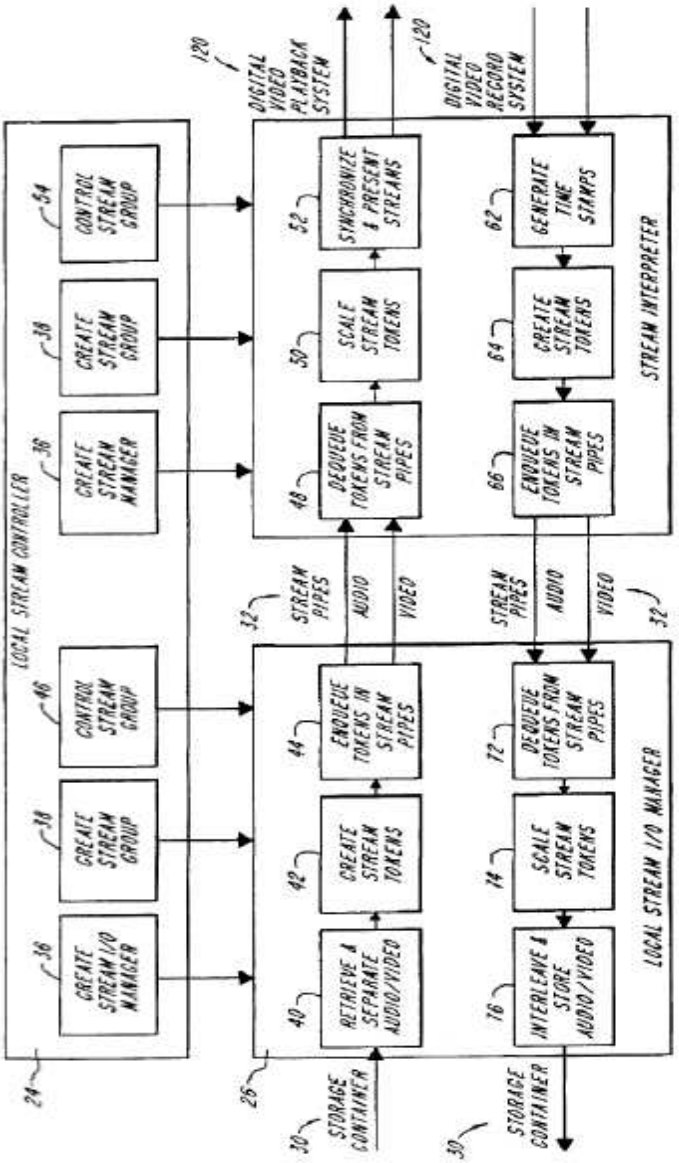

FIG. 6

Figure 6 of Nelson (above) depicts "a schematic flow chart illustrating presentation and capture scenarios carried out by the local digital video management system manager of FIG. 4." *Id.* at 5:13–15. The description of Figure 6 states:

> [T]he synchronization of streams within a stream group is the responsibility of the stream interpreter module during a scaling process. The streams may be self-synchronized using either an implicit timing scheme or an explicit timing scheme. Implicit timing is based on the fixed periodicity of the presentation units in the constituent streams of a stream group to be synchronized. In this scheme, each presentation unit is assumed to be of a fixed duration and the presentation time corresponding to each presentation unit is derived relative to a reference presentation starting time. This reference starting time must be common to all of the constituent streams. Explicit timing is based on embedding of presentation time stamps and optionally, presentation duration stamps, within each of the constituent streams themselves and retrieving the stamps during translation of streams from the storage format to the token format. The embedded time stamps are then used explicitly for synchronization of the streams relative to a chosen reference time base.
>
> Using either the implicit or explicit timing self-synchronization schemes, a reference time base is obtained from a reference clock, which advances at a rate termed the reference clock rate. This

> rate is determined by the reference [cl]ock[4] period, which is the granularity of the reference clock ticks.
>
> The DVMS of the invention supports two levels of self-synchronization control, namely, a base level and a flow control level. Base level synchronization is applicable to stream process scenarios in which the stream I/O manager is able to continuously feed stream data to the stream interpreter, without interruption, and in which each presentation unit is available before it is to be consumed. In this scenario, then, the stream I/O manager maintains a process rate and a process work load that guarantees that the stream I/O manager stays ahead of the stream interpreter.

Id. at 13:19–53.

Nelson's Figure 10 is reproduced below.

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4 Elsewhere in the specification, "dock" was changed to "clock." *See* Ex. 1006 at p. 58 (Certificate of Correction) ("[E]ach occurrence of the word 'dock' should read–clock–.").

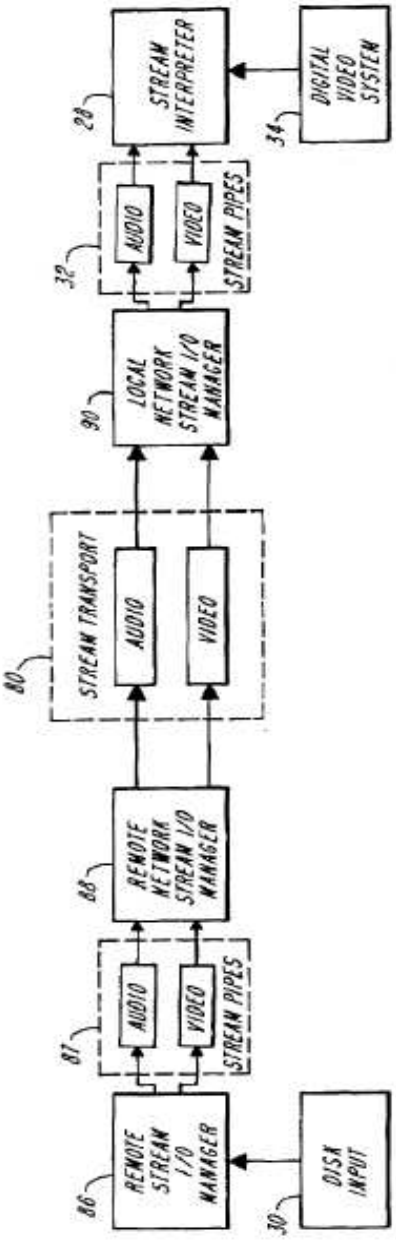
REMOTE STREAM I/O MANAGER
86
DISK INPUT
30
AUDIO
VIDEO
STREAM PIPES
87
REMOTE NETWORK STREAM I/O MANAGER
88
STREAM TRANSPORT
AUDIO
VIDEO
80
LOCAL NETWORK STREAM I/O MANAGER
90
AUDIO
VIDEO
STREAM PIPES
32
STREAM INTERPRETER
28
DIGITAL VIDEO SYSTEM
34

FIG. 10

Figure 10 of Nelson (above) depicts "a schematic diagram illustrating the flow of media stream data between the remote and local digital video management manager modules." *Id.* at 5:29–31. The description of Figure 10 states:

> Upon initialization from the request, and based on the network servers' stream group advertisements, the appropriate remote stream I/O manager 86 retrieves stored streams, *e.g.*, audio and video streams, from the appropriate file storage 30 containing the requested stream group. The manager then separates the retrieved streams, if necessary, thereby producing separate audio and video presentation unit streams, and enqueues corresponding stream descriptor tokens in separate stream pipes 87, one pipe for each presentation unit token stream.
>
> The remote network stream I/O manager 88 consumes the presentation unit tokens from each of the stream pipes, assembles transmission packets based on the streams, and releases them for transmission across the network 80 directly to the corresponding local network stream I/O manager 90, based on the DVMS stream data transport protocols; the particular transport protocol used is set by the network environment.

Id. at 20:21–38.

2. Covell (Ex. 1007)

Covell teaches a time scale modification technique for "facilitat[ing] high rates of compression and/or expansion while maintaining the intelligibility of the resulting sounds." Ex. 1007, 1:6–11. In particular,

Covell discloses a technique that applies a time scale modification non-uniformly to individual audio frames to "provide a more intelligible signal upon playback, even at high modification rates." *Id.* at 9:44–48.

D. Obviousness Based on Nelson

Petitioner contends that claims 1–4, 8, 20, 25, 31, 32, 34, 36, 40–43, and 45 would have been obvious in view of Nelson. Pet. 3, 12–66. Based on Petitioner's analysis and for the reasons explained below, we find Petitioner has shown by a preponderance of evidence that claims 1–4, 8, 20, 25, 31, 32, 34, 36, 40–43, and 45 would have been obvious over Nelson.

1. Independent Claim 1

Preamble

Claim 1's preamble recites "[a] method, performed by at least one machine, for rendering temporal sequence presentation data in a machine-implemented rendering system, the temporal sequence presentation data being tangibly stored in a first computer-readable medium." Neither party takes a position as to whether the preamble of claim 1 is limiting. *See* Pet. 12; *see generally* PO Resp. We need not determine whether the preamble is limiting because, as explained below, Petitioner shows that Nelson teaches the preamble's subject matter. *See* Pet. 12–33.

The Petition states Nelson teaches the preamble because "*Nelson* discloses '*a computer-based media data processor* for controlling the computer presentation of digitized continuous *time-based* media data composed of a *sequence of presentation units*'" and "*Nelson* discloses a DVMS [Digital Video Management System],

which 'provides the ability to capture, store, transmit, access, process and *present live or stored media streams data.*'" *Id.* at 12–13 (quoting Ex. 1006, 2:10–13, 5:45–50). Petitioner further states "*Nelson* discloses that a stream includes 'dynamic information . . . with *temporal predictability*' and '*a succession of sequences* . . . in turn, each sequence contains *a succession of segments*'" and "each stream contains a presentation unit being 'a unit of continuous, temporally-based data to be presented,' which 'has an *associated presentation time and presentation duration*.'" *Id.* at 13–14 (quoting Ex. 1006, 6:10–26, 6:44–47).

Patent Owner does not dispute Petitioner's assertions in this regard. We have reviewed Petitioner's arguments and the underlying evidence cited in support. We are persuaded Petitioner sufficiently establishes that Nelson teaches claim 1's preamble, *i.e.*, "[a] method, performed by at least one machine, for rendering temporal sequence presentation data in a machine-implemented rendering system, the temporal sequence presentation data being tangibly stored in a first computer-readable medium."

Element (A)

Claim 1 further requires "maintaining a value of a presentation time parameter tangibly stored in a second computer-readable medium and representing an amount of time elapsed during rendering of a portion of the temporal sequence presentation." Petitioner explains that Nelson's reference time base corresponds to the claimed presentation time parameter because it "indicates the current real time relative to the start time of the presentation unit consumption process." *Id.* at 35 (quoting Ex. 1006, 14:27–29); *see*

also id. at 37. Because Nelson's "DVMS utilizes the reference time base (the claimed 'value of a presentation time parameter') to compare it with a calculated product," Petitioner explains, "the disclosed 'value' is at least temporarily stored on the DVMS." *Id*. at 35.

Patent Owner asserts that Nelson does not teach the claimed presentation time parameter because Nelson's reference clock "ticks along at the 'reference clock rate' whether or not any given portion of presentation data, or even any given single *Nelson* presentation unit, is rendered." PO Resp. 39. Thus, Patent Owner contends, "the *Nelson* reference clock does not track elapsed time during presentation of presentation units." *Id*. In addition, Patent Owner asserts Nelson does not disclose a presentation time parameter that is "maintained." *Id*. at 46. Specifically, according to Patent Owner, "[b]ecause the use of the reference time base that Petitioner points to in Nelson results in synchronization, there is no need to *maintain* . . . the value of the reference time base for any purpose." *Id*. We disagree with Patent Owner's arguments.

First, Patent Owner's arguments related to Nelson's "reference clock" are not persuasive because Petitioner relies on Nelson's reference time base as the claimed presentation time parameter. Nelson's reference clock and reference time base are not the same features. *See* Pet. 33. In addition, Patent Owner's focus on what is actually rendered is misplaced. The term at issue requires only a presentation time parameter "representing" elapsed time during rendering. As noted above, *supra* Section II.B.1, the specification defines "presentation time" as "time elapsed since the beginning of the media content

presentation." Ex. 1001, 2:2–4. Consistent with the specification's definition and claim 1's language, the time elapsed since the beginning of the media content presentation "represent[s] an amount of time elapsed during rendering of a portion of the temporal sequence presentation," as claimed. We agree with Petitioner that Nelson's reference time base, which "indicates the current real time relative to the start time of the presentation unit consumption process for the corresponding stream," Ex. 1006, 14:27–29, meets that definition. Moreover, we agree with Petitioner's uncontested assertion that Nelson's reference time base "is at least temporarily stored in the DVMS" for the comparison described in Nelson to be made. Pet. 35; *see* PO Resp. 38–41. That storage and subsequent comparison is enough because, contrary to Patent Owner's argument, the claims do not have any requirement to maintain the presentation time parameter for any particular duration. *See* PO Resp. 47–48 (arguing that "the reference time base is not maintained at all—at each comparison conducted by the stream interpreter, the stream interpreter updates the reference time base from the reference time clock"). Thus, we agree with Petitioner that Nelson teaches "maintaining a value of a presentation time parameter tangibly stored in a second computer-readable medium and representing an amount of time elapsed during rendering of a portion of the temporal sequence presentation," as clam 1 requires.

Element (B)

Claim 1 further requires "providing the value of the presentation time parameter to a first component of the rendering system." Petitioner contends that Nelson discloses this limitation because "*Nelson*

discloses providing the value of the reference time base ('the value of the presentation time parameter') to the stream interpreter of the DVMS ('a first component of the rendering system')." Pet. 38 (citing Ex. 1002 ¶¶ 68–69). We agree with Petitioner that Nelson discloses providing the value of the reference time base to the stream interpreter. *See* Pet. 38 (explaining that "the stream interpreter module uses the value of the reference time base to determine whether to release a presentation unit for synchronization purposes" and "the reference time base is obtained from a reference clock") (internal quotation marks and citation omitted).

Patent Owner's only argument contesting the claimed "providing" step is that, even if "some value of a presentation time parameter is maintained, the parameter is never *provided from* where it is allegedly maintained." PO Resp. 48. We disagree with Patent Owner's argument because, as Petitioner explains, "the claims do not require that the value of the 'presentation time parameter' be 'provided from where it is allegedly maintained.'" Pet. Reply 19.

Element (C)

Claim 1 further requires "maintaining a value of a data time parameter tangibly stored in a third computer-readable medium and representing an amount of time required by the rendering system to render the portion of the temporal sequence presentation data at a default presentation rate." Petitioner corresponds Nelson's calculated or embedded presentation time to the claimed data time parameter. Pet. 39–42. Petitioner explains that in Nelson's implicit timing scheme, this value is the product of the

presentation unit count and the fixed presentation duration of each presentation unit. *Id.* at 40 (citing Ex. 1006, 14:32–34, 13:26–27). "[T]his product," Petitioner notes, "represents 'an amount of time required by the rendering system to render the portion of the temporal sequence presentation data at a default presentation rate,' as claimed, because it is the same time requirement regardless of the presentation rate." *Id.* at 40 (citing Ex. 1002 ¶ 71; Ex. 1006, 17:39–48). Petitioner goes on to explain that "this value is 'tangibly stored in a third computer-readable medium'" as claimed because Nelson's "DVMS utilizes the calculated product . . . to compare it with the reference time base." *Id.* at 41 (citing Ex. 1006, 14:34–36). Petitioner further asserts that Nelson's embedded presentation time in the explicit timing scheme also teaches the claimed "data time parameter." *See id.* at 41–42. Patent Owner does not dispute Petitioner's assertions in this regard. We have reviewed Petitioner's arguments and the underlying evidence cited in support and are persuaded Petitioner sufficiently establishes that Nelson teaches "maintaining a value of a data time parameter tangibly stored in a third computer-readable medium and representing an amount of time required by the rendering system to render the portion of the temporal sequence presentation data at a default presentation rate."

Element (D)

Claim 1 further requires "providing the value of the data time parameter to a second component of the rendering system; wherein the value of the presentation time parameter is not equal to the value of the data time parameter." Petitioner explains that Nelson teaches this limitation because "Nelson discloses

providing the calculated or embedded presentation time ('the value of the data time parameter') to the stream interpreter of the DVMS." *Id*. at 43. Further, Nelson discloses that the presentation time ("the value of the data time parameter") and the reference time base ("the value of the presentation time parameter") are not equal because "*Nelson* discloses that 'if the appropriate release time for those [presentation] units has passed,' *i.e.*, if the two times values are not equal, both the implicit and explicit schemes delete those units." *Id*. at 44 (citing Ex. 1006, 15:26–40).

Patent Owner argues that Nelson does not teach the claimed not-equal feature "because when units are presented, the [presentation time and data time] values that Petitioner points to are always equal." PO Resp. 44. This argument relies on Patent Owner's claim construction argument relating to "a value of a presentation time parameter . . . representing an amount of time elapsed *during rendering* of the portion of the temporal sequence presentation data" (emphasis added). *See, e.g.*, PO Resp. 45 (arguing that "the value that is used in the comparison that results in the 'not equal' value cannot correspond to a 'portion of the temporal sequence presentation data' that has been rendered"). As noted above, we reject that argument. *See supra* Section II.B.1. Patent Owner otherwise acknowledges that when Nelson's presentation units are received late and need to be deleted, the reference time base (presentation time) and the calculated or embedded presentation time (data time) would not be the same. *See* PO Resp. 43–45.

We have reviewed Petitioner's arguments and the underlying evidence cited in support and, for the

reasons Petitioner articulates, *see* Pet. 43–44, we are persuaded that Nelson teaches "wherein the value of the presentation time parameter is not equal to the value of the data time parameter."

Element (E)

Claim 1 further requires "rendering at least a part of the temporal sequence presentation data using time-scale modification (TSM)." Petitioner explains that Nelson teaches this limitation because Nelson teaches speeding up and slowing down video streams, as well as playing video steams at a custom rate. *Id.* at 44–45 (citing Ex. 1006, 8:29–32, 17:39–50). Patent Owner does not contest that Nelson teaches rendering a part of the temporal sequence presentation data using time-scale modification under our construction of that term as outlined above in Section II.B.3. Instead, Patent Owner asserts that "Nelson does not disclose the time-scale modification Requirement" under its construction, PO Resp. 63, which we decline to adopt for the reasons explained above. Given Nelson's disclosure of a custom/sped-up/slowed-down video playback rate, and in light of our construction of "time scale modification"—*i.e.*, playback rate modification—we agree with Petitioner that Nelson teaches "rendering at least a part of the temporal sequence presentation data using time-scale modification."

For the reasons explained above, Petitioner has proved by a preponderance of the evidence that claim 1 would have been obvious over Nelson.

2. Claims 2–4

Petitioner explains that Nelson teaches the additional limitation in dependent claim 2 ("wherein the first component and the second component are the same component of the rendering system") because the first and second components of the rendering system "may both be the stream interpreter of the DVMS." Pet. 45. Patent Owner does not dispute Petitioner's assertions in this regard. We have reviewed Petitioner's arguments and the underlying evidence cited in support and are persuaded that Nelson teaches the additional limitation in claim 2.

Petitioner explains that Nelson teaches the additional limitation in dependent claim 3 ("wherein the step (B) comprises a step of providing the presentation time parameter value in response to a request from the first component for a current time") because Nelson's reference time base is provided in response to a current time request from the stream interpreter. *Id.* at 46–47. Patent Owner does not dispute Petitioner's assertions in this regard. We have reviewed Petitioner's arguments and the underlying evidence cited in support and are persuaded that Nelson teaches the additional limitation in claim 3.

Petitioner explains that Nelson teaches the additional limitation in dependent claim 4 ("wherein the step (D) comprises a step of providing the data time parameter value in response to a request from the second component for a current time") because Nelson's implicit and explicit timing synchronization schemes involve requesting the calculated/embedded presentation time for comparison with the reference time base. *Id.* at 47–48. Patent Owner does not dispute Petitioner's assertions in this regard. We have

reviewed Petitioner's arguments and the underlying evidence cited in support and are persuaded that Nelson teaches the additional limitation in claim 4.

For the reasons explained above, Petitioner has proved by a preponderance of the evidence that claims 2–4 would have been obvious over Nelson.

3. Claims 8 and 20

Independent claims 8 and 20 require a device/memory/processor, but otherwise mirror independent claim 1. Petitioner relies on its earlier arguments outlined above for these claims. *See* Pet. 48–53. Other than the arguments above, Patent Owner does not separately contest claims 8 and 20. *See* PO Resp. 38–63. For the reasons above, we conclude that Petitioner has shown by a preponderance of the evidence that claims 8 and 20 would have been obvious over Nelson.

4. Claim 25

Independent claim 25 includes limitations similar to independent claim 8, except that claim 25 adds two limitations addressing audio samples—"wherein an original portion of the original temporal sequence presentation data comprises a plural number of audio samples" and "changing the number of audio samples stored in the original portion of the original temporal sequence presentation data to produce a modified portion of the temporal sequence presentation data." In addition to its previous assertions, Petitioner explains that Nelson teaches claim 25's audio sample inclusion because Nelson discloses its presentation unit may "comprise a number of sound samples." Pet. 54 (quoting Ex. 1006, 6:53–56). Petitioner further

explains that Nelson includes a recovery mechanism (*i.e.*, a flow control level scheme) that changes the number of audio samples by deleting units or inserts null units, as needed. *Id.* at 55–56.

Patent Owner asserts that Nelson's deletion/insertion schemes do not "chang[e] the number of audio samples stored in *the original portion*" as claimed because Petitioner's asserted changes are made post-presentation. PO Resp. 58–59. We disagree. First, Patent Owner does not explain why the disputed limitation precludes post-presentation changes. *See id*. The at-issue limitation does not restrict *when* the number of audio samples that were stored in the original portion can be changed. In addition, contrary to Patent Owner's position and as Petitioner explains, Nelson discloses that null units are added while presentation is ongoing. *See* Pet. Reply 21 (citing Ex. 1006, 13:54–67, 15:41–50, 15:57–65). We agree with Petitioner that Nelson's audio sample deletion/insertion schemes teach the additional audio-sample limitations in claim 25. *See* Pet. 54–56. Thus, Petitioner has proved by a preponderance of the evidence that claim 25 would have been obvious over Nelson.

5. Claims 31, 32, and 34

Claim 31 depends from independent claim 25 and further requires "wherein the original temporal sequence presentation data comprises at least one buffer comprising the plural number of samples." Petitioner explains that Nelson teaches claim 31's additional limitation because Nelson teaches interleaved audio and video streams with multiple timestamped data elements. *Id.* at 58. Patent Owner does not dispute Petitioner's assertions in this regard.

We have reviewed Petitioner's arguments and the underlying evidence cited in support and are persuaded that Nelson teaches the additional limitation in claim 31.

Claim 32 depends from claim 31 and further requires "wherein the at least one buffer comprises a plurality of buffers." Petitioner explains that Nelson teaches claim 32's additional limitation because Nelson's interleaved media stream includes multiple individual streams, which each include timestamped data elements. *Id.* at 59. Thus, Petitioner explains, "each of the individual streams constitutes a buffer." *Id.* Patent Owner does not dispute Petitioner's assertions in this regard. We have reviewed Petitioner's arguments and the underlying evidence cited in support and are persuaded that Nelson teaches the additional limitation in claim 32.

Claim 34 depends from claim 32 and further requires "wherein the first one of the plurality of buffers comprises a plurality of the audio samples." Petitioner explains that Nelson teaches this limitation because Nelson's interleaved media stream includes multiple media streams, and one of the media streams is an audio stream with a plurality of timestamped audio samples. *Id.* Claim 34 further requires "wherein the program instructions further comprise instructions executable by the at least one processor to process the plurality of the audio samples in the first one of the plurality of buffers while holding the value of the presentation rate parameter constant." Petitioner explains that Nelson teaches this limitation because "the presentation rate of the stream does not change unless the disclosed data is modified to be 'played at a custom rate' that is different from 'the rate at which

the stream was captured' or the 'real time rate.'" *Id.* at 60 (quoting Ex. 1006, 17:39–50). As Petitioner notes, "if the presentation rate is not modified (*i.e.*, it is kept at the default rate or a custom rate that is not subsequently changed), the presentation rate of the audio stream is preserved, while the audio stream is still subject to decoding and conversion processes for rendering the audio samples." *Id.* at 61. Patent Owner does not dispute Petitioner's assertions in this regard. We have reviewed Petitioner's arguments and the underlying evidence cited in support and are persuaded that Nelson teaches the additional limitation in claim 34.

For the reasons above, Petitioner has proved by a preponderance of the evidence that claims 31, 32, and 34 would have been obvious over Nelson.

6. Claims 36, 40–43, and 45

Claims 36, 40–43, and 45 recite limitations similar to claims 25, 31, and 34. Petitioner relies on its earlier arguments outlined above for its challenge to claims 36, 40–43, and 45. *See* Pet. 48–53. Other than the arguments above, Patent Owner does not separately contest claims 36, 40–43, and 45. *See* PO Resp. 38–63. For the reasons above, we conclude that

Petitioner has shown by a preponderance of the evidence that claims 36, 40–43, and 45 would have been obvious over Nelson.

E. Obviousness Based On Nelson and Covell

Petitioner asserts that claims 25, 31, 32, 34, 36, 40–43, and 45 would have been obvious over Nelson and Covell. Pet. 67–72. Petitioner's Nelson-Covell

challenge is the same as its challenge based on Nelson alone except that Petitioner relies on Covell to the extent Nelson does not teach a single limitation—changing the number of audio samples to produce a modified portion of temporal sequence presentation data—as required in claims 25, 31, 32, 34, 36, 40–43, and 45. *See* Pet. 67–72. According to Petitioner, Covell teaches this limitation by teaching time-scale modification for sound playback. *See id.* at 67–68 (citing Ex. 1007, Abstract, 1:6–11, 3:5–7, 3:27–29, 4:25–31, 9:41–48; Ex. 1002 ¶¶ 131–135). Patent Owner does not dispute that Covell teaches changing the number of audio samples as claimed and, having reviewed Petitioner's arguments and the underlying evidence cited in support, we agree that Covell teaches this limitation.

Petitioner further explains, with support from its expert and the prior art, that a skilled artisan would have been motivated to combine Covell's audio playback technique with Nelson's DVMS to improve listener comprehension or facilitate transcription while increasing playback rates and thereby reducing listening time. *See id.* at 69 (citing Ex. 1007, 1:14–23; Ex. 1002 ¶ 137).

Patent Owner asserts that Petitioner's obviousness challenge fails because "there is no motivation to combine." PO Resp. 60; *see id.* at 60–62. We disagree. As noted above, Petitioner provides reasons why a skilled artisan would have been motivated to combine Covell's audio playback technique with Nelson's DVMS —*i.e.*, to "provide[] a more intelligible and natural sounding speech even at high modification rates, allowing a listener to utilize this time scale modification feature with an improved efficiency." Pet. 69.

With this analysis, Petitioner articulates sufficient reasoning with rational underpinning to support the legal conclusion that its proffered combination of Nelson and Covell would have been obvious to one skilled in the art. *See KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007).

For the reasons explained above, Petitioner has proved by a preponderance of evidence that claims 25, 31, 32, 34, 36, 40–43, and 45 would have been obvious over Nelson and Covell.

III. Conclusion[5]

We have reviewed the Petition, Patent Owner Response, Petitioner Reply, and Patent Owner Sur-reply. We have considered all of the evidence and arguments presented by Petitioner and Patent Owner and have weighed and assessed the entirety of the evidence as a whole. We determine, on this record, that Petitioner has demonstrated by a preponderance of evidence that claims 1–4, 8, 20, 25, 31, 32, 34, 36, 40–43, and 45 of the '050 patent are unpatentable over Nelson and that claims 25, 31, 32, 34, 36, 40–43, and 45 are unpatentable over Nelson and Covell.

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[5] Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this Decision, we draw Patent Owner's attention to the April 2019 *Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding*, 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. *See* 37 C.F.R. § 42.8(a)(3), (b)(2).

Claims	**1–4, 8, 20, 25, 31, 32, 34, 36, 40–43, 45**
35 U.S.C. §	103(a)
Reference(s)/Basis	Nelson
Claims Shown Unpatentable	1–4, 8, 20, 25, 31, 32, 34, 36, 40–43, 45
Claims Not Shown Unpatentable	
Claims	**25, 31, 32, 34, 36, 40–43, 45**
35 U.S.C. §	103(a)
Reference(s)/Basis	Nelson, Covell
Claims Shown Unpatentable	25, 31, 32, 34, 36, 40–43, 45
Claims Not Shown Unpatentable	
Overall Outcome	1–4, 8, 20, 25, 31, 32, 34, 36, 40–43, 45

IV. Order

It is hereby:

ORDERED that claims 1–4, 8, 20, 25, 31, 32, 34, 36, 40–43, and 45 of the '050 patent are unpatentable under 35 U.S.C. § 103(a) as obvious over Nelson; and

Further ORDERED that claims 25, 31, 32, 34, 36, 40–43, and 45 of the '050 patent are unpatentable under 35 U.S.C. § 103(a) as obvious over Nelson and Covell; and

FURTHER ORDERED that this Decision is final, and a party to this proceeding seeking judicial review of the Decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

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USPTO FINAL WRITTEN DECISION
IPR2019-01239, '108 PATENT
(JANUARY 13, 2021)

Paper 39
Date: January 13, 2021

UNITED STATES PATENT AND
TRADEMARK OFFICE

BEFORE THE PATENT TRIAL
AND APPEAL BOARD

GOOGLE LLC,

Petitioner,

v.

VIRENTEM VENTURES, LLC,

Patent Owner.

IPR2019-01239

Patent 8,068,108 B2

Before: Meredith C. PETRAVICK, Jennifer MEYER CHAGNON, and Terrence W. McMILLIN, Administrative Patent Judges.

JUDGMENT
Final Written Decision
Determining All Challenged Claims Unpatentable
35 U.S.C. § 318(a)

PETRAVICK, Administrative Patent Judge.

I. Introduction

A. Background and Summary

Google LLC ("Petitioner")[1] filed a petition to institute an *inter partes* review of claims 1, 3, 5, and 7 of U.S. Patent No. 8,068,108 B2 (Ex. 1001, the " '108 patent") pursuant to 35 U.S.C. § 311 *et seq*. Paper 1 ("Petition" or "Pet."). Virentem Ventures, LLC ("Patent Owner") filed a Preliminary Response to the Petition. Paper 11 ("Prelim. Resp."). On January 15, 2020, we instituted trial. Paper 16 ("Inst. Dec."). Patent Owner filed a Response. Paper 27 ("PO Resp."). Petitioner filed a Reply. Paper 29 ("Pet. Reply"). Patent Owner filed a Sur-reply. Paper 32 ("PO Sur-reply"). An oral argument was held on November 18, 2020, and a transcript was entered into the record. Paper 38 ("Tr.").

We have jurisdiction to conduct this *inter partes* review under 35 U.S.C. § 6. This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. For the reasons discussed herein, we determine that Petitioner has shown, by a preponderance of the evidence, that claims 1, 3, 5, and 7 of the '108 patent are unpatentable.

B. Related Matters

The parties indicate that the '108 patent has been asserted in the following case filed in the United States District Court for the District of Delaware on

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[1] Petitioner identifies Google LLC and YouTube LLC as the real parties-in-interest to this proceeding. Pet. 1.

November 9, 2018: *Virentem Ventures, LLC v. YouTube, LLC*, Case No. 1:18-cv-00917. Pet. 1; Paper 3, 1. The District Court case has been stayed through the issuance of final written decisions by the Board. Ex. 2004, 1.

C. The '108 Patent

The '108 patent is titled "Management of Presentation Time in a Digital Media Presentation System with Variable Rate Representation Capabilities." Ex. 1001, code (54).

By way of background, the '108 patent explains that traditional digital rendering systems, such as RealNetworks RealPlayer digital media players, maintain an internal variable during playback of media content that reflects a current presentation time, which is referred to as "Current Time." *Id.* at 1:28–32. Current Time reflects a current position in the media content, starting at zero at the beginning of the media content. *Id.* at 1:32–34. The '108 patent explains that Current Time conflates two different properties of media playback: (1) "Presentation Time," which is the time elapsed since the beginning of the media content presentation; and (2) "Content Time," which is the location in the media content stream that is currently being played. *Id.* at 1:55–2:12. The '108 patent also describes that "Data Time" is a time value associated with each content element "specifying how long it would take to reach that location, starting from the beginning of the media content, and playing at normal rate." *Id.* at 1:55–2:5. The '108 patent explains that "Presentation Time and Data Time are identical in traditional players, because traditional players can only present media content at a fixed

'normal' rate." *Id.* at 2:13–15. In the case of media players enhanced with Time-Scale Modification (TSM) capability, the player can present media content at various rates, and thus Presentation Time and Data Time may diverge. *Id.* at 2:15–19. For example, a player with TSM functionality could play a 60 second clip in only 30 seconds if the content is presented at a fixed rate that is twice the normal rate. *Id.* at 2:19–23.

The '108 patent describes two problems resulting from the possible disparity between Presentation Time and Data Time in media players with TSM functionality. *Id.* at 2:24–25. A first problem is that "the significance of the time value distributed to multiple objects is, in general, ambiguous." *Id.* at 2:31–34. A second problem "is that Data Time does not, in general, equal Presentation Time, and the calculation, storage, and distribution of a single time value is inadequate to specify both values." *Id.* at 2:34–39. In particular, the '108 patent explains that it is common for media players to rely on an audio renderer to calculate and update the Current Time value. *Id.* at 2:40–52. When "a media player does in fact acquire the Current Time value from the audio renderer, the value that the audio renderer will return to the system will typically be the Presentation Time." *Id.* at 2:53–56. This creates a problem in media players with TSM functionality because "most of the rest of the system needs Data Time," and thus "most of the rest of the system can no longer employ the value returned by the audio renderer object." *Id.* at 2:56–58.

The invention manages "Presentation Time in a digital rendering system for presentation of temporally-

ordered data when the digital rendering system includes a Variable Rate Presentation capability." *Id.* at 2:65–3:1. Figure 1 of the '108 patent is reproduced below.

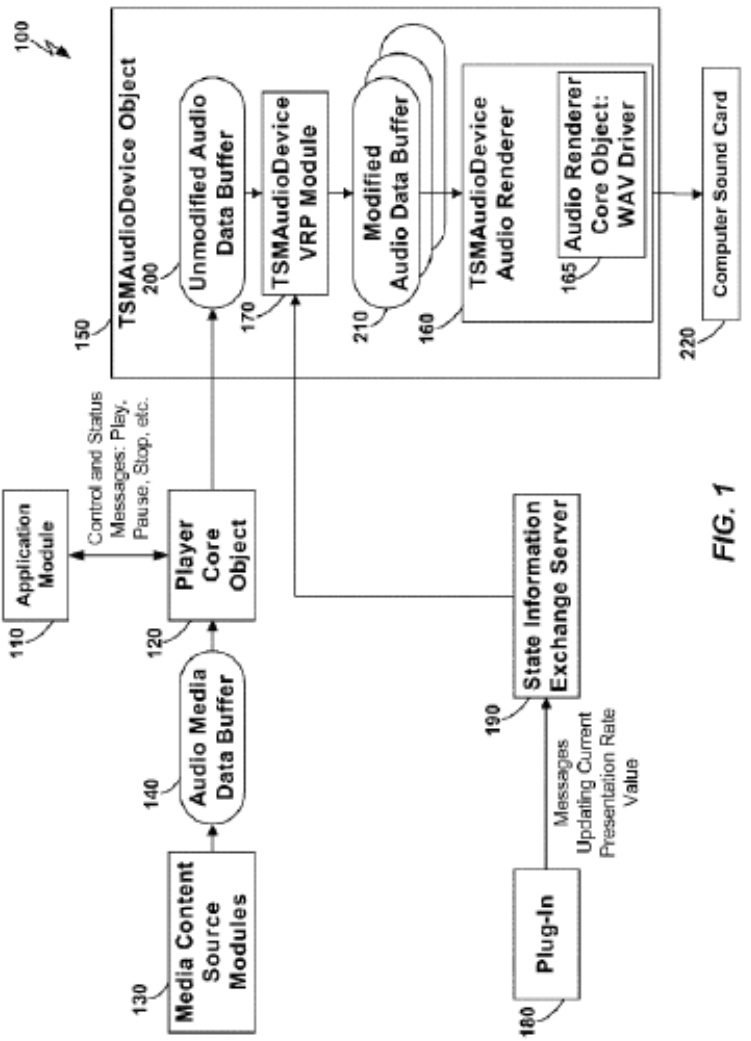

FIG. 1

Figure 1, above, depicts "a block diagram of a Presentation System embodied as a RealNetworks RealPlayer application running on a computer." *Id.* at 5:31–33. Presentation System 100 includes an application module 110 which communicates control and status messages (*e.g.*, Play, Pause, Stop), to Player Core object 120. *Id.* at 6:2–11. "Temporal Sequence Presentation Data" or "Presentation Data" are embodied as streaming media content and are delivered to the RealPlayer application. *Id.* at 6:11–17. Presentation Data are received by media content source module(s) 130, and are placed in audio media data buffers 140. *Id.* at 6:18–22. TSMAudioDevice object 150 combines functions of the Renderer for audio data (TSMAudioDevice Audio Renderer 160) and a Variable Rate Presentation Module. *Id.* at 6:53–58. The '108 patent notes that although the RealNetworks RealPlayer application does not natively include support for variable rate playback, plug-in 180 adds variable rate playback capability to the RealPlayer application. *Id.* at 6:62–66. Plug-in 180 communicates with TSMAudioDevice object 150 by sending messages that specify a desired playback or presentation rate through an object called State Information Exchange Server 190 ("SIX Server 190"). *Id.* at 7:5–8. TSMAudioDevice object 150 accepts messages from SIX Server 190 that specify a desired playback or presentation rate. *Id.* at 7:9–11. The '108 patent notes that Player Core object 120 of the RealPlayer application includes methods to query the Current Time, and Player Core object 120 interprets all returned times as Data Times. *Id.* at 7:53–65. In order to support the concept of Presentation Times that are different

than Data Times, according to one embodiment of the '108 patent, TSMAudioDevice object 150 performs conversion of Presentation Time into Data Time (as needed by Player Core object 120). *Id.* at 7:65–8:3.

D. Challenged Claims

Petitioner challenges claims 1, 3, 5, and 7 of the '108 patent. Pet. 2–3. All of the challenged claims are independent method claims. Ex. 1001, 23:6–25:17. Claims 1 and 3 are illustrative. Claim 1 recites:

> 1. A method, performed by at least one machine, for use in a rendering system for rendering temporal sequence presentation data in a machine-implemented rendering system, the temporal sequence presentation data being tangibly stored in a first computer-readable medium, the method comprising steps of:
>
> (A) maintaining a value of a presentation time parameter tangibly stored in a second computer-readable medium and representing an amount of time elapsed during rendering of a portion of the temporal sequence presentation data;
>
> (B) maintaining a value of a data time parameter tangibly stored in a third computer-readable medium and representing an amount of time required by the rendering system to render the portion of the temporal sequence presentation data at a default presentation rate;
>
> (C) receiving requests for the value of the presentation time parameter: and

(D) returning the value of the presentation time parameter to a first component of the rendering system in response to the request;

wherein the value of the presentation time parameter is not equal to the value of the data time parameter.

Id. at 23:6–28. Claim 3 recites:

3. A method, performed by at least one machine, for use in a rendering system for rendering temporal sequence presentation data in a machine-implemented rendering system, the temporal sequence presentation data being tangibly stored in a first computer-readable medium, the method comprising steps of:

(A) maintaining a value of a presentation time parameter tangibly stored in a second computer-readable medium and representing an amount of time elapsed during rendering of a portion of the temporal sequence presentation data;

(B) maintaining a value of a data time parameter tangibly stored in a third computer-readable medium and representing an amount of time required by the rendering system to render the portion of the temporal sequence presentation data at a default presentation rate;

(C) receiving requests for the value of the data time parameter: and

(D) returning the value of the data time parameter to a first component of the

rendering system in response to the request;

wherein the value of the presentation time parameter is not equal to the value of the data time parameter.

Id. at 23:50–24:5. Claim 5 is similar to claim 3, but claim 5 omits claim 3's step "(C) receiving requests for the value of the data time parameter." *Id.* at 24:27–45. Claim 7 is similar to claim 1, but claim 7 omits claim 1's step "(C) receiving requests for the value of the presentation time parameter." *Id.* at 24:65–25:17.

E. The Asserted Ground

Petitioner challenges claims 1, 3, 5, and 7 of the '108 patent on the following ground:

Claims Challenged	35 U.S.C. §[2]	Reference(s)/Basis
1, 3, 5, and 7	103(a)	Nelson[3]

Pet. 2.

II. Analysis

A. Legal Standards

A patent claim is unpatentable under 35 U.S.C. § 103(a) if the differences between the claimed subject

[2] Because the application leading to the '108 patent was filed before March 16, 2013, patentability is governed by the version of 35 U.S.C. § 103 preceding the Leahy-Smith America Invents Act ("AIA"), Pub L. No. 112–29, 125 Stat. 284 (2011).

[3] US Patent No. 5,719,786 (Ex. 1006) filed Feb. 3, 1993.

matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including: (1) the scope and content of the prior art; any differences between the claimed subject matter and the prior art; the level of ordinary skill in the art; and (4), where in evidence, objective evidence of nonobviousness.[4] *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). Consideration of the Graham factors "helps inform the ultimate obviousness determination." *Apple Inc. v. Samsung Elecs. Co.,* 839 F.3d 1034, 1048 (Fed. Cir. 2016) (en banc).

"In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable." *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review petitions to identify "with particularity . . . the evidence that supports the grounds for the challenge to each claim")). This burden of persuasion never shifts to Patent Owner. *See Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (discussing the burden of proof in *inter partes* review).

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[4] Neither party presents any argument relating to objective evidence of nonobviousness.

B. Level of Ordinary Skill in the Art

With regard to the level of ordinary skill in the art, Petitioner contends that a person of ordinary skill would have either "(a) a Master's or doctoral degree in computer science, electrical engineering, or a similar discipline" or "(b) a Bachelor's degree in computer science, electrical engineering, or a similar discipline and at least two years of work experience in content presentation systems, or a related area." Pet. 3–4 (citing Ex. 1002 (Schonfeld Decl.) ¶¶ 19–20). "Patent Owner accepts Petitioner's proffered level of ordinary skill in the art in analyzing Petitioner's allegations of obviousness." PO Resp. 25 (citing Ex. 2016 (Boncelet Decl.) ¶¶ 30–32). We find Petitioner's undisputed contention to be reasonable and we adopt the level of ordinary skill in the art as proposed by Petitioner.

C. Claim Construction

"[I]n an *inter partes* review proceeding, a claim of a patent . . . shall be construed using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. § 282(b), including construing the claim in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent."[5] 37 C.F.R. § 42.100(b). In applying a district court-type

[5] 37 C.F.R. § 42.100(b) also states that "Any prior claim construction determination concerning a term of the claim in a civil action, or a proceeding before the International Trade Commission, that is timely made of record in the *inter partes* review proceeding will be considered." The District Court claim construction is of record in this proceeding. *See* Ex. 2005.

claim construction, we are guided by the principle that the words of a claim "are generally given their ordinary and customary meaning," as understood by a person of ordinary skill in the art at the time of the invention. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (en banc) (citation omitted). "In determining the meaning of the disputed claim limitation, we look principally to the intrinsic evidence of record, examining the claim language itself, the written description, and the prosecution history, if in evidence." *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1014 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312–17). There is a "heavy presumption," however, that a claim term carries its ordinary and customary meaning. *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002) (citation omitted).

We are also guided by the principle that we only construe claim terms if, and to the extent that, it is necessary for the purpose of the proceeding. *See, e.g.*, *Wellman, Inc. v. Eastman Chem. Co.*, 642 F.3d 1355, 1361 (Fed. Cir. 2011) ("[C]laim terms need only be construed 'to the extent necessary to resolve the controversy.'") (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

1. Petitioner's Proposed Constructions

Petitioner provides proposed constructions of the following claim terms: "temporal sequence presentation data," "rendering system," and "tangibly stored in a . . . computer-readable medium"/"a computer-readable medium tangibly storing." Pet. 11–17. Patent Owner contends that Petitioner's constructions are not proper or necessary and should not be adopted. PO Resp.

36–37.[6] There is no dispute that requires that we construe "temporal sequence presentation data," "rendering system," or "tangibly stored in a . . . computer-readable medium"/"a computer-readable medium tangibly storing." Patent Owner does not dispute that the cited art teaches these elements in the context of the challenged claims. *See generally* PO Resp. Thus, we need not construe these terms for purposes of this Decision.

2. Patent Owner's Proposed Constructions

In the "Claim Construction" section of its Response, Patent Owner addresses the following terms:

> *"maintaining a value of a presentation time parameter . . . representing an amount of time elapsed during rendering of the portion of the temporal sequence presentation data"*
>
> *"maintaining" and "providing"*
>
> *"a portion of the temporal sequence presentation data"*
>
> *"presentation rate"*
>
> *"time-scale modification (TSM)"*[7]

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[6] In its Preliminary Response, Patent Owner also argued Petitioner's constructions were unnecessary and did not propose any constructions. Prelim Resp. 25–27. We determined that no explicit construction of any claim term was necessary in order to make the determination to institute *inter partes* review. Inst. Dec. 10.

[7] As discussed *infra*, "time-scale modification (TSM)" is not a term recited in any of the claims of the '108 patent. *See* Ex. 1001, 23:6–26:17. Patent Owner asks us to construe "[t]he term

PO Resp. 25–36. Petitioner asks us to reject Patent Owner's proposed constructions. Pet. Reply 1. After considering the presentations of the parties, and as discussed in more detail below, we determine that it is appropriate to use the plain and ordinary meanings of the first four terms in construing the challenged claims and that "time-scale modification (TSM)" should be construed as "speeding up or slowing down the playback rate."

"maintaining a value of a presentation time parameter . . . representing an amount of time elapsed during rendering of the portion of the temporal sequence presentation data"

This term is recited in the challenged claims. Ex. 1001, 23:12–16, 23: 56–60, 24:32–36, 25:3–7. Patent Owner requests that we give this term its plain meaning. PO Resp. 25 ("Patent Owner does not believe that this limitation requires construction apart from the plain meaning of the words of the claim."). Patent Owner states that it raised this term as a claim construction issue because it believed the Board misconstrued it in the Decision on Institution in this proceeding (Paper 16) and in IPR2019-01237 (Ex. 2012). PO Resp. 25–27. Patent Owner focuses its argument on the "during rendering" portion of the term and argues that the Board has read the term as if it said "during [and after] rendering." *Id.* at 27 ("[I]f the 'presentation time parameter' can represent time elapsed 'during [and after] rendering' instead of

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[time-scale modification] TSM [because it] is incorporated in all of the claims challenged here by virtue of the definition of presentation rate." PO Resp. 34.

'during rendering' as claimed, the 'during rendering' limitation is effectively read out of the claim."). Petitioner responds that Patent Owner's argument is based on a false premise and that the Board did not interpret the claims as suggested by Patent Owner. Pet. Reply 1 ("[N]either [Petitioner] nor the Board has interpreted the claim in this way. Rather, the real dispute centers on what 'during rendering' means."). Petitioner argues that, to the extent there is a dispute regarding the interpretation of this term, the dispute can be resolved by looking at the definition of "Presentation Time" as set forth in the Specification of the '108 patent. *Id.* at 1–2. We agree with Petitioner.

At column 1, lines 57–62, the '108 patent defines "Presentation Time" as "time elapsed since the beginning of the media content presentation" and provides this example: "if the media has been playing for one minute, the value of Presentation Time is 60,000 milliseconds." And, the '108 patent provides this further example in order to highlight the difference between "Presentation Time" and "Data Time:"

> Presentation Time and Data Time are identical in traditional players, because traditional players can only present media content at a fixed "normal" rate. However, when a player is enhanced with a Time-Scale Modification (TSM) capability, it can present media content at various rates. Because of this, Presentation Time and Data Time are no longer the same. For example, if a 60-second clip of media content is presented at a fixed rate that is twice normal rate, at the end of the clip the Data Time is 60,000 milliseconds, but the Presentation Time is 30,000 milliseconds. This

> is because it only takes 30 seconds to play the 60-second clip.

Ex. 1001, 2:13–23. In accordance with these passages, the District Court in the related district court proceeding, determined "[t]he specification [] defines presentation time as 'time elapsed since the beginning of the media content presentation.'" Ex. 2003, 12.[8]

As requested by Patent Owner and not disputed by Petitioner, we give the term "a value of a presentation time parameter . . . representing an amount of time elapsed during rendering of the portion of the temporal sequence presentation data" its ordinary and customary meaning.[9] However, contrary to Patent Owner's interpretation, we determine that in the context of the claims and the '108 patent, the plain meaning of "during rendering" is the "time elapsed since the beginning of the presentation" of the portion or element of interest.

"maintaining" & "providing"

The term "maintaining" is recited in each of claims 1, 3, 5, and 7. Ex. 1001, 23:6–28, 23:50–24:5,

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[8] The District Court cites the US Patent No. 7,683,903 which is in the same patent family as the '108 patent (Ex. 1001, code (60)) and shares the same specification. The quoted passage appears at column 1, lines 59–60, of the '108 patent. During oral argument, Patent Owner acknowledged that the quoted passage was a definition of "presentation time" "in the context of each of these patents." Tr. 45:8–13.

[9] In its Response, Patent Owner describes "presentation time" as "the length of time of the actual presentation." PO Resp. 3; *see also* Prelim. Resp. 8 ("'presentation time' . . . tracks the elapsed rendering time of [a] media presentation"), 12 ("the time elapsed during rendering the content [is] called 'Presentation Time.'").

24:27–45, 24:65–17. The term "providing" is recited in claims 5 and 7. *Id.* at 23:50–24:5, 24:65–17. Patent Owner asks that these two terms be accorded their plain meaning. PO Resp. 31–32. ("The '108 specification does not accord any special meaning to the word 'maintaining,' nor does it have a particular meaning in the art. Thus, Patent Owner contends it should be accorded its plain meaning: "to keep in existence or continuance."). Petitioner argues construing these terms is unnecessary. Pet. Reply 5–6 ("In any event, construing these two terms is unnecessary and only introduces ambiguity. For instance, while [Patent Owner] challenges whether the prior art teaches these . . . , it never applies its own constructions to do so."). We agree with Petitioner. We discern no dispute relating to the meaning of "maintaining" and "providing" as used in the challenged claims and determine it is not necessary to construe explicitly these terms.

"a portion of the temporal sequence presentation data"

The term "a portion of the temporal sequence presentation data" is recited in the challenged claims. Ex. 1001, 23:6–21, 23:50–65, 24:27–41, 24:65–25:13. Patent Owner contends:

> Elements 1(A), 3(A), 5(A), and 7(A) recite "maintaining a value of a presentation time parameter . . . representing an amount of time elapsed during rendering of a portion of the temporal sequence presentation data," and Elements 1(B), 3(B), 5(B), and 7(B) recite "maintaining a value of a data time parameter . . . representing an amount of time

> required by the rendering system to render the portion of the temporal sequence presentation data at a default presentation rate."

PO Resp. 32. Petitioner argues "such a construction is unnecessary as [Petitioner's] mapping does not differ from [Patent Owner's] proposal." Pet. Reply 6. We agree with Petitioner. We discern no dispute relating to this term as used in the challenged claims and we determine it is not necessary to construe explicitly this term.[10]

"presentation rate" & "time-scale modification (TSM)"

We analyze the terms "presentation rate" and "time-scale modification (TSM)" together. The term "presentation rate" is recited in the challenged claims. Ex. 1001, 23:21, 23:65, 24:41, 25:13. The term "time-scale modification (TSM)" is not recited in any of the claims of the '108 patent. *See id.* at 23:6–26:17. As noted previously, Patent Owner asks us to construe "[t]he term [time-scale modification] [because it] is incorporated in all of the claims challenged here by virtue of the definition of presentation rate." PO Resp. 34.

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[10] Although not referenced by either party with regard to construction of the term "a portion of the temporal sequence presentation data," we note that the District Court in the related proceeding construed "portion(s)" to mean "a part of any whole, either separated from or integrated with it." Ex. 2003, 3, 13. Patent Owner proposed this definition in the District Court as the plain and ordinary meaning of "portion(s)." *See id.* at 13.

Patent Owner contends that "presentation rate" means "the speed at which media is played back in a time-scale modification system" and that "time-scale modification (TSM)" means "speeding up and slowing down the perceived rate of speech while substantially preserving both intelligibility and the perceived pitch for audio and audio-visual media." PO Resp. 34–35. Petitioner argues that neither of Patent Owner's proposed constructions should be adopted. Pet. Reply 6–10.

Patent Owner argues that its proposed construction of "presentation rate" was agreed to by the parties in the District Court litigation[11] and adopted by the District Court and "[t]herefore, the Board should construe the term 'presentation rate' here consistently with the parties' agreed-upon construction in the district court." PO Resp. 33–34. Patent Owner provides no additional reasoning or argument in support of its construction of "presentation rate." *Id.*

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[11] Petitioner argues that it did not agree to construction of "presentation rate" as "the speed at which media is played back in a time-scale modification system." Pet. Reply 6 ("[A]s the district court observed, there was simply a lack of 'dispute' on the term in light of the court's construction of 'time-scale-modification.'"). However, at the claim construction hearing, the District Court asked Petitioner's counsel if there was an agreement or a dispute as to the construction of "presentation rate." *See* Ex. 1018, 109:3–110:10. Although reluctant to agree to inclusion of "in a time-scale modification system" in the construction, Petitioner's counsel consented to the District Court construing "presentation rate" as "the speed at which media is played back in a time-scale modification system." *Id.* In light of this exchange with the District Court, we determine Petitioner agreed to the construction of "presentation rate" in the District Court case.

With regard to "time-scale modification (TSM)," Patent Owner proposes the same construction that it proposed in the District Court and that was rejected by the District Court. *See* Ex. 2003, 8–10. The District Court construed "time-scale modification/ time-scale modified" as meaning "speeding up or slowing down the playback rate." *Id.* at 2. Patent Owner does not explain why we should adopt the District Court's construction of "presentation rate" and at the same time incorporate into the challenged claims a definition of "time-scale modification (TSM)" that the District Court rejected. Adopting the District Court's construction of "presentation rate," but also incorporating a definition of "time-scale modification (TSM)" that was rejected by the District Court into the challenged claims, would result in a construction inconsistent with the District Court.[12]

Petitioner's position on construction of "presentation rate" is inconsistent with the position taken by it before the District Court. In this proceeding, Petitioner argues, "[Patent Owner's] construction improperly incorporates limitations into the claims by requiring playback to occur 'in a timescale modification system.' Nothing in the [] record supports reading 'timescale modification system' into the claims." Pet. Reply 6–7. Despite the inconsistencies in

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[12] Patent Owner argues that the District Court's claim construction is not determinative and that the District Court "has already agreed that claim construction may need to be revisited to arrive at the correct construction following the IPR proceedings." PO Sur-reply 13 (citing Ex. 2032, 1–2). Exhibit 2032 is an Order issued by the District Court that indicates that the litigation is stayed through issuance of final written decisions by the Board. Ex. 2032, 1.

Petitioner's position, we agree with Petitioner that "time-scale modification" should not be read into the challenged claims through construction of "presentation rate."

We determine that "presentation rate" should be interpreted according to its ordinary and customary meaning of "the speed of presentation." This meaning is consistent with that portion of the District Court's construction of "presentation rate" as "the speed at which media is played back." As cited previously, there is a heavy presumption that a claim term has its ordinary and customary meaning. *CCS Fitness*, 288 F.3d at 1366. We have not been presented with any evidence to overcome that heavy presumption. Neither party directs our attention to any intrinsic or extrinsic evidence to support incorporating "in a time-scale modification system" into the construction of "presentation rate."[13, 14] And, we determine that the ordinary and customary meaning of the term "presentation rate" is consistent with its use in the

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[13] The only support Patent Owner cites in its Response for its construction of "presentation rate" besides the District Court's claim construction order (Ex. 2003, 2, 10) is paragraphs 60–61 of the Boncelet Declaration. PO Resp. 34. In paragraph 60 of his Declaration (Ex. 2016), Dr. Boncelet does not refer to any intrinsic or extrinsic evidence in support of this construction but, instead, merely cites the District Court's claim construction order (Ex. 2003, 2, 10) and states, "I agree with this construction and have applied it in my analysis and opinions herein."

[14] Based on our independent analysis of the '108 patent and its file history, we do not discern any support for incorporating "in a timescale modification system" into the meaning of "presentation rate" as recited in the claims of the '108 patent or otherwise limiting the construction of "presentation rate" from its ordinary and customary meaning.

claims of the '108 patent. The term "presentation rate" is recited once in each of challenged claim, which recite, "maintaining a value of a data time parameter . . . representing an amount of time required by the rendering system to render a portion of the temporal sequence presentation data at a default *presentation rate*."[15] Ex. 1001, Ex. 1001, 23:17–21, 23:61–65, 24:38–41, 25:9–13 (emphasis added). As defined in the Specification, the "default rate" is the "normal" rate of presentation and does not involve "time-scale modification" or varying the rate of the presentation.[16] *See* Ex. 1001, 9:55–56. Stated differently,

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[15] Patent Owner never explains how its construction of "presentation rate" with its incorporated construction of "time-scale modification" should be interpreted in the phrase "default presentation rate" or in the greater context of the "maintaining" limitation (A) of the challenged claims. If we construe "presentation rate" as proposed by Patent Owner and place it into limitation (A), the limitation becomes "maintaining a value of a data time parameter . . . representing an amount of time required by the rendering system to render a portion of the temporal sequence presentation data at a default speed at which media is played back in a system speeding up or slowing down the perceived rate of speech while preserving both intelligibility and the perceived pitch for audio and audio-visual media." Patent Owner's construction which adds "speeding up or slowing down" conflicts with "default speed" and, thus, the recitation of "default presentation rate." The recitation of a "default presentation rate" does not require "speeding up or slowing down." Thus, Patent Owner's construction renders the challenged claims inconsistent and confusing and is, at best, superfluous in the context of the challenged claims.

[16] In a related proceeding, Patent Owner acknowledges that "[a] presentation rate or playback rate can include playing at 1[X] or normal, while a TSM rate involves speeding up or slowing down the audio or audio visual work using Time-Scale *Modification*" (IPR2019-01244, Paper 25 (Patent Owner's

the "default presentation rate" is the speed at which systems (including prior art systems such as the Real-Networks Real Player (*see* Ex. 1001, 1:28–37)) play back media without "time-scale modification." Adding "in a time-scale modification system" to the construction of "presentation rate" conflicts with the broader use of the term "presentation rate" in the challenged claims and the Specification of the '108 patent. We reject Patent Owner's proposed construction of "presentation rate," because it is not supported by the language of the claims or the Specification of the '108 patent. Thus, we construe the term "presentation rate" differently than the District Court, because the records in the District Court case and in this proceeding relating to construction of "presentation rate" are different. In the District Court proceeding, there was a construction of "presentation rate" that was agreed to by the parties. *See* Ex. 1018, 109:3–110:10. In this proceeding, there is a dispute between the parties as to the construction of "presentation rate." *Compare* PO Resp. 33–34, *with* Pet. Reply 6–7. However, our conclusion that the challenged claims of the '108 patent would have been unpatentable in view of the asserted art would not be different under either our construction or the District Court's construction of "presentation rate."

In any event, we also reject Patent Owner's proposed construction of "time-scale modification system," because we discern no basis for limiting the claims of the '108 patent to "speeding up and slowing down the

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Response), 32) and "[p]laying at normal does not qualify as Time-Scale Modifying—it is normal" (*id.* at 55). *See also* IPR2019-01244, Paper 29 (Patent Owner's Sur-reply), 18 ("The parties agree that normal (1x) is a presentation rate.").

perceived rate of speech while substantially preserving both intelligibility and the perceived pitch for audio and audio-visual media" through recitation of "presentation rate" as requested by Patent Owner. *See* PO Resp. 34–36.

As in the District Court, "[t]he dispute here is over [Patent Owner's] attempt to read in 'preserving both intelligibility and the perceived pitch.'"[17] Ex. 2003, 8. However, as the District Court noted, "[t]he terms 'intelligibility' and 'pitch' do not appear in either the '903[18] or '228 patent family. In fact, the term 'pitch' does not appear in any of the asserted patent families." *Id*. The District Court said:

> I find that the construction of time-scale modification that does not require preservation of intelligibility and pitch is supported by the intrinsic evidence of the asserted patents here.
>
> For example, the description of "time-scale modification" at column 2, lines 24 through 28 of the '050 specification [in the '903 patent family] states that "Presentation Time and Data Time are identical in traditional players, because traditional players can only present media content at a fixed 'normal' rate. However, when a player is enhanced with a Time-Scale Modification

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[17] Petitioner contends, "[t]o the extent ["time-scale modification"] is construed, . . . it should be construed to mean 'playback rate modification.' This is consistent with the specification, which explains that . . . 'when a player is enhanced with a Time-Scale Modification (TSM) capability, it can present media content at *various rates*.'" Pet. Reply 6 (citing Ex. 1001, 2:1–17).

[18] The '108 patent is in the '903 patent (U.S. Patent No. 7,683,903) family. Ex. 1001, code (60).

> (TSM) capability, it can present media content at various rates."[19]
>
> * * *
>
> None of these descriptions of time-scale modification mentions preservation of pitch or intelligibility.
>
> * * *
>
> Finally, I note that [Patent Owner's] construction is problematic insofar as it requires "substantially preserving pitch." It is wholly unclear what "substantially" means in the context of these patents.

Ex. 2003, 9–10 (first bracketed material in original).

In support of its position, Patent Owner cites the following passage from the Specification of the '108 patent:

> TSMAudioDevice VRP Module 170 processes buffers 200 through a library of signal processing routines, for example, a suitable library of signal processing routines called the Time Scale Tailor package is available from Enounce, Incorporated of Palo Alto, Calif. In accordance with this embodiment, this library carries out digital signal processing procedures on buffers 200 of audio samples that has the effect of reducing the number of samples in the buffer (when playing faster than real time) or increasing the number of samples in the buffer (when playing slower

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19 The quoted '050 patent (US Patent No. 8,345,050) has the same Specification as the '108 patent. The quoted description appears at column 2, lines 13–17, of the '108 patent.

> than real time), thereby effectively changing the playback rate. For example, in accordance with this embodiment, processing the buffer using the library decreases or increases the samples in a particular way *so as to leave the perceptual and linguistic information in the buffers unchanged,* but to change the duration of the buffers.

PO Resp. 36 (citing Ex. 1001, 7:24–39). However, this passage is explicitly designated as an example and as related to a commercial embodiment. And, the '108 patent states that the embodiments described in the Specification are not limiting. Ex. 1001, 22:15–18 ("It is to be understood that although the invention has been described above in terms of particular embodiments, the foregoing embodiments are provided as illustrative only, and do not limit [] the scope of the invention."); *see Openwave Sys., Inc. v. Apple, Inc.*, 808 F.3d 509, 514 (Fed. Cir. 2015) ("[I]t is improper to read limitations from a preferred embodiment described in the specification—even if it is the only embodiment—into the claims absent a clear indication in the intrinsic record that the patentee intended the claims to be so limited.") (quoting *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 913 (Fed. Cir. 2004)). Furthermore, this passage does not specifically refer to "speeding up and slowing down the perceived rate of speech while substantially preserving both intelligibility and the perceived pitch for audio and audio-visual media" and Patent Owner does not persuasively explain how or why this passage supports its proposed construction. *See* PO Resp. 35–36.

Accordingly, we determine that Patent Owner's proposed construction of "time-scale modification" is not supported. We agree with and adopt the District

Court's reasoning and decision that the term "time-scale modification" means "speeding up or slowing down the playback rate" and does not include "preserving both intelligibility and the perceived pitch." *See* Ex. 2003, 2, 8–10. To the extent appropriate to support our analysis of the unpatentability of the challenged claims in view of the asserted art,[20] we construe "time-scale modification" as "speeding up or slowing down the playback rate."[21] If we combine the District Court's constructions of "presentation rate" as "the speed at which media is played back in a time-scale modification system" and of "time-scale modification" as "speeding up or slowing down the playback rate," the combination yields a construction of "presentation rate" as "the speed at which media is played back in a system for speeding up or slowing down the playback rate."

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[20] Patent Owner asserts that "resolution of the dispute regarding preservation of pitch need not be resolved," because "Petitioner's alleged grounds for obviousness fail even under Petitioner's own proposed construction of the term" "time-scale modification." PO Resp. 35 n.9. And, the Patent Owner Response states: "none of Patent Owner's [] arguments depend on Patent Owner's construction of time-scale modification, and instead adopt the district court's construction of speeding up and slowing down playback rate, which Patent Owner understands to be consistent with Petitioner's construction here, which is 'playback rate modification.'" *Id.* at 4–5.

[21] Except for those sections of its Response arguing the construction of "time-scale modification" and whether Nelson teaches "time-scale modification," Patent Owner adopts and uses this same construction of "time-scale modification" in its Response. PO Resp. 5 ("Thus, other than as discussed in Sections IV.E. and V.G. below, time-scale modification as set forth herein should be read to mean speeding up or slowing down (modifying) the playback rate.").

D. Ground Based on Nelson

Petitioner contends that claims 1, 3, 5, and 7 would have been obvious in view of Nelson. Pet. 2, 17–56.

1. Nelson (Ex. 1006)

Nelson was filed on February 3, 1993, and issued on February 17, 1998. Ex. 1006, codes (22), (45). Nelson is prior art to the '108 patent under 35 U.S.C. § 102(b). *See* Pet. 3. Patent Owner does not contest the prior art status of Nelson. *See generally* PO Resp.

Nelson is titled, "Digital Media Data Stream Network Management System." Ex. 1006, code (54). Nelson is directed to a "computer-based media data processor for controlling transmission of digitized media data in a packet switching network." *Id.* at code (57) (Abstract). Nelson "relates to the management of digitized media stream data, *e.g.*, digitized video, and particularly relates to the capture, storage, distribution, access and presentation of digital video within a network computing environment." *Id.* at 1:7–10. Nelson discloses a digital video management system (DVMS) that provides the ability to capture, store, transmit, access, process and present live or stored media stream data, independent of its capture or storage location, in either a stand-alone or a network environment. *Id.* at 5:45–50.

Figure 4 of Nelson is reproduced below.

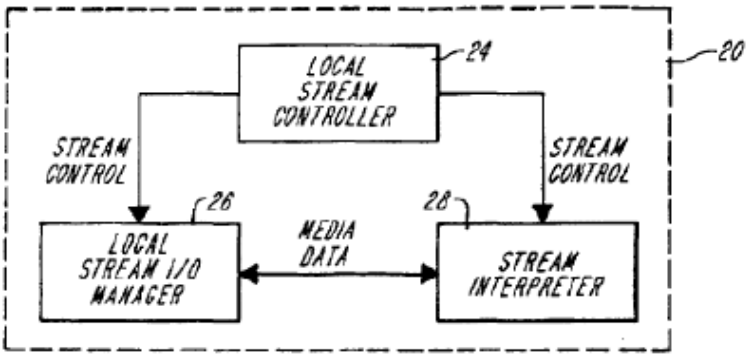

FIG. 4

Figure 4 of Nelson (above) is a schematic diagram of a network implementation of the DVMS. *Id.* at 5:4–6. The description of Figure 4 states:

> [T]he local DVMS manager 20 consists of three modules: the stream controller 24, stream input/output (I/O) manager 26, and the stream interpreter 28. This modularity is exploited in the DVMS design to separate the flow of data in a media data streams from the flow of control information for that media stream through the system. Based on this data and control separation, streams data and stream control information are each treated as producing distinct interactions among the three manager modules, which operate as independent agents.

Id. at 7:57–66. The description of Figure 4 further states:

> The stream interpreter module 28 is responsible for managing the dynamic computer-based representation of audio and video as that

> representation is manipulated in a standalone computer or a computer linked into a packet network. This dynamic management includes synchronization of retrieved audio and video streams, and control of the rate at which the audio and video information is presented during a presentation sequence.

Id. at 8:25–32. Figure 5 of Nelson is reproduced below.

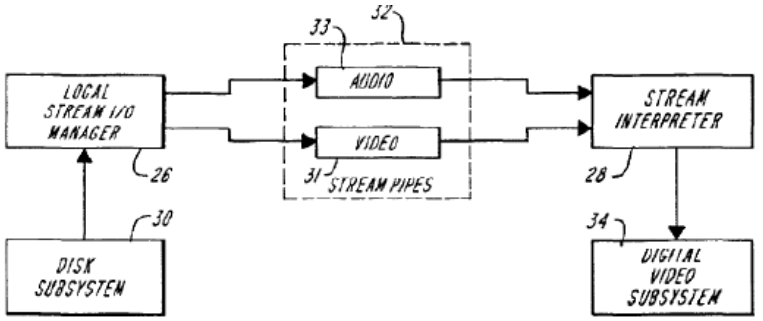

FIG. 5

Figure 5 of Nelson (above) depicts a stream flow when the DVMS requests access to audio or video streams. *Id.* at 9:62–63. The description of Figure 5 states:

> The stream I/O manager 26 module retrieves the requested streams from a stream input 30; this stream input comprises a storage access point, *e.g.*, a computer file or analog video source. The stream I/O manager then separates the retrieved streams according to the specified file format of each stream. If two streams, *e.g.*, audio and video streams, which are accessed were interleaved in storage, the stream I/O manager dynamically separates the streams to then transform them to

> distinct internal representations, each comprising a descriptor which is defined based on their type (*i.e.* audio or video). Once separated, the audio and video stream data are handled both by the stream I/O manager and the stream interpreter as distinct constituent streams within a stream group. The stream I/O manager 26 then exchanges the stream data, comprising sequences of presentation units, with the stream interpreter 28 via a separate queue of presentation units called a stream pipe 32, for each constituent stream; an audio stream pipe 33 is thus created for the audio presentation units, and a video stream pipe 31 is created for the video presentation units. Each audio stream (of a group of audio streams) has its own pipe, and each video stream has its own pipe. During playback of streams, the stream I/O manager continually retrieves and produces presentation units from storage and the stream interpreter continuously consumes them, via the stream pipes, and delivers them to a digital media data subsystem for, *e.g.*, presentation to a user.

Id. at 9:63–10:22. "[T]he digital video management system of the invention provides synchronization of audio to video, and in general, synchronization between any two or more dynamic stream[s] being presented." *Id.* at 12:16–21.

Figure 6 of Nelson is reproduced below.

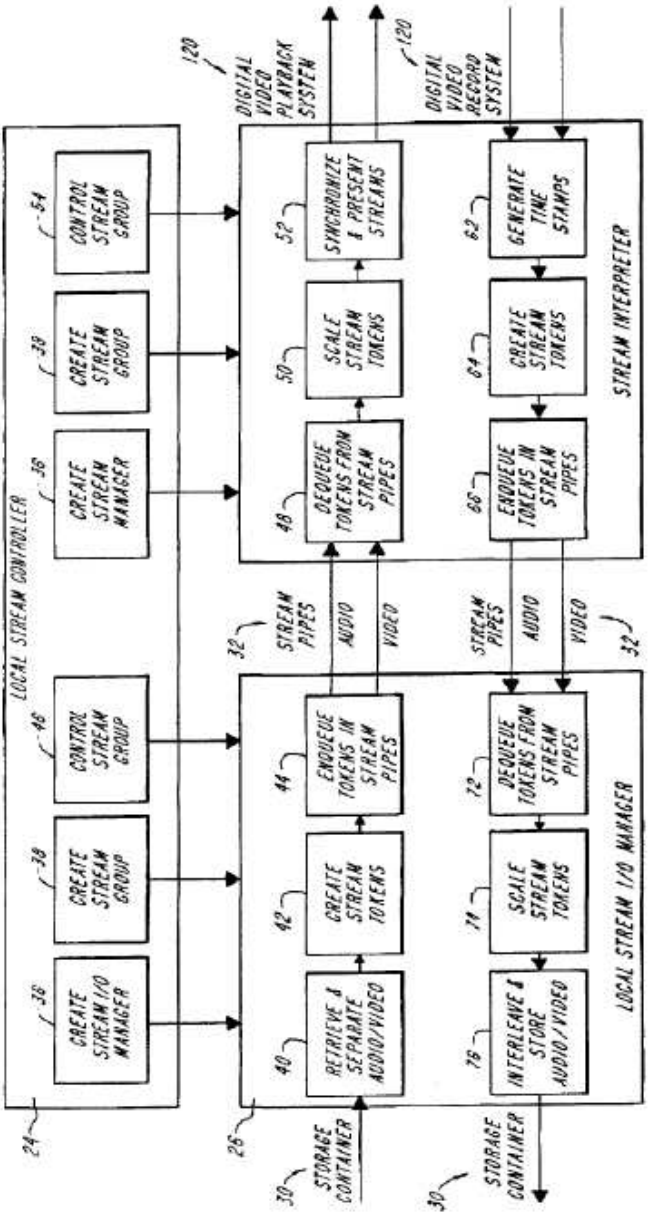

FIG. 6

Figure 6 of Nelson (above) depicts "a schematic flow chart illustrating presentation and capture scenarios carried out by the local digital video management system manager of FIG. 4." *Id.* at 5:13–15. The description of Figure 6 states:

> [T]he synchronization of streams within a stream group is the responsibility of the stream interpreter module during a scaling process. The streams may be self-synchronized using either an implicit timing scheme or an explicit timing scheme. Implicit timing is based on the fixed periodicity of the presentation units in the constituent streams of a stream group to be synchronized. In this scheme, each presentation unit is assumed to be of a fixed duration and the presentation time corresponding to each presentation unit is derived relative to a reference presentation starting time. This reference starting time must be common to all of the constituent streams. Explicit timing is based on embedding of presentation time stamps and optionally, presentation duration stamps, within each of the constituent streams themselves and retrieving the stamps during translation of streams from the storage format to the token format. The embedded time stamps are then used explicitly for synchronization of the streams relative to a chosen reference time base.
>
> Using either the implicit or explicit timing self-synchronization schemes, a reference time base is obtained from a reference clock, which advances at a rate termed the reference clock rate. This

> rate is determined by the reference [cl]ock[22] period, which is the granularity of the reference clock ticks.
>
> The DVMS of the invention supports two levels of self-synchronization control, namely, a base level and a flow control level. Base level synchronization is applicable to stream process scenarios in which the stream I/O manager is able to continuously feed stream data to the stream interpreter, without interruption, and in which each presentation unit is available before it is to be consumed. In this scenario, then, the stream I/O manager maintains a process rate and a process work load that guarantees that the stream I/O manager stays ahead of the stream interpreter.

Id. at 13:19–53. Figure 10 of Nelson is reproduced below.

---

22 Elsewhere in the Specification, "dock" was changed to "clock." *See* Ex. 1006 at p. 58 (Certificate of Correction) ("each occurrence of the word 'dock' should read-clock-").

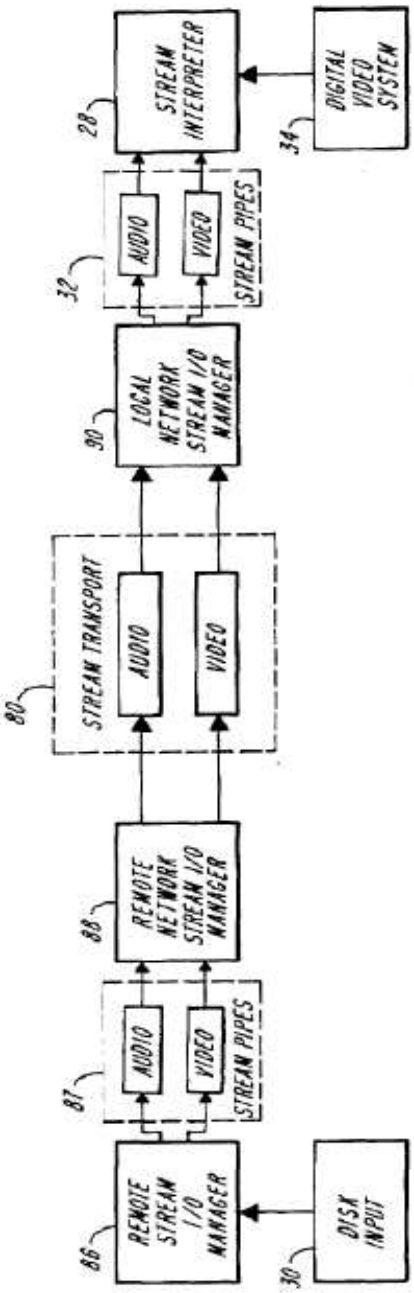
DISK INPUT
30
REMOTE STREAM I/O MANAGER
86
STREAM PIPES
87
AUDIO
VIDEO
REMOTE NETWORK STREAM I/O MANAGER
88
STREAM TRANSPORT
80
AUDIO
VIDEO
LOCAL NETWORK STREAM I/O MANAGER
90
STREAM PIPES
32
AUDIO
VIDEO
STREAM INTERPRETER
28
DIGITAL VIDEO SYSTEM
34

FIG. 10

Figure 10 of Nelson (above) depicts "a schematic diagram illustrating the flow of media stream data between the remote and local digital video management manager modules." *Id.* at 5:29–31. The description of Figure 10 states:

> Upon initialization from the request, and based on the network servers' stream group advertisements, the appropriate remote stream I/O manager 86 retrieves stored streams, *e.g.*, audio and video streams, from the appropriate file storage 30 containing the requested stream group. The manager then separates the retrieved streams, if necessary, thereby producing separate audio and video presentation unit streams, and enqueues corresponding stream descriptor tokens in separate stream pipes 87, one pipe for each presentation unit token stream.
>
> The remote network stream I/O manager 88 consumes the presentation unit tokens from each of the stream pipes, assembles transmission packets based on the streams, and releases them for transmission across the network 80 directly to the corresponding local network stream I/O manager 90, based on the DVMS stream data transport protocols; the particular transport protocol used is set by the network environment.

Id. at 20:21–38.

2. Analysis

Petitioner relies upon Nelson as disclosing most of the claim elements as arranged in the claims and teaching that it would have been obvious to store data in a tangible computer-readable medium. *See,*

e.g., Pet. 41–42, 46–47. Petitioner provides citations to the disclosure of Nelson (Ex. 1006) and the Declaration of Dr. Schonfeld (Ex. 1002) in support of its contentions. *See id.*

3. Claim 1

> *"A method, performed by at least one machine, for use in a rendering system for rendering temporal sequence presentation data in a machine-implemented rendering system, the temporal sequence presentation data being tangibly stored in a first computer-readable medium, the method comprising steps of:"*

Parsing the preamble,[23] it recites, (1) "[a] method, performed by at least one machine;" (2) "rendering temporal sequence presentation data in a machine-implemented rendering system"; and (3) tangibly storing the temporal sequence presentation data in a computer-readable medium. The Petition states, "*Nelson* discloses '*a computer-based media data processor* for controlling the *computer presentation* of digitized continuous *time-based* media data composed of a *sequence of presentation units*'" and "*Nelson* discloses a DVMS [Digital Video Management System],

---

[23] Neither party takes a position as to whether the preamble of claim 1 is limiting. Pet. 17 ("To the extent that the preamble of claim 1 is limiting, *Nelson* discloses the limitations therein."); *see generally* PO Resp. "[W]here a patentee defines a structurally complete invention in the claim body and uses the preamble only to state a purpose or intended use for the invention, the preamble is not a claim limitation." *Rowe v. Dror*, 112 F.3d 473, 478 (Fed. Cir. 1997). We need not determine whether the preamble is limiting, because Petitioner shows that the subject matter of the preamble is taught by Nelson.

which 'provides the ability to capture, store, transmit, access, process and present *live or stored media streams data*.'" Pet. 17–18 (citing Ex. 1006, 2:10–13, 5:45–50). The Petition further states that, "*Nelson* discloses that a stream includes 'dynamic information . . . *with temporal predictability*' and '*a succession of sequences* . . . in turn, each sequence contains a succession of segments'" and "each stream contains a presentation unit being 'a unit of continuous, *temporally*-based data to be presented,' which 'has an *associated presentation time and presentation duration*.'" *Id*. at 19 (citing Ex. 1006, 6:10–26, 6:44–47).

Figure 2 of Nelson is reproduced below.

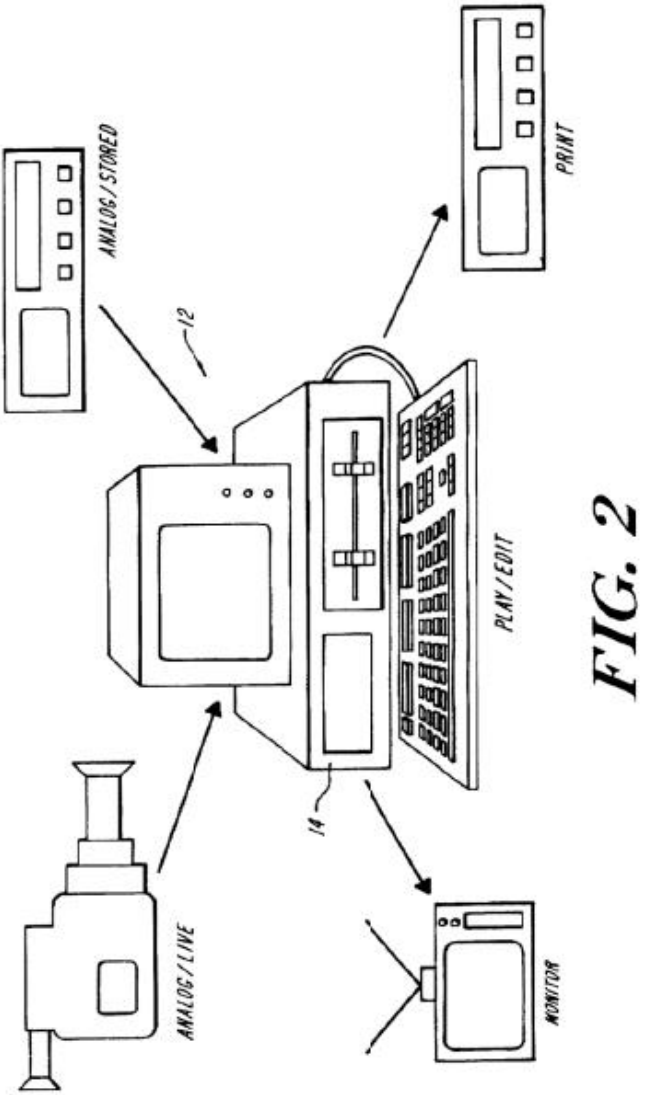

FIG. 2

Figure 2 of Nelson depicts, "a stand-alone implementation of the digital video management system [DVMS]." Ex. 1006, 5:1–2. The detailed description of Figure 2 in Nelson states:

> [T]he DVMS may be implemented in a stand-alone computer system or a computer-based, packet switched network. Referring to FIG. 2, in a stand-alone computer system implementation 12, live or stored media streams are accessed and captured for presentation and editing on the stand-alone computer 14. The captured, and optionally edited media streams may then be delivered to a presentation monitor or to a VCR tape printer utility.

Id. at 6:57–64. Figure 3 of Nelson is reproduced below.

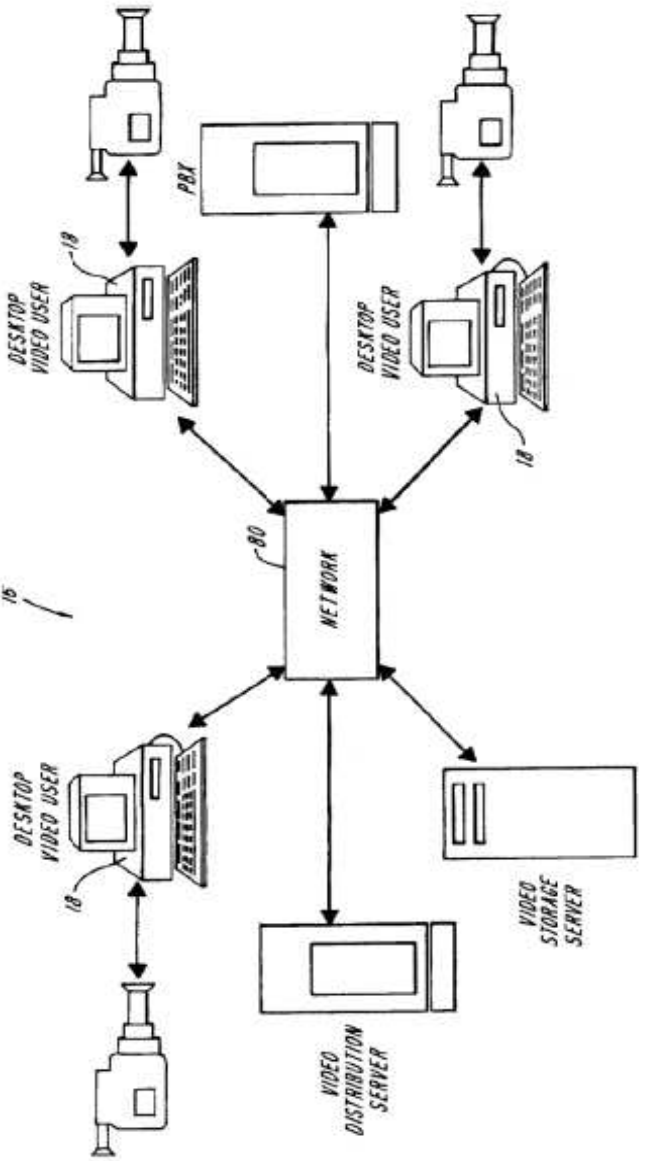

FIG. 3

Figure 3 of Nelson depicts, "a network implementation of the digital video management system [DVMS]."

Id. at 5:4–5. The detailed description of Figure 3 in Nelson states:

> Referring to FIG. 3, a packet switching network in which the DVMS is implemented comprises desktop computer systems 18 which are linked via a packet switching network 80, which is controlled by the DVMS network implementation 16. The network 80 may comprise a local area network (LAN) or a wide area network (WAN), or a combination of one or more LANs and WANs. The DVMS provides access to and capture of media streams from live analog video capture, *e.g.*, a VCR or camcorder, a network, storage or PBX server, or one of the desktop computers, and in turn manages the transmission of the media stream data across the network back to any of the access points.

Id. at 6:65–7:9.

Petitioner has shown that Nelson teaches a "rendering system" as recited in the context of the preamble and Patent Owner does not argue to the contrary (*see generally* PO Resp.).

We find that the preamble of claim 1 is taught by Nelson.

> **"(A) maintaining a value of a presentation time parameter tangibly stored in a second computer-readable medium and representing an amount of time elapsed during rendering of a portion of the temporal sequence presentation data"**

Petitioner contends that Nelson's description of a "reference time base" that is maintained and used in synchronization of media streams discloses the "presentation time parameter" as recited in this limitation. Pet. 39 (citing Ex. 1002 (Schonfeld Decl.) ¶¶ 57–63). The Petition states:

> *Nelson* discloses maintaining a value of a reference time base ("a value of a presentation time"), which is stored in a computer-readable medium of the DVMS ("stored in a second computer-readable medium"), where the value represents an amount of time elapsed during rendering of a portion of the media stream ("representing an amount of time elapsed during rendering of a portion of the temporal sequence presentation data"). ([Ex. 1002] ¶ 57.)

Pet. 39. And, "[i]n either the implicit timing scheme or the explicit timing scheme, 'a reference time base' obtained from a reference clock ([Ex. 1006], 13:38-43) is used to control synchronization. (*See, e.g.*, [Ex. 1006,] 14:44- 48, 15:20-25.)" *Id.* at 22. With regard to the use of the "reference time base" in synchronization, the Petition states:

> *Nelson* explains that synchronization amongst media streams is "inherently required for the coordinated presentation." (Ex. 1006, 12:17-29;

> Ex. 1002, ¶ 58.) Synchronization of the streams may be achieved by maintaining "*a common reference time base*" in the disclosed synchronization schemes, including an implicit timing scheme and an explicit timing scheme. (Ex. 1006, 12:49-51 (disclosing that "independent constituent streams may . . . be stored in separate file containers and be synchronized, before presentation, with a common reference time base"), 13:38-43 (disclosing that in either synchronization scheme "a reference time base is obtained from a reference clock"), 13:22-26 (disclosing that synchronization of stream may be achieved using implicit or explicit timing scheme).) The implicit timing scheme is "based on the fixed periodicity of the presentation units in the constituent streams of a stream group to be synchronized." (*Id.*, 13:24-26; *see also id.*, 13:26- 31.) The explicit timing scheme is based on embedded presentation time stamps (and optionally presentation duration stamps) within each of the streams. (*Id.*, 13:31–35; *see also id.*, 13:35–37.)

Id. at 39–40.

Patent Owner disputes whether Nelson discloses "maintaining a value of a presentation time parameter . . . representing an amount of time elapsed during rendering of the portion of the temporal sequence presentation data." PO Resp. 46–48. First, Patent Owner argues that the "reference time base" that Petitioner relies on as teaching the "presentation time parameter" is not maintained. *Id.* at 47 ("[W]hat Petitioner identifies as the presentation time parameter is not maintained anywhere—it is, according to

Petitioner and its expert, merely obtained at the point at which it is required for comparison by the stream interpreter."). This argument is contradicted by Patent Owner's own statements and by the disclosure of Nelson cited by Patent Owner. Patent Owner acknowledges that the reference time "clock value is always available" (*id.* at 49) and "an external clock time is maintained (*id.* at 40). Patent Owner's Preliminary Response states the "'[r]eference time base' is also referred to as the 'current presentation time' ([Ex. 1006], 14:53-58, 15:20-22) and the 'currently maintained time count' (*id.*, 14:25-29)" and "[t]o be clear, *Nelson* also refers to the external clock time as the current reference time, and also as the currently maintained time count. Ex1006, 13:38-41, 14:26-29, 15:29-32, 58 (CoC, Feb. 17, 1998)." Prelim. Resp. 21 n.3, 24. Based on this record, we find that Nelson teaches maintaining the reference time base (external clock).

Second, Patent Owner argues that "Nelson does not teach or suggest the claimed 'presentation time parameter.'" PO Resp. 38. This argument is based on Patent Owner's claim construction argument relating to this limitation, particularly "during rendering." *Id.* at 38–41. Specifically, Patent Owner argues, "based on the plain meaning of the claim language, this presentation time parameter must represent 'an amount of time elapsed during rendering' of the relevant portion of presentation data." *Id.* at 38. As discussed above (*supra* Section II.C.2.), we construe "presentation time" as "time elapsed since the beginning of the media content presentation." As acknowledged by Patent Owner, "[t]he Petition relies on *Nelson*'s disclosure that the reference clock 'indicates the

current real time relative to the start time of the presentation unit consumption process for the corresponding stream.' *E.g.*, Petition, 41 (citing EX1006, 14:27-29)." PO Resp. 39. We, thus, do not find this argument persuasive.

With regard to the portion of Element (A) relating to storing the presentation time parameter ("maintaining a value of a presentation time parameter tangibly stored in a second computer-readable medium"), Petitioner provides a well-supported showing that Nelson meets this limitation. *See* Pet. 43–44. The Petition states:

> Moreover, this value is "tangibly stored in a second computer-readable medium," as claimed. (Ex. 1002, ¶ 60.) For example, as discussed above, *Nelson* discloses that the DVMS utilizes the reference time base (the claimed "value of a presentation time parameter") to compare it with a calculated product. (Ex. 1006, 14:34-36.) Thus, the disclosed "value" is at least temporarily stored on the DVMS. Furthermore, as discussed above in claim 1 preamble, a POSITA would have found it obvious to store data, program instructions, and other parameters in non-volatile storage elements. (*See supra* Section IX.A.1.pre.) Accordingly, for similar reasons discussed therein, a POSITA would have would found it obvious to store the disclosed "value of a presentation time parameter" in non-volatile storage elements (the claimed "second computer-readable medium"). (Ex. 1002, ¶ 60; Section VIII.C.)

Id. at 41. Patent Owner does not address this storing limitation or dispute Petitioner's showing that Nelson teaches or suggests it.[24]

We find that Nelson teaches or suggests limitation (A) of claim 1.

> **"(B) maintaining a value of a data time parameter tangibly stored in a third computer-readable medium and representing an amount of time required by the rendering system to render the portion of the temporal sequence presentation data at a default presentation rate"**

Petitioner relies on Nelson's description of calculated and embedded presentation times as disclosing the "data time parameter" of this limitation. Pet. 44. Petitioner argues:

> *Nelson* discloses maintaining a value of a calculated or an embedded presentation time ("maintaining a value of a data time parameter"), which is stored in a computer-readable medium of the DVMS ("stored in a third computer-readable medium"), where the value represents an amount of time required by the DVMS to render a portion of the media stream at the

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[24] Patent Owner does not dispute that the storing limitations of the challenged claims ("tangibly stored"/"tangibly storing") would have been obvious to a skilled artisan. *See generally* PO Resp; *see also In re NuVasive*, 841 F.3d 966, 974 (Fed. Cir. 2016) (explaining that the Board need not make specific findings as to claim limitations that Patent Owner does not dispute are disclosed in the prior art).

> original presentation rate ("representing an amount of time required by the rendering system to render the portion of the temporal sequence presentation data at a default presentation rate").

Id. Petitioner asserts that Nelson discloses this limitation in two distinct ways. *Id.* First, the Petition states:

> *Nelson* discloses in the implicit timing scheme that the DVMS "maintains a separate presentation unit counter" for each audio and video stream pipe (Ex. 1006, 14:8-17, 14:18-21), where the unit counter "indicates the number of already consumed presentation units in the corresponding stream" (*id.*, 14:29-32). (*Supra* Section IX.A.1.a; Ex. 1002, ¶ 65.) The scheme then calculates a product between the presentation unit count and the fixed presentation duration of each presentation unit. (Ex. 1006, 14:32-34; *see also id.*, 13:26-27.) *Nelson* explains that the calculated product "specifies *the real time which has elapsed to present the counted units*." (*Id.*, 14:32-34 (emphasis added).)

Id. at 44–45. Petitioner contends "this product represents 'an amount of time required by the rendering system to render the portion of the temporal sequence presentation data at a default presentation rate,' as claimed, [because] it is the same time requirement regardless of the presentation rate." *Id.* at 45. The cited portions of Nelson support this contention by Petitioner.

> Second, the Petition states:
>
> *Nelson* discloses in the explicit timing scheme that the DVMS "reads the embedded time stamp of each presentation token . . . to determine

> presentation time and duration for each presentation unit in the sequence." (Ex. 1006, 15:10-13; *supra* Section IX.A.1.a.) The scheme then compares "a reference time base with the presentation time and presentation duration stamp embedded in each presentation unit" to determine whether a presentation unit should be released for presentation. ([Ex.1006], 15:20-25.) The embedded presentation time discloses "a value of a data time parameter . . . representing an amount of time required by the rendering system to render the portion of the temporal sequence presentation data at a default presentation rate," as claimed at least because it is equivalent to the calculated presentation time (the presentation unit-duration product), as discussed above in the first way of disclosing the claimed "value of a data time parameter." (*Id.*, 14:67-15:3 ("The stream interpreter does not maintain a presentation unit counter in [the explicit timing] scheme, as it does in the implicit timing scheme. Rather, the embedded time stamps in the streams provide equivalent information."); Ex. 1002, ¶ 67.)

Id. at 47. The cited portions of Nelson support this contention by Petitioner. Thus, Petitioner shows Nelson's disclosure of "presentation time" (calculated or embedded) teaches the "value of a data time parameter" as recited in the claims.[25]

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[25] Patent Owner recognizes that the differences in the terminology used in the '108 patent and Nelson could cause confusion and explains, "[w]hat Nelson calls 'presentation time' is not equivalent to the challenged claims' 'presentation time,' and Petitioner does not rely on what Nelson calls 'presentation

Nelson also provides this further description of the presentation of streams of time-based media data using its digital video management system (DVMS):

> Segments of streams contains presentation units. A presentation unit is a unit of continuous, temporally-based data to be presented, and accordingly, has an associated presentation time and presentation duration. A presentation time indicates the appropriate point in the sequence of a presentation at which the associated presentation unit is to be played, relative to the time base for the ongoing presentation. A presentation duration indicates the appropriate interval of time over which the associated presentation unit is to be played in the ongoing presentation.

Ex. 1006, 6:44–53. This passage also supports Petitioner's contention that Nelson teaches "maintaining a value of a data time parameter . . . representing an amount of time required by the rendering system to render the portion of the temporal sequence presentation data at a default presentation rate" as recited in the claim.

The Petition also references the following passages in Nelson as disclosing "data time":

> "[e]ach presentation unit is characterized by a prespecified *presentation time* during a computer presentation of the media data." (Ex. 1006, 2:14-17; *see also id.*, 6:44-56 (disclosing that "[a] presentation time indicates the appropriate point in

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time' as the 'presentation time' of the challenged claims." PO Resp. 38 n.10.

> the sequence of a presentation at which the associated presentation unit is to be played, relative to a time base for the ongoing presentation"), 11:7-11 (disclosing "retriev[ing] the time stamp information from the corresponding [audio and video] frames"), 14:8-48 (describing use of presentation time), 15:10-40 (same), 15:66-16:19 (same), 16:21-53 (same).)

Pet. 28–29 (bracketed material in original).

Patent Owner does not contest that Nelson discloses "a data time parameter" that "represents an amount of time required by the rendering system to render a portion of the temporal sequence presentation data at a default presentation rate." Indeed, Patent Owner appears to acknowledge that Nelson teaches "maintaining a value of a data time parameter." In its Response, Patent Owner acknowledges that "Nelson . . . mak[es] the decision on when to render a unit based on a comparison of the *unit's time stamp* to a single reference time base." PO Resp. 52 (emphasis added). The Preliminary Response states that "'[d]ata [t]ime' can be regarded as a time value (*e.g.*, timestamp) that specifies 'how long it would take to reach that location, starting from the beginning of the media content, and playing at [a] normal rate.'" Prelim. Resp. 12 (citing Ex. 1001, 2:7–12). With regard to Nelson, the Preliminary Response states:

> In *Nelson*, presentation time indicates the appropriate time at which the unit is to be played, relative to a reference time base. [Ex. 1006], 6:47-50. Presentation times are either explicit time stamps or the implicit calculated equivalent.

* * *

> The token for each unit [as shown in Figure 7] represents an audio or video presentation unit (114) and a time stamp for that unit (116). *Id*., 11:11-14.

* * *

> Explicit timing synchronization is based on the time stamps that are embedded in the stream tokens. *Id*., 14:50-52.

Prelim. Resp. 16–19. *Cook Group Inc. v. Boston Sci. Scimed, Inc.*, 809 Fed. App'x. 990, 1000 (Fed. Cir. 2020) ("[A]n admission in a preliminary patent owner response, just like an admission in any other context, is evidence appropriately considered by a factfinder.").

With regard to the portion of this limitation relating to storing the data time parameter ("maintaining a value of a data time parameter tangibly stored in a third computer-readable medium"), Petitioner provides a well-supported showing that Nelson meets this limitation. *See* Pet. 49–50. The Petition states:

> Moreover, this value is "tangibly stored in a third computer-readable medium," as claimed. (Ex. 1002, ¶ 69.) For example, as discussed above, *Nelson* discloses that the DVMS utilizes the calculated product (the claimed "value of a data time parameter") to compare it with the reference time base. (Ex. 1006, 14:34-36.) Thus, the disclosed "value" is at least temporarily stored on the DVMS. Furthermore, as discussed above in claim 1 preamble, a POSITA would have found it obvious to store data, program

> instructions, and other parameters in non-volatile storage elements. (*See supra* Section IX.A.1.pre.) Accordingly, for similar reasons discussed therein, a POSITA would have [] found it obvious to store the disclosed "value of a data time parameter" in non-volatile storage elements (the claimed "third computer-readable medium"). (Ex. 1002, ¶ 66; Section VIII.C.)

Id. at 46. Patent Owner does not address this storing limitation or dispute Petitioner's showing that Nelson teaches or suggests it.

We find that Nelson teaches or suggests limitation (B) of claim 1.

> **"(C) receiving requests for the value of the presentation time parameter" and "(D) returning the value of the presentation time parameter to a first component of the rendering system in response to the request"**

With regard to these limitations, Petitioner argues, "*Nelson* discloses that the disclosed 'value of the presentation time parameter' . . . is provided in response to a request from the stream interpreter of the DVMS." Pet. 48. Petitioner also argues, "*Nelson* discloses returning the value of the reference time base ('the value of the presentation time parameter') to the stream interpreter of the DVMS [Digital Video Management System] ('a first component of the rendering system')." Pet. 49. Petitioner contends, "*Nelson* discloses that the stream interpreter module is responsible for synchronizing streams using either the implicit or explicit timing scheme" and "the stream interpreter module uses the value of the

reference time base to determine whether to release a presentation unit for synchronization purposes." *Id.* Nelson supports Petitioner's argument. Nelson states:

> [T]he synchronization of streams within a stream group is the responsibility of the stream interpreter module during a scaling process. . . . The embedded time stamps are then used explicitly for synchronization of the streams relative to a chosen reference time base.
>
> Using either the implicit or explicit timing self-synchronization schemes, a reference time base is obtained from a reference clock, which advances at a rate termed the reference clock rate. This rate is determined by the reference [cl]ock period, which is the granularity of the reference clock ticks.

Ex. 1006, 13:19–43.

Patent Owner argues, "the stream interpreter does not *return or provide* the reference time base (the alleged 'value of a presentation time parameter') *to* any component of the rendering system,–as the Challenged Claims explicitly require." PO Resp. 48. Patent Owner's argument is not responsive to Petitioner's showing with regard to this limitation. Again, Petitioner argues "*Nelson* discloses [providing] the value of the reference time base ('the value of the presentation time parameter') to the stream interpreter of the DVMS [Digital Video Management System] ('a first component of the rendering system')." Pet. 49. And, as the above-quoted passage states, Nelson discloses that the "reference time base is obtained

from a reference clock" and provided to the stream interpreter. Patent Owner's argument is not persuasive.

We find that Nelson teaches these limitations.

"wherein the value of the presentation time parameter is not equal to the value of the data time parameter"

Petitioner contends, "*Nelson* discloses that the value of the calculated or embedded presentation time ('the value of the data time parameter'), and the value of the reference time base ('the value of the presentation time parameter') are not equal." Pet. 50–51. Petitioner argues:

> *Nelson* discloses controlling the synchronization of media streams based on these values not being equal. As discussed in claim elements 1(a) and (b), these two values are compared to determine whether a presentation unit should be released for presentation. (*See supra* Sections IX.A.1. (a)-(b).) Only when these two values match, a presentation unit will be released. (Ex. 1006, 14:34-48, 15:20-25.) Indeed, *Nelson* discloses that "if the appropriate release time for those [presentation] units has passed," *i.e.*, if the two times values are not equal, both the implicit and explicit schemes delete those units. (*Id.*, 15:26-40.)

Id. at 51. Within the cited portions, Nelson states:

> In addition to determining the appropriate time for releasing presentation units in the sequence, both the implicit and explicit timing schemes delete presentation units if the appropriate release

> time for those units has passed. For example, in the implicit timing scheme, when the product of processed units and unit duration exceeds the currently maintained time count, the next sequential unit is deleted, rather than presented. Similarly, in the explicit timing scheme, [w]hen the current presentation time exceeds the time stamp presentation time of a presentation unit, that unit is deleted, rather than presented. In this way, synchronization of streams is maintained, even if units arrive for presentation at a later time than expected.

Ex. 1006, 15:26–38. This passage in Nelson support Petitioner's contention.

Patent Owner argues that "*Nelson* does not teach or suggest the 'not equal' limitation of the challenged claims." PO Resp. 41. Notwithstanding Patent Owner's argument, Patent Owner appears to acknowledge this limitation is taught by Nelson. In its Response with regard to the claimed invention, Patent Owner states, "in the context of the invention . . . portions of the temporal sequence presentation data are rendered at a rate other than the default rate (potentially more than one rate) and rendering time ('presentation time') will not be the same as the time it would take to render the same content at a default rate ('data time')" (*id.* at 42) and "the two values will only be equal when media is presented at a 'normal' or default rate. When at least a portion of the data being rendered is presented at a rate other than the default rate, then the two will not be equal as required in every challenged claim" (*id.* at 13–14). With regard to Nelson, Patent Owner states, "[t]he *Nelson* system can operate at a speed other than the default rate; it

does so by speeding up or slowing down the reference time base. EX1006, 17:43-50; EX2016, ¶ 103." *Id.* at 22.

We find that Nelson teaches this limitation.

Summary as to Claim 1

Petitioner's showing that claim 1 of the '108 patent would have been obvious in view of Nelson is well-supported. In contrast, we do not find Patent Owner's arguments regarding claim 1 to be convincing. We conclude that Petitioner has shown by a preponderance of the evidence that claim 1 would have been obvious in view of Nelson.

4. Claim 3

With regard to claim 3, Petitioner makes a showing that all the limitations are taught by Nelson. *See* Pet. 51–55. Claim 3 differs from claim 1 only in Elements (C) and (D). Claim 3 recites:

> (C) receiving requests for the value of the data time parameter: and
>
> (D) returning the value of the data time parameter to a first component of the rendering system in response to the request.

Ex. 1001, 23:66–24:3.

Petitioner contends that Nelson discloses these limitations. Pet. 52–54 (citing Ex. 1002 (Schonfeld Decl.) ¶¶ 78–82). Petitioner argues, "*Nelson* discloses that the disclosed 'value of the data time parameter' . . . is provided in response to a request from the stream interpreter of the DVMS." *Id.* at 52 (citing Ex. 1002 ¶ 78; Ex. 1006, 12:4–15, 14:37–48, 15:10–

25). Petitioner also argues, "*Nelson* discloses returning the value of the calculated or embedded presentation time ('the value of a data time parameter') of the stream interpreter of the DVMS ('a first component of the rendering system') in response to the request." *Id*. at 53 (citing Ex. 1002 ¶¶ 79–82; Ex. 1006, 12:4–13:19–26, 14:37–48, 15:10–25, FIG. 6).

Nelson supports Petitioner's argument. We determine that Nelson teaches providing the calculated or embedded presentation time to the stream interpreter. Patent Owner does not dispute Petitioner's showing with regard to these limitations or argue that Nelson fails to teach or suggest these limitations. *See generally* PO Resp.

We find that Nelson teaches these limitations, and has shown by a preponderance of the evidence that claim 3 would have been obvious.

5. Claims 5 and 7

Petitioner relies on its showing as to the identical elements in claims 1 and 3 to show that claims 5 and 7 are obvious. *See* Pet. 55–58. We determine that Petitioner has shown by a preponderance of the evidence that all the limitations of claims 5 and 7 are taught by the cited art. Patent Owner relies on the same arguments presented with regards to all the challenged claims. *See generally* PO Resp. We do not find Patent Owner's arguments convincing for the reasons stated previously. We determine that Petitioner has shown by a preponderance of the evidence that claims 5 and 7 of the '108 patent would have been obvious.

III. Conclusion[26]

For the foregoing reasons, we conclude that Petitioner has established by a preponderance of the evidence that claims 1, 3, 5, and 7 would have been obvious in view of Nelson.

IV. Order

In consideration of the foregoing, it is hereby:

ORDERED that claims 1, 3, 5, and 7 of the '108 patent are unpatentable.

In summary:

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[26] Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this decision, we draw Patent Owner's attention to the April 2019 *Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding*. *See* 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. *See* 37 C.F.R. § 42.8(a)(3), (b)(2).

Claims	1, 3, 5, 7	Overall Outcome	
35 U.S.C. §	103		
Reference(s)/ Basis	Nelson		
Claims Shown Unpatentable	1, 3, 5, 7		1, 3, 5, 7
Claims Not shown Unpatentable			

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USPTO FINAL WRITTEN DECISION
IPR2019-01241, '903 PATENT
(JANUARY 27, 2021)

Paper 38
Date: January 27, 2021

UNITED STATES PATENT AND
TRADEMARK OFFICE

BEFORE THE PATENT TRIAL
AND APPEAL BOARD

GOOGLE LLC,

Petitioner,

v.

VIRENTEM VENTURES, LLC,

Patent Owner.

IPR2019-01241

Patent 7,683,903 B2

Before: Meredith C. PETRAVICK, Jennifer MEYER CHAGNON, and Terrence W. McMILLIN, Administrative Patent Judges.

JUDGMENT
Final Written Decision
Determining All Challenged Claims Unpatentable
35 U.S.C. § 318(a)

McMILLIN, Administrative Patent Judge.

I. Introduction

A. Background and Summary

Google LLC ("Petitioner")[1] filed a petition to institute an *inter partes* review of claims 1–4, 7, 12–14, 17, and 22 of U.S. Patent No. 7,683,903 B2 (Ex. 1001, "the '903 patent") pursuant to 35 U.S.C. § 311 *et seq*. Paper 1 ("Petition" or "Pet."). Virentem Ventures, LLC ("Patent Owner") filed a Preliminary Response to the Petition. Paper 14 ("Prelim. Resp."). On February 21, 2020, we instituted trial. Paper 16 ("Inst. Dec."). Patent Owner filed a Response. Paper 26 ("PO Resp."). Petitioner filed a Reply. Paper 29 ("Pet. Reply"). Patent Owner filed a Sur-reply. Paper 34 ("PO Sur-reply"). An oral argument was held on November 18, 2020, and a transcript was entered into the record. Paper 37 ("Tr.").

We have jurisdiction to conduct this *inter partes* review under 35 U.S.C. § 6. This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. For the reasons discussed herein, we determine that Petitioner has shown, by a preponderance of the evidence, that claims 1–4, 7, 12–14, 17, and 22 of the '903 patent are unpatentable.

B. Related Matters

The parties indicate that the '903 patent has been asserted in the following case filed in the United States District Court for the District of Delaware on

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[1] Petitioner identifies Google LLC and YouTube LLC as the real parties-in-interest to this proceeding. Pet. 1.

November 9, 2018: *Virentem Ventures, LLC v. YouTube, LLC*, Case No. 1:18-cv-00917. Pet. 1; Paper 3, 1. The District Court case has been stayed through the issuance of final written decisions by the Board. Ex. 2033, 1.

C. The '903 Patent

The '903 patent is titled, "Management of Presentation Time in a Digital Media Presentation System with Variable Rate Presentation Capability." Ex. 1001, code (54). By way of background, the '903 patent explains that traditional digital rendering systems, such as RealNetworks RealPlayer digital media players, maintain an internal variable during playback of media content that reflects a current presentation time, which is referred to as "Current Time." *Id.* at 1:23–27. Current Time reflects a current position in the media content, starting at zero at the beginning of the media content. *Id.* at 1:27–32. The '903 patent explains that Current Time conflates two different properties of media playback: (1) "Presentation Time," which is the time elapsed since the beginning of the media content presentation; and (2) "Content Time," which is the location in the media content stream that is currently being played. *Id.* at 1:50–66. The '903 patent also describes that "Data Time" is a time value associated with each content element "specifying how long it would take to reach that location, starting from the beginning of the media content, and playing at normal rate." *Id.* at 1:66–2:7.

The '903 patent explains that "Presentation Time and Data Time are identical in traditional players, because traditional players can only present media content at a fixed 'normal' rate." *Id.* at 2:8–10.

In the case of media players enhanced with Time-Scale Modification (TSM) capability, the player can present media content at various rates, and thus Presentation Time and Data Time may diverge. *Id.* at 2:10–15. For example, a player with TSM functionality could play a 60-second clip in only 30 seconds if the content is presented at a fixed rate that is twice normal rate. *Id.* at 2:15–19. The '903 patent describes two problems resulting from the possible disparity between Presentation Time and Data Time in media players with TSM functionality. *Id.* at 2:20–35. A first problem is that "the significance of the time value distributed to multiple objects is, in general, ambiguous." *Id.* at 2:27–30. A second problem "is that Data Time does not, in general, equal Presentation Time, and the calculation, storage, and distribution of a single time value is inadequate to specify both values." *Id.* at 2:30–35. In particular, the '903 patent explains that it is common for media players to rely on an audio renderer to calculate and update the Current Time value. *Id.* at 2:36–39. When "a media player does in fact acquire the Current Time value from the audio renderer, the value that the audio renderer will return to the system will typically be the Presentation Time." *Id.* at 2:49–52. This creates a problem in media players with TSM functionality because "most of the rest of the system needs Data Time," and thus "most of the rest of the system can no longer employ the value returned by the audio renderer object." *Id.* at 2:53–55.

The invention manages "Presentation Time in a digital rendering system for presentation of temporally-ordered data when the digital rendering system includes a Variable Rate Presentation capability." Ex.

1001, 2:62–65. Figure 1 of the '903 patent is reproduced below.

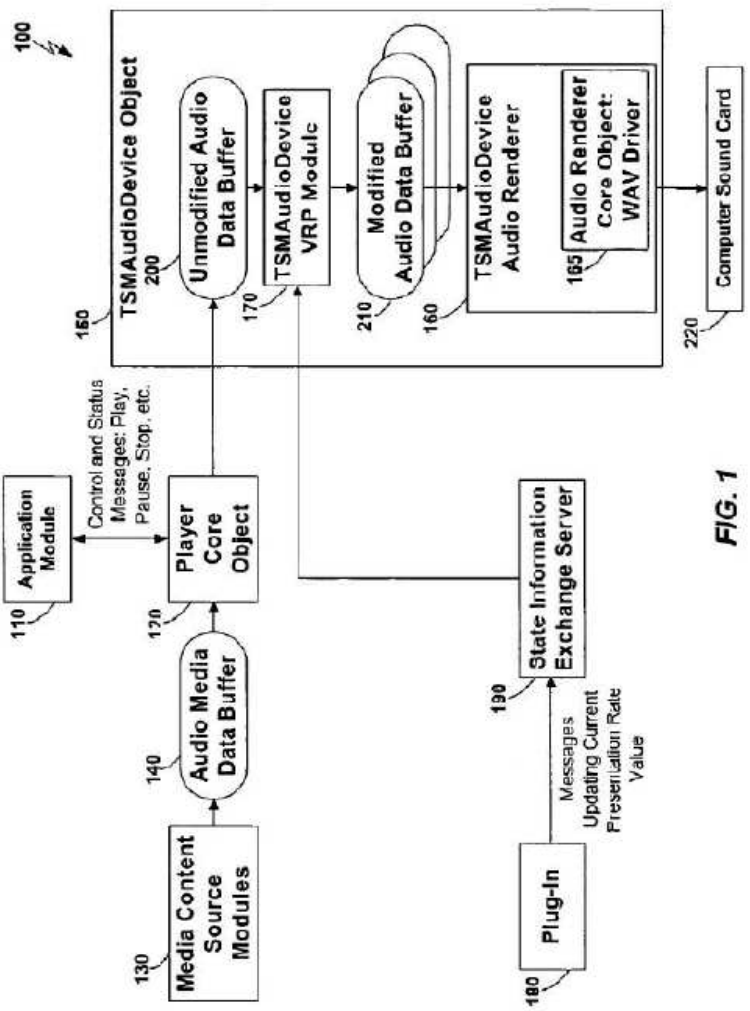

Figure 1, above, depicts "a block diagram of a Presentation System embodied as a RealNetworks RealPlayer application running on a computer." *Id.*

at 5:27–29. Presentation System 100 includes an application module 110 which communicates control and status messages (*e.g.*, Play, Pause, Stop), to Player Core object 120. *Id.* at 6:4–7. "Temporal Sequence Presentation Data" or "Presentation Data" are embodied as streaming media content and are delivered to the RealPlayer application. *Id.* at 6:7–13. Presentation Data are received by media content source module(s) 130, and are placed in audio media data buffers 140. *Id.* at 6:13–18. TSMAudioDevice object 150 combines functions of the Renderer for audio data (TSMAudioDevice Audio Renderer 160) and a Variable Rate Presentation Module. *Id.* at 6:49–54. The '903 patent notes that although the RealNetworks RealPlayer application does not natively include support for variable rate playback, plug-in 180 adds variable rate playback capability to the RealPlayer application. *Id.* at 6:58–66. Plug-in 180 communicates with TSMAudioDevice object 150 by sending messages that specify a desired playback or presentation rate through an object called State Information Exchange Server 190 ("SIX Server 190"). *Id.* at 7:1–11. TSMAudioDevice object 150 accepts messages from SIX Server 190 that specify a desired playback or presentation rate. *Id.* at 7:5–7. The '903 patent notes that Player Core object 120 of the RealPlayer application includes methods to query the Current Time, and Player Core object 120 interprets all returned times as Data Times. *Id.* at 7:50–62. In order to support the concept of Presentation Times that are different than Data Times, according to one embodiment of the '903 patent, TSMAudioDevice object 150 performs conversion of Presentation Time into Data Time (as needed by Player Core object 120). *Id.* at 7:62–67.

D. Challenged Claims

Petitioner challenges claims 1–4, 7, 12–14, 17, and 22 of the '903 patent. Pet. 2–3. Of the challenged claims, claims 1 and 12 are independent method claims and claims 13 and 22 are independent apparatus claims. Ex. 1001, 23:19–26:65. Claim 1 recites:

> 1. A method, performed by at least one machine, for rendering temporal sequence presentation data in a machine-implemented rendering system, the temporal sequence presentation data being tangibly stored in a first computer-readable medium, the method comprising steps of:
>
> (A) maintaining a value of a presentation time parameter tangibly stored in a second computer-readable medium and representing an amount of time elapsed during rendering of a portion of the temporal sequence presentation data;
>
> (B) providing the value of the presentation time parameter to a first component of the rendering system;
>
> (C) maintaining a value of a data time parameter tangibly stored in a third computer-readable medium and representing an amount of time required by the rendering system to render the portion of the temporal sequence presentation data at a default presentation rate; and

(D) providing the value of the data time parameter to a second component of the rendering system;

wherein the value of the presentation time parameter is not equal to the value of the data time parameter.

Id. at 23:19–39. Claim 12 recites:

12. A method, performed by at least one machine, for rendering temporal sequence presentation data in a machine-implemented rendering system, the temporal sequence presentation data being tangibly stored in a first computer-readable medium, the method comprising steps of:

(A) receiving a request from a first component of the rendering system for a first current time;

(B) maintaining a value of a presentation time parameter tangibly stored in a second computer-readable medium and representing an amount of time elapsed during rendering of a portion of the temporal sequence presentation data by the rendering system;

(C) providing the value of the presentation time parameter to the first component in response to the request;

(D) receiving a request from a second component of the rendering system for a second current time;

(E) maintaining a value of a data time parameter tangibly stored in a third computer-readable medium and representing an amount of time required to render the portion of the temporal sequence presentation data at a default presentation rate; and

(F) providing the value of the data time parameter to the second component in response to the request;

wherein the value of the presentation time parameter is not equal to the value of the data time parameter.

Id. at 24:52–25:9. Claim 13 recites:

13. A device for rendering temporal sequence presentation data in a machine-implemented rendering system, the temporal sequence presentation data being tangibly stored in a first computer-readable medium, the device comprising at least one processor and at least one second computer-readable medium tangibly storing computer program instructions for:

maintaining a value of a presentation time parameter tangibly stored in a third computer-readable medium and representing an amount of time elapsed during rendering of a portion of the temporal sequence presentation data by the rendering system;

providing the value of the presentation time parameter to a first component of the rendering system;

maintaining a value of a data time parameter that is not equal to the value of the presentation time parameter and which represents an amount of time required by the rendering system to render the portion of the temporal sequence presentation data at a default presentation rate, the data time parameter being tangibly stored in a fourth computer-readable medium; and

providing the value of the data time parameter to a second component of the rendering system.

Id. at 25:10–31. Claim 22 recites:

22. A device for rendering temporal sequence presentation data in a machine-implemented rendering system, the temporal sequence presentation data being tangibly stored in a first computer-readable medium, the device comprising at least one processor and at least one second computer-readable medium tangibly storing computer program instructions for:

receiving a request from a first component of the rendering system for a first current time;

maintaining a value of a presentation time parameter tangibly stored in a third computer-readable medium and representing an amount of time elapsed during rendering of a portion of the temporal sequence presentation data by the rendering system;

> providing the value of the presentation time parameter to the first component in response to the request;
>
> receiving a request from a second component of the rendering system for a second current time;
>
> maintaining a value of a data time parameter that is not equal to the value of the presentation time parameter and which represents an amount of time required to render the portion of the temporal sequence presentation data at a default presentation rate, the data time parameter being tangibly stored in a fourth computer-readable medium; and
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> providing the value of the data time parameter to the second component in response to the request.

Id. at 26:40–65. Although claim 1 is directed to a method and claim 13 is directed to a device, outside of the preambles, the claims recite the same method steps or elements. And, although claim 12 is directed to a method and claim 22 is directed to a device, outside of the preambles, the claims recite the same method steps or elements. The same is true of the challenged dependent claims.

E. The Asserted Grounds

Petitioner challenges claims 1–4, 7, 12–14, 17, and 22 of the '903 patent on the following grounds:

Claims Challenged	35 U.S.C. §[2]	Reference(s)/Basis
1–4, 12–14, 22	103(a)	Nelson[3]
7, 17	103(a)	Nelson, DeMoney[4]

Pet. 2–3.

II. Analysis

A. Legal Standards

A patent claim is unpatentable under 35 U.S.C. § 103(a) if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including: (1) the scope and content of the prior art; any differences between the claimed subject matter and the prior art; the level of ordinary skill in the art; and (4) where in evidence, objective evidence of

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[2] Because the application leading to the '903 patent was filed before March 16, 2013, patentability is governed by the version of 35 U.S.C. § 103 preceding the Leahy-Smith America Invents Act ("AIA"), Pub L. No. 112–29, 125 Stat. 284 (2011).

[3] US Patent No. 5,719,786 (Ex. 1006) filed Feb. 3, 1993; issued Feb. 17, 1998.

[4] US Patent No. 6,065,050 (Ex. 1012) filed June 5, 1996; issued May 16, 2000.

nonobviousness.[5] *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). Consideration of the Graham factors "helps inform the ultimate obviousness determination." *Apple Inc. v. Samsung Elecs. Co.*, 839 F.3d 1034, 1048 (Fed. Cir. 2016) (en banc).

"In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable." *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review petitions to identify "with particularity . . . the evidence that supports the grounds for the challenge to each claim")). This burden of persuasion never shifts to Patent Owner. *See Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (discussing the burden of proof in *inter partes* review).

B. Level of Ordinary Skill in the Art

With regard to the level of ordinary skill in the art, Petitioner contends that a person of ordinary skill would have either "(a) a Master's or doctoral degree in computer science, electrical engineering, or a similar discipline" or "(b) a Bachelor's degree in computer science, electrical engineering, or a similar discipline and at least two years of work experience in content presentation systems, or a related area." Pet. 4 (citing Ex. 1002 (Schonfeld Decl.) ¶¶ 19–20). "Patent Owner accepts Petitioner's proffered level of ordinary skill in the art in analyzing Petitioner's allegations of obviousness." PO Resp. 19 (citing Ex.

[5] Neither party presents any argument relating to objective evidence of nonobviousness.

2016 (Boncelet Decl.) ¶¶ 30–32). We find Petitioner's undisputed contention to be reasonable and we adopt the level of ordinary skill in the art as proposed by Petitioner.

C. Claim Construction

"[I]n an *inter partes* review proceeding, a claim of a patent . . . shall be construed using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. § 282(b), including construing the claim in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent." *See* Changes to the Claim Construction Standard for Interpreting Claims in Trial Proceedings Before the Patent Trial and Appeal Board, 83 Fed. Reg. 51,340, 51,340, 51,358 (Oct. 11, 2018) (amending 37 C.F.R. § 42.100(b) effective November 13, 2018) (now codified at 37 C.F.R. § 42.100(b) (2019)).[6] In applying a district court-type claim construction, we are guided by the principle that the words of a claim "are generally given their ordinary and customary meaning," as understood by a person of ordinary skill in the art at the time of the invention. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (en banc) (citation omitted). "In determining the meaning of the disputed claim limitation, we look principally to the intrinsic

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[6] 37 C.F.R. § 42.100(b) also states that "Any prior claim construction determination concerning a term of the claim in a civil action, or a proceeding before the International Trade Commission, that is timely made of record in the *inter partes* review proceeding will be considered." The District Court claim construction is of record in this proceeding. *See* Ex. 2005.

evidence of record, examining the claim language itself, the written description, and the prosecution history, if in evidence." *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1014 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312–17). There is a "heavy presumption," however, that a claim term carries its ordinary and customary meaning. *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002) (citation omitted).

We are also guided by the principle that we only construe claim terms if, and to the extent that, it is necessary for the purpose of the proceeding. *See, e.g.*, *Wellman, Inc. v. Eastman Chem. Co.*, 642 F.3d 1355, 1361 (Fed. Cir. 2011) ("[C]laim terms need only be construed 'to the extent necessary to resolve the controversy.'") (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

1. Petitioner's Proposed Constructions

Petitioner provides proposed constructions of the following claim terms: "temporal sequence presentation data," "rendering system," "tangibly stored in a . . . computer-readable medium"/"a computer-readable medium tangibly storing," and "current time." Pet. 13–19. Patent Owner contends that Petitioner's constructions are not proper or necessary and should not be adopted. PO Resp. 29–30.[7] There is no dispute that requires that we construe "temporal sequence

[7] In its Preliminary Response, Patent Owner also argued Petitioner's constructions were unnecessary and did not propose any constructions. Prelim Resp. 28–31. We determined that no explicit construction of any claim term was necessary in order to make the determination to institute *inter partes* review. Inst. Dec. 13.

presentation data," "tangibly stored in a . . . computer-readable medium"/"a computer-readable medium tangibly storing," or "current time." Patent Owner does not dispute that the cited art teaches these elements in the context of the challenged claims. *See generally* PO Resp. Thus, we need not construe these terms for purposes of this Decision.

"rendering system"

The term "rendering system" is recited in challenged, independent claims 1, 12, 13, and 22 and in challenged, dependent claims 2 and 14. Ex. 1001, 23:19–26:65. In the Petition, Petitioner proposes a lengthy construction of "rendering system" based on what Petitioner describes as an express definition at column 8, lines 42–64, of the '903 patent. Pet. 16–17. Again, Patent Owner argues that construction is not necessary and Petitioner's construction should not be adopted. PO Resp. 29–30.[8] The District Court rejected Petitioner's proposed construction and determined that the Specification of the '903 patent did not expressly define "rendering system." Ex. 2005, 3, 12–13. The District Court said:

> The seventh term is "rendering system" found in the '903 patent family. Plaintiff proposes that no

[8] Patent Owner argues that Petitioner's proposed construction is incorrect but contends that the challenge to the claims should be rejected because Petitioner fails to show that Nelson meets the definition of "rendering system" that Petitioner proposes. PO Resp. 31–42. In reply, Petitioner argues that Patent Owner should not be allowed to take these inconsistent positions and that Patent Owner "does not dispute that Nelson discloses a 'rendering system' under the plain meaning of the term as adopted by the district court." Pet. Reply 10.

construction is necessary. Defendants propose a lengthy construction that incorporates a number of limitations [*i.e.*, "A client system having the following characteristics: (a) the Renderer processes Temporal Sequence Presentation Data; (b) the Renderer processes data elements in an ordered sequence in which "earlier" elements are processed before "later" elements (the order may be determined by the order in which the elements are submitted to the Renderer, or by the Data Times of the elements, or by using other techniques); (c) processing a data element takes a finite amount of time (possibly but not typically zero) known as the Rendition Period of the data element; (d) processing a sequence of data elements takes a finite amount of time directly related to the sum of the Rendition Periods of the individual elements, and, potentially, some other factors (the amount of time required to process (render) a sequence of data elements is called a Cumulative Rendition Period for those elements); and (e) at least one instance of a Renderer (often associated with rendering of audio data) has a capability of reporting back to a module, for example, a Presentation System Control Module, upon request, a current value of the Cumulative Rendition Period (a Renderer that is consistently used by the Presentation System in this fashion is referred to as a Timing Renderer)."].

Here I will construe the term to mean "a system for rendering temporal sequence presentation data."

Defendants' proposal is based on the definition in the specification of a "Renderer." That is not a

> clear definition of "rendering system." Indeed, the specification uses the term "rendering system" repeatedly and uses the term "Renderer" with a capital R and it is not clear that the two are used interchangeably. And, in fact, it appears that the rendering systems in the specification have different characteristics than the characteristics as the Renderer as defined. . . . [I]t appears that a Renderer may be a component of the rendering system. But it is not itself a "rendering system."

Id. at 12–13 (bracketed material in original).[9] We agree with the District Court's reasoning and adopt the construction of "rendering system" adopted by the District Court. Accordingly, we construe "rendering system" as "a system for rendering temporal sequence presentation data."

2. Patent Owner's Proposed Constructions

In the "Claim Construction" section of its Response, Patent Owner addresses the following terms:

> *"maintaining a value of a presentation time parameter . . . representing an amount of time elapsed during rendering of a portion of the temporal sequence presentation data"*
>
> *"the portion of the temporal sequence presentation data"*
>
> *"presentation rate"*

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[9] Before the District Court, Patent Owner proposed that no construction of "rendering system" was necessary. Ex. 2005, 12.

"time-scale modification (TSM)"[10]

PO Resp. 19–29. Petitioner asks us to reject Patent Owner's proposed constructions. Pet. Reply 1. After considering the presentations of the parties, and as discussed in more detail below, we determine that it is appropriate to use the plain and ordinary meanings of the first three terms in construing the challenged claims and that "time-scale modification (TSM)" should be construed as "speeding up or slowing down the playback rate."

"maintaining a value of a presentation time parameter . . . representing an amount of time elapsed during rendering of a portion of the temporal sequence presentation data"

This term is recited in challenged, independent claims 1, 12, 13, and 22. Ex. 1001, 23:19–26:65. Patent Owner requests that we give this term its plain meaning. PO Resp. 19 ("Patent Owner does not believe that this limitation requires construction apart from the plain meaning of the words of the claim."). Patent Owner states that it raised this term as a claim construction issue because it believes the Board misconstrued it in the Decision on Institution. *Id.* at 19–24. Patent Owner focuses its argument on the "during rendering" portion of the term and argues that the Board has read the term as if it said "during

[10] As discussed *infra*, "time-scale modification (TSM)" is not a term recited in any of the claims of the '903 patent. *See* Ex. 1001, 23:19–26:66. Patent Owner asks us to construe "[t]he term [time-scale modification] TSM [because it] is incorporated in all of the claims challenged here by virtue of the definition of presentation rate." PO Resp. 26.

[and after] rendering." *Id.* at 21 ("[I]f the 'presentation time parameter' can represent time elapsed 'during [and after] rendering' instead of 'during rendering' as claimed, the 'during rendering' limitation is effectively read out of the claim." (second bracketed material in original)). Petitioner responds that Patent Owner's argument is based on a false premise and that the Board did not interpret the claims as suggested by Patent Owner. Pet. Reply 1 ("[N]either [Petitioner] nor the Board has interpreted the claim in this way. Rather, the real dispute centers on what 'during rendering' means."). Petitioner argues that, to the extent there is a dispute regarding the interpretation of this term, the dispute can be resolved by looking at the definition of "Presentation Time" as set forth in the Specification of the '903 patent. *Id.* at 1–2. We agree with Petitioner.

At column 1, lines 53–55, the '903 patent defines "Presentation Time" as "time elapsed since the beginning of the media content presentation" and provides this example: "if the media has been playing for one minute, the value of Presentation Time is 60,000 milliseconds." Ex. 1001, 1:55–57. And, the '903 patent provides this further example in order to highlight the difference between "Presentation Time" and "Data Time:"

> Presentation Time and Data Time are identical in traditional players, because traditional players can only present media content at a fixed "normal" rate. However, when a player is enhanced with a Time-Scale Modification (TSM) capability, it can present media content at various rates. Because of this, Presentation Time and Data Time are no longer the same. For example, if a 60-second clip

> of media content is presented at a fixed rate that is twice normal rate, at the end of the clip the Data Time is 60,000 milliseconds, but the Presentation Time is 30,000 milliseconds. This is because it only takes 30 seconds to play the 60-second clip.

Ex. 1001, 2:8–19. In accordance with these passages, the District Court in the related district court proceeding, determined "[t]he specification . . . defines presentation time as 'time elapsed since the beginning of the media content presentation.'" Ex. 2005, 12.[11]

As requested by Patent Owner and not disputed by Petitioner, we give the term "maintaining a value of a presentation time parameter . . . representing an amount of time elapsed during rendering of the portion of the temporal sequence presentation data" its ordinary and customary meaning.[12] However, contrary to Patent Owner's interpretation, we determine that in the context of the claims and the '903 patent, the plain meaning of "during rendering" is the "time elapsed since the beginning of the presentation" of the portion or element of interest.

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[11] During oral argument, Patent Owner's counsel acknowledged that the quoted passage was a definition of "presentation time." Tr. 45:8–13.

[12] In its Response, Patent Owner describes "presentation time" as "the length of time of the actual presentation" and "maintaining a value of a presentation time parameter" as "maintain[ing] the time value for rendering the media at a modified playback rate, presentation time." PO Resp. 1–2; *see also* Prelim. Resp. 8 ("'presentation time' . . . tracks the elapsed rendering time of [a] media presentation"), 13 ("the time elapsed during rendering the content [is] called 'Presentation Time.'").

"the portion of the temporal sequence presentation data"

The term "the portion of the temporal sequence presentation data" is recited in challenged, independent claims 1, 12, 13, and 22. Ex. 1001, 23:19–26:66. Patent Owner contends "*a portion* of the temporal sequence presentation data" of Elements 1(A), 12(B), 13(A), and 22(B) should be construed to be the same "portion of the temporal sequence presentation data" as recited in Elements 1(C), 12(E), 13(C), and 22(C). PO Resp. 25–26. Petitioner argues "such a construction is unnecessary as [Petitioner's] mapping does not differ from [Patent Owner's] proposal." Pet. Reply 5. We agree with Petitioner. We discern no dispute relating to this term as used in the challenged claims and we determine it is not necessary to construe explicitly this term.[13]

"presentation rate" & "time-scale modification (TSM)"

We analyze the terms "presentation rate" and "time-scale modification (TSM)" together. The term "presentation rate" is recited in challenged, independent claims 1, 12, 13, and 22. Ex. 1001, 23:19–26:65. The term "time-scale modification (TSM)" is not recited in any of the claims of the '903 patent. *Id.* As noted previously, Patent Owner asks us to construe "[t]he

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[13] Although not referenced by either party with regard to construction of the term "a portion of the temporal sequence presentation data," we note that the District Court in the related proceeding construed "portion(s)" to mean "a part of any whole, either separated from or integrated with it." Ex. 2005, 3, 13. Patent Owner proposed this definition in the District Court as the plain and ordinary meaning of "portion(s)." *See id.* at 13.

term [time-scale modification] TSM [because it] is incorporated in all of the claims challenged here by virtue of the definition of presentation rate." PO Resp. 26.

Patent Owner contends that "presentation rate" means "the speed at which media is played back in a time-scale modification system" and that "time-scale modification (TSM)" means "speeding up and slowing down the perceived rate of speech while substantially preserving both intelligibility and the perceived pitch for audio and audio-visual media." PO Resp. 26–27. Petitioner argues that neither of Patent Owner's proposed constructions should be adopted. Pet. Reply 5–9.

Patent Owner argues that its proposed construction of "presentation rate" was agreed to by the parties in the District Court litigation[14] and adopted by the District Court and, "[t]herefore, the Board should construe the term 'presentation rate' here consistently

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[14] Petitioner argues that it did not agree to construction of "presentation rate" as "the speed at which media is played back in a time-scale modification system." Pet. Reply 5 ("[A]s the district court observed, there was simply a lack of 'dispute' on the term in light of the court's construction of 'time-scale modification.'"). However, at the claim construction hearing, the District Court asked Petitioner's counsel if there was an agreement or a dispute as to the construction of "presentation rate." *See* Ex. 2004, 109:3–110:10. Although reluctant to agree to inclusion of "in a time-scale modification system" in the construction, Petitioner's counsel consented to the District Court construing "presentation rate" as "the speed at which media is played back in a time-scale modification system." *Id.* In light of this exchange with the District Court, we determine Petitioner agreed to the construction of "presentation rate" in the District Court case.

with the parties' agreed-upon construction in the district court." PO Resp. 26. Patent Owner provides no additional reasoning or argument in support of its construction of "presentation rate." *Id.*

With regard to "time-scale modification (TSM)," Patent Owner proposes the same construction that it proposed in the District Court and that was rejected by the District Court. *See* Ex. 2005, 8–10. The District Court construed "time-scale modification/time-scale modified" as meaning "speeding up or slowing down the playback rate." *Id.* at 2. Patent Owner does not explain why we should adopt the District Court's construction of "presentation rate" and at the same time incorporate into the challenged claims a definition of "time-scale modification (TSM)" that the District Court rejected. Adopting the District Court's construction of "presentation rate," but also incorporating a definition of "time-scale modification (TSM)" that was rejected by the District Court into the challenged claims, would result in a construction inconsistent with the District Court.[15]

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[15] Patent Owner argues that the District Court's claim construction should not control and that the District Court "has already agreed that claim construction may need to be revisited to arrive at the correct construction following the IPR proceedings." PO Sur-reply 13 (citing Ex. 2033, 1–2); *see also* IPR2109-01244, Paper 29 (Patent Owner's Sur-reply), 14 ("The Delaware district court's ruling should not control because the district court has already agreed that claim construction may need to be revisited to arrive at the correct construction following the IPR proceedings, suggesting that the Board may likely reach a different conclusion.") (citing Ex. 2033, 1–2). Exhibit 2033 is an Order issued by the District Court that indicates that the litigation is stayed through issuance of final written decisions by the Board. Ex. 2033, 1.

Petitioner's position on construction of "presentation rate" is inconsistent with the position taken by it before the District Court. In this proceeding, Petitioner argues, "[Patent Owner's] construction improperly incorporates limitations into the claims by requiring playback to occur 'in a timescale modification system.' Nothing in the record supports reading 'timescale modification system' into the claims." Pet. Reply 6. Despite the inconsistencies in Petitioner's position, we agree with Petitioner that "time-scale modification" should not be read into the challenged claims through construction of "presentation rate."

We determine that "presentation rate" should be interpreted according to its ordinary and customary meaning of "the speed of presentation." This meaning is consistent with that portion of the District Court's construction of "presentation rate" as "the speed at which media is played back." As cited previously, there is a heavy presumption that a claim term has its ordinary and customary meaning. *CCS Fitness*, 288 F.3d at 1366. We have not been presented with any evidence to overcome that heavy presumption. Neither party directs our attention to any intrinsic or extrinsic evidence to support incorporating "in a time-scale modification system" into the construction of "presentation rate."[16,17] And, we determine that the

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[16] The only support Patent Owner cites in its Response for its construction of "presentation rate" besides the District Court's claim construction order (Ex. 2005, 2, 10) is paragraphs 61 and 62 of the Boncelet Declaration. PO Resp. 26. In paragraphs 61 and 62 of his Declaration (Ex. 2016), Dr. Boncelet does not refer to any intrinsic or extrinsic evidence in support of this construction but, instead, merely cites the District Court's claim construction order (Ex. 2005, 2, 10) and states, "I agree with this

ordinary and customary meaning of the term "presentation rate" is consistent with its use in the claims of the '903 patent. The term "presentation rate" is recited once in each of challenged, independent claims 1, 12, 13, and 22 as part of limitations which recite "maintaining a value of a data time parameter . . . representing/which represents an amount of time required by the rendering system[18] to render the portion of the temporal sequence presentation data at a default *presentation rate*."[19] Ex. 1001, 23:19–

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construction and have applied it in my analysis and opinions herein."

17 Based on our independent analysis of the '903 patent and its file history, we do not discern any support for incorporating "in a timescale modification system" into the meaning of "presentation rate" as recited in the claims of the '903 patent or otherwise limiting the construction of "presentation rate" from its ordinary and customary meaning.

18 Claims 1 and 13 recite, "required by the rendering system to render" and claims 12 and 22 recite, "required to render." Ex. 1001, 23:33–34, 25:3, 25:25–26, 26:59.

19 Patent Owner never explains how its construction of "presentation rate" with its incorporated construction of "time-scale modification" should be interpreted in the phrase "default presentation rate" or in the greater context of the "maintaining" limitations (A) of independent claims 1, 12, 13, and 22. If we construe "presentation rate" as proposed by Patent Owner and place it into the "maintaining" limitations of the challenged, independent claims, the limitation becomes "maintaining a value of a data time parameter . . . representing/which represents an amount of time required (by the rendering system) to render a portion of the temporal sequence presentation data at a default speed at which media is played back in a system speeding up or slowing down the perceived rate of speech while preserving both intelligibility and the perceived pitch for audio and audio-visual media." Patent Owner's construction which adds "speeding up or slowing down" conflicts with "default speed" and, thus,

26:65 (emphasis added). As defined in the Specification, the "default rate" is the "normal" rate of presentation and does not involve "time-scale modification" or varying the rate of the presentation.[20] *See* Ex. 1001, 9:52–53. Stated differently, the "default presentation rate" is the speed at which systems (including prior art systems such as the Real-Networks Real Player (*see* Ex. 1001, 1:23–32)) play back media without "time-scale modification." Adding "in a time-scale modification system" to the construction of "presentation rate" conflicts with the broader use of the term "presentation rate" in the independent claims and the Specification of the '903 patent.

We reject Patent Owner's proposed construction of "presentation rate," because it is not supported by the language of the claims or the Specification of the '903 patent. Thus, we construe the term "presentation rate" differently than the District Court, because the records in the District Court case and in this proceeding relating to construction of "presentation rate" are different. In the District Court proceeding, there was

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the recitation of "default presentation rate." The recitation of a "default presentation rate" does not require "speeding up or slowing down." Thus, Patent Owner's construction renders claims 1, 12, 13, and 22 inconsistent and confusing and is, at best, superfluous in the context of these claims.

[20] In a related proceeding, Patent Owner acknowledges that "[a] presentation rate or playback rate can include playing at 1[X] or normal, while a TSM rate involves speeding up or slowing down the audio or audio visual work using Time-Scale *Modification*" (IPR2019-01244, Paper 25 (Patent Owner's Response), 32) and "[p]laying at normal does not qualify as Time-Scale Modifying—it is normal" (*id.* at 55). *See also* IPR2019-01244, Paper 29 (Patent Owner's Sur-reply), 18 ("The parties agree that normal (1x) is a presentation rate.").

a construction of "presentation rate" that was agreed to by the parties. *See* Ex. 2004, 109:3–110:10. In this proceeding, there is a dispute between the parties as to the construction of "presentation rate." *Compare* PO Resp. 26, *with* Pet. Reply 5–6. However, our conclusion that the challenged claims of the '903 patent would have been unpatentable in view of the asserted art would not be different under either our construction or the District Court's construction of "presentation rate."

In any event, we also reject Patent Owner's proposed construction of "time-scale modification system," because we discern no basis for limiting the claims of the '903 patent to "speeding up and slowing down the perceived rate of speech while substantially preserving both intelligibility and the perceived pitch for audio and audio-visual media" through recitation of "presentation rate" as requested by Patent Owner.[21] *See* PO Resp. 26–29.

As in the District Court, "[t]he dispute here is over [Patent Owner's] attempt to read in 'preserving both intelligibility and the perceived pitch.'" Ex. 2005, 8. However, as the District Court noted, "[t]he terms 'intelligibility' and 'pitch' do not appear in either the '903 or '228 patent family. In fact, the term 'pitch' does not appear in any of the asserted patent families." *Id*. The District Court said:

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[21] Petitioner contends, "[t]o the extent ['time-scale modification'] is construed, . . . it should be construed to mean 'playback rate modification.' This is consistent with the specification, which explains that 'when a player is enhanced with a Time-Scale Modification (TSM) capability, it can present media content at *various rates*.'" Pet. Reply 6 (citing Ex. 1001, 1:63–2:12).

> I find that the construction of time-scale modification that does not require preservation of intelligibility and pitch is supported by the intrinsic evidence of the asserted patents here.
>
> For example, the description of "time-scale modification" at column 2, lines 24 through 28 of the '050 specification [in the '903 patent family] states that "Presentation Time and Data Time are identical in traditional players, because traditional players can only present media content at a fixed 'normal' rate. However, when a player is enhanced with a Time-Scale Modification (TSM) capability, it can present media content at various rates."[22]
>
> * * *
>
> None of these descriptions of time-scale modification mentions preservation of pitch or intelligibility.
>
> * * *
>
> Finally, I note that [Patent Owner's] construction is problematic insofar as it requires "substantially preserving pitch." It is wholly unclear what "substantially" means in the context of these patents.

Ex. 2005, 9–10 (first bracketed material in original).

In support of its position, Patent Owner cites the following passage from the Specification of the '903 patent:

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22 The quoted '050 patent (US Patent No. 8,345,050) has the same Specification as the '903 patent. The quoted description appears at column 2, lines 8–13, of the '903 patent.

> TSMAudioDevice VRP Module 170 processes buffers 200 through a library of signal processing routines, for example, a suitable library of signal processing routines called the Time Scale Tailor package is available from Enounce, Incorporated of Palo Alto, Calif. In accordance with this embodiment, this library carries out digital signal processing procedures on buffers 200 of audio samples that has the effect of reducing the number of samples in the buffer (when playing faster than real time) or increasing the number of samples in the buffer (when playing slower than real time), thereby effectively changing the playback rate. For example, in accordance with this embodiment, processing the buffer using the library decreases or increases the samples in a particular way *so as to leave the perceptual and linguistic information in the buffers unchanged,* but to change the duration of the buffers.

PO Resp. 28–29 (citing Ex. 1001, 7:21–36). However, this passage is explicitly designated as an example and as related to a commercial embodiment. And, the '903 patent states that the embodiments described in the Specification are not limiting. Ex. 1001, 22:28–31 ("It is to be understood that although the invention has been described above in terms of particular embodiments, the foregoing embodiments are provided as illustrative only, and do not limit or define the scope of the invention."). Furthermore, this passage does not specifically refer to "speeding up and slowing down the perceived rate of speech while substantially preserving both intelligibility and the perceived pitch for audio and audio-visual media" and Patent Owner does not persuasively explain how or why this passage

supports its proposed construction. *See* PO Resp. 28–29.

Accordingly, we determine that Patent Owner's proposed construction of "time-scale modification" is not supported. We agree with and adopt the District Court's reasoning and decision that the term "time-scale modification" means "speeding up or slowing down the playback rate" and does not include "preserving both intelligibility and the perceived pitch."[23],[24] *See* Ex. 2005, 2, 8–10.

D. Ground Based on Nelson

Petitioner contends that claims 1–4, 12–14, and 22 would have been obvious in view of Nelson. Pet. 3, 19–64.

1. Nelson (Ex. 1006)

Nelson was filed on February 3, 1993, and issued on February 17, 1998. Ex. 1006, codes (22), (45).

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[23] Patent Owner asserts that "resolution of the dispute regarding preservation of pitch need not be resolved," because "Petitioner's alleged grounds for obviousness fail even under Petitioner's own proposed construction of the term" "time-scale modification." PO Resp. 27 n.9.

[24] Except for those sections of its Response arguing the construction of "time-scale modification" and whether Nelson teaches "time-scale modification," Patent Owner adopts and uses this same construction of "time-scale modification" in its Response. PO Resp. 5 n.2 (referencing Sections IV.F. and V.G.) ("Aside from these two sections, however, Patent Owner applies the district court's construction of speeding up and slowing down playback rate to all other arguments in this response, which Patent Owner understands to be consistent with Petitioner's construction here: 'playback rate modification.'").

Nelson is prior art to the '903 patent under 35 U.S.C. § 102(b). *See* Pet. 3. Patent Owner does not contest the prior art status of Nelson. *See generally* PO Resp. Nelson is titled, "Digital Media Data Stream Network Management System." Ex. 1006, code (54). Nelson is directed to a "computer-based media data processor for controlling transmission of digitized media data in a packet switching network." *Id.* at code (57) (Abstract). Nelson "relates to the management of digitized media stream data, *e.g.*, digitized video, and particularly relates to the capture, storage, distribution, access and presentation of digital video within a network computing environment." *Id.* at 1:7–10. Nelson discloses a digital video management system (DVMS) that provides the ability to capture, store, transmit, access, process and present live or stored media stream data, independent of its capture or storage location, in either a stand-alone or a network environment. *Id.* at 5:45–50.

Figure 4 of Nelson is reproduced below.

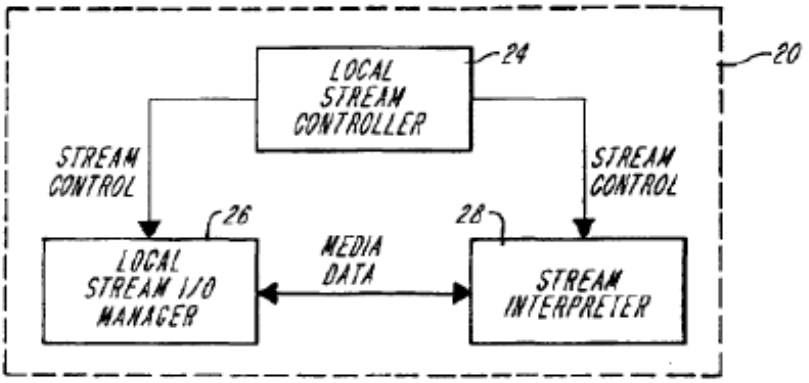

FIG. 4

Figure 4 of Nelson (above) is a schematic diagram of a network implementation of the DVMS. *Id.* at 5:7–8. The description of Figure 4 states:

> [T]he local DVMS manager 20 consists of three modules: the stream controller 24, stream input/output (I/O) manager 26, and the stream interpreter 28. This modularity is exploited in the DVMS design to separate the flow of data in a media data streams from the flow of control information for that media stream through the system. Based on this data and control separation, streams data and stream control information are each treated as producing distinct interactions among the three manager modules, which operate as independent agents.

Id. at 7:57–66. The description of Figure 4 further states:

> The stream interpreter module 28 is responsible for managing the dynamic computer-based representation of audio and video as that representation is manipulated in a standalone computer or a computer linked into a packet network. This dynamic management includes synchronization of retrieved audio and video streams, and control of the rate at which the audio and video information is presented during a presentation sequence.

Id. at 8:25–32. Figure 5 of Nelson is reproduced below.

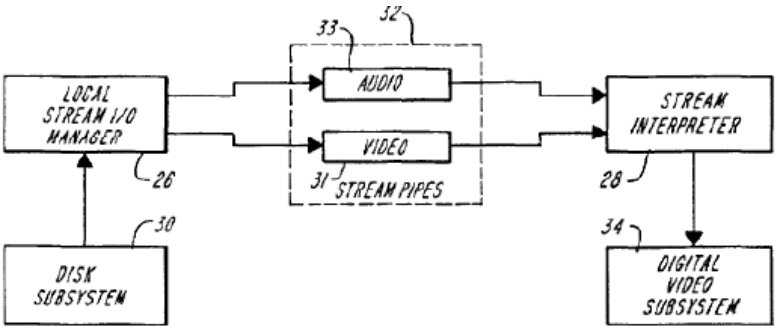

FIG. 5

Figure 5 of Nelson (above) depicts a stream flow when the DVMS requests access to audio or video streams. *Id.* at 9:62–63. The description of Figure 5 states:

> The stream I/O manager 26 module retrieves the requested streams from a stream input 30; this stream input comprises a storage access point, *e.g.*, a computer file or analog video source. The stream I/O manager then separates the retrieved streams according to the specified file format of

> each stream. If two streams, *e.g.*, audio and video streams, which are accessed were interleaved in storage, the stream I/O manager dynamically separates the streams to then transform them to distinct internal representations, each comprising a descriptor which is defined based on their type (*i.e.* audio or video). Once separated, the audio and video stream data are handled both by the stream I/O manager and the stream interpreter as distinct constituent streams within a stream group. The stream I/O manager 26 then exchanges the stream data, comprising sequences of presentation units, with the stream interpreter 28 via a separate queue of presentation units called a stream pipe 32, for each constituent stream; an audio stream pipe 33 is thus created for the audio presentation units, and a video stream pipe 31 is created for the video presentation units. Each audio stream (of a group of audio streams) has its own pipe, and each video stream has its own pipe. During playback of streams, the stream I/O manager continually retrieves and produces presentation units from storage and the stream interpreter continuously consumes them, via the stream pipes, and delivers them to a digital media data subsystem for, *e.g.*, presentation to a user.

Id. at 9:63–10:22. "[T]he digital video management system of the invention provides synchronization of audio to video, and in general, synchronization between any two or more dynamic stream[s] being presented." *Id.* at 12:16–21.

Figure 6 of Nelson is reproduced below.

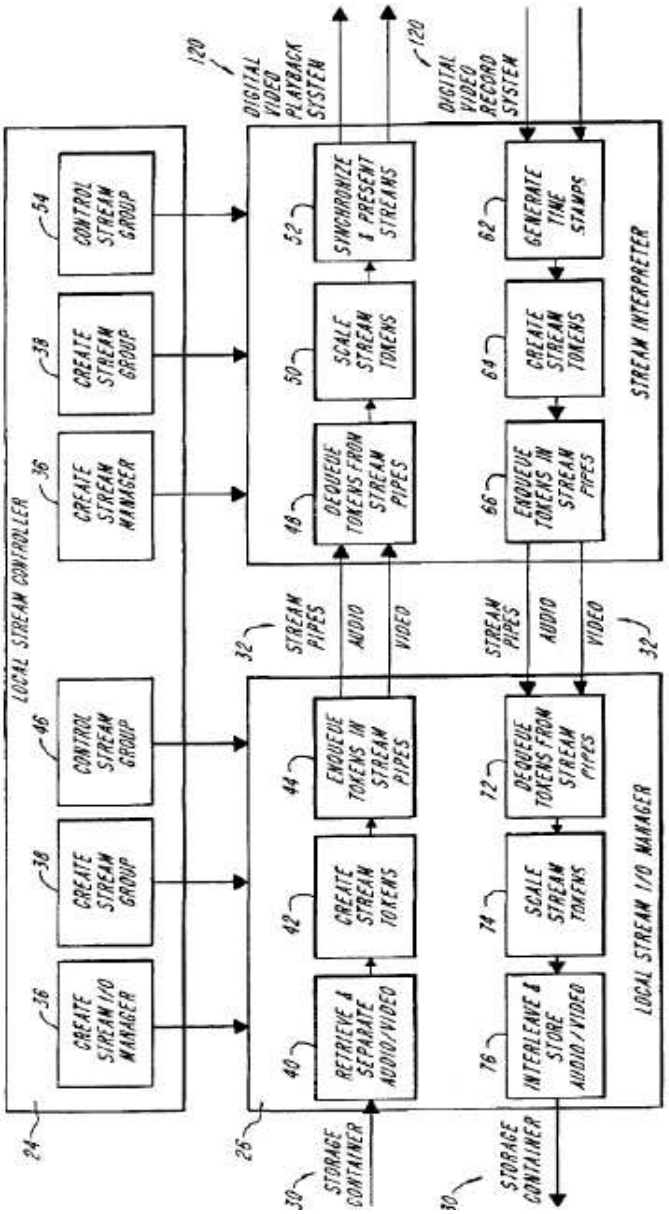

FIG. 6

Figure 6 of Nelson (above) depicts "a schematic flow chart illustrating presentation and capture scenarios carried out by the local digital video management system manager of FIG. 4." *Id.* at 5:13–15. The description of Figure 6 states:

> [T]he synchronization of streams within a stream group is the responsibility of the stream interpreter module during a scaling process. The streams may be self-synchronized using either an implicit timing scheme or an explicit timing scheme. Implicit timing is based on the fixed periodicity of the presentation units in the constituent streams of a stream group to be synchronized. In this scheme, each presentation unit is assumed to be of a fixed duration and the presentation time corresponding to each presentation unit is derived relative to a reference presentation starting time. This reference starting time must be common to all of the constituent streams. Explicit timing is based on embedding of presentation time stamps and optionally, presentation duration stamps, within each of the constituent streams themselves and retrieving the stamps during translation of streams from the storage format to the token format. The embedded time stamps are then used explicitly for synchronization of the streams relative to a chosen reference time base.
>
> Using either the implicit or explicit timing self-synchronization schemes, a reference time base is obtained from a reference clock, which advances at a rate termed the reference clock rate. This rate is determined by the reference [cl]ock period, which is the granularity of the reference clock ticks.

> The DVMS of the invention supports two levels of self-synchronization control, namely, a base level and a flow control level. Base level synchronization is applicable to stream process scenarios in which the stream I/O manager is able to continuously feed stream data to the stream interpreter, without interruption, and in which each presentation unit is available before it is to be consumed. In this scenario, then, the stream I/O manager maintains a process rate and a process work load that guarantees that the stream I/O manager stays ahead of the stream interpreter.

Id. at 13:19–53. Figure 10 of Nelson is reproduced below.

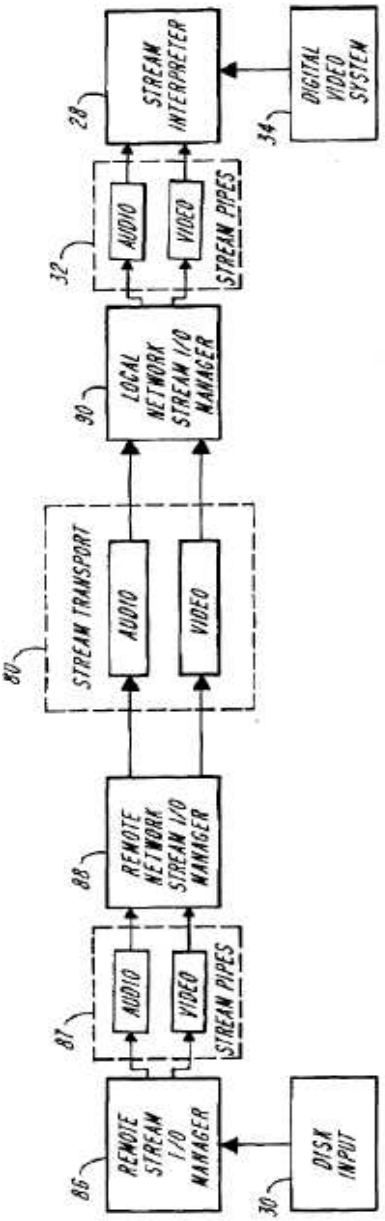
REMOTE STREAM I/O MANAGER
86
DISK INPUT
30
87
AUDIO
VIDEO
STREAM PIPES
REMOTE NETWORK STREAM I/O MANAGER
88
STREAM TRANSPORT
80
AUDIO
VIDEO
LOCAL NETWORK STREAM I/O MANAGER
90
32
AUDIO
VIDEO
STREAM PIPES
STREAM INTERPRETER
28
DIGITAL VIDEO SYSTEM
34

FIG. 10

Figure 10 of Nelson (above) depicts "a schematic diagram illustrating the flow of media stream data between the remote and local digital video management manager modules." *Id.* at 5:29–31. The description of Figure 10 states:

> Upon initialization from the request, and based on the network servers' stream group advertisements, the appropriate remote stream I/O manager 86 retrieves stored streams, *e.g.*, audio and video streams, from the appropriate file storage 30 containing the requested stream group. The manager then separates the retrieved streams, if necessary, thereby producing separate audio and video presentation unit streams, and enqueues corresponding stream descriptor tokens in separate stream pipes 87, one pipe for each presentation unit token stream.
>
> The remote network stream I/O manager 88 consumes the presentation unit tokens from each of the stream pipes, assembles transmission packets based on the streams, and releases them for transmission across the network 80 directly to the corresponding local network stream I/O manager 90, based on the DVMS stream data transport protocols; the particular transport protocol used is set by the network environment.

Id. at 20:21–38.

2. Analysis of Independent Claims 1, 12, 13, and 22

a) Claim 1

"A method, performed by at least one machine, for rendering temporal sequence presentation data in a machine-implemented rendering system, the temporal sequence presentation data being tangibly stored in a first computer-readable medium, the method comprising steps of:"

In the Petition, Petitioner does not take a position as to whether the preamble of claim 1 is limiting.[25] Pet. 19 ("To the extent that the preamble of claim 1 is limiting, *Nelson* discloses the limitations therein."). Patent Owner relies on the recitation of "rendering system" in the preambles of the challenged, independent claims in arguing that Nelson does not teach the claimed inventions. PO Resp. 31–40.

Parsing the preamble, it recites, (1) "[a] method, performed by at least one machine;" (2) "rendering temporal sequence presentation data in a machine-implemented rendering system;" and (3) tangibly storing the temporal sequence presentation data in a computer-readable medium. The Petition states, "*Nelson* discloses '*a computer-based media data pro-*

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[25] "[W]here a patentee defines a structurally complete invention in the claim body and uses the preamble only to state a purpose or intended use for the invention, the preamble is not a claim limitation." *Rowe v. Dror*, 112 F.3d 473, 478 (Fed. Cir. 1997).

cessor for controlling the *computer presentation* of digitized continuous *time-based* media data composed of a *sequence of presentation units*'" and "*Nelson* discloses a DVMS [Digital Video Management System], which 'provides the ability to capture, store, transmit, access, process and *present live or stored media stream data*.'" Pet. 19–20 (citing Ex. 1006, 2:10–13, 5:45–50). The Petition further states that, "*Nelson* discloses that a stream includes 'dynamic information . . . with *temporal predictability*' and '*a succession of sequences* . . . in turn, each sequence contains a succession of segments'" and "each stream contains a presentation unit being 'a unit of continuous, *temporally*-based data to be presented,' which 'has an *associated presentation time and presentation duration*.'" *Id.* at 21 (citing Ex. 1006, 6:10–26, 6:44–47).

Figure 2 of Nelson is reproduced below.

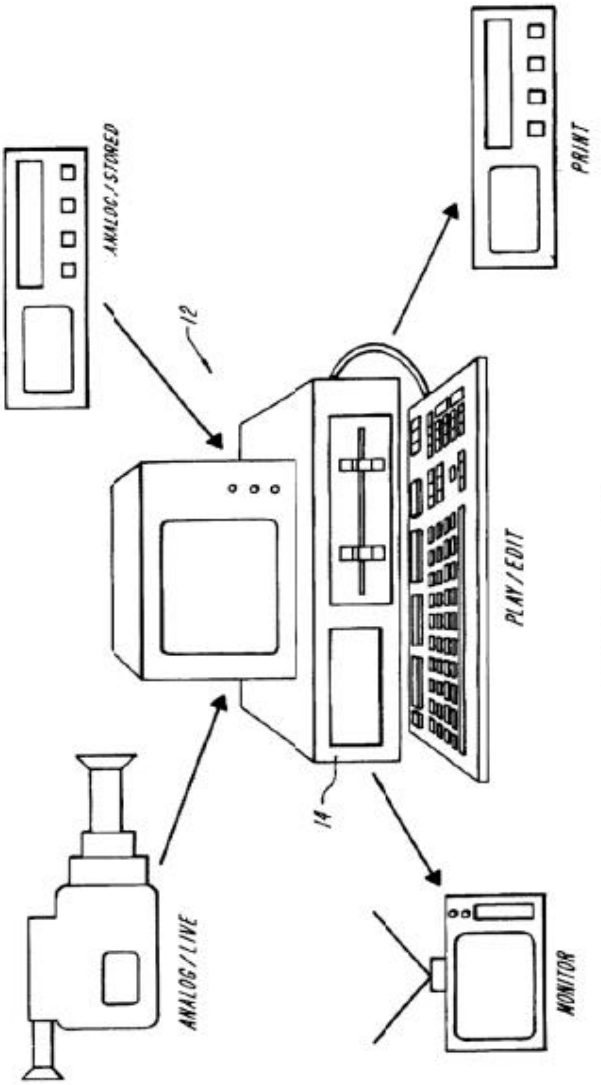

FIG. 2

Figure 2 of Nelson depicts "a stand-alone implementation of the digital video management system [DVMS]." Ex. 1006, 5:1–2. The detailed description of Figure 2 in Nelson states:

> [T]he DVMS may be implemented in a stand-alone computer system or a computer-based, packet switched network. Referring to FIG. 2, in a stand-alone computer system implementation 12, live or stored media streams are accessed and captured for presentation and editing on the stand-alone computer 14. The captured, and optionally edited media streams may then be delivered to a presentation monitor or to a VCR tape printer utility.

Id. at 6:57–64. Figure 3 of Nelson is reproduced below.

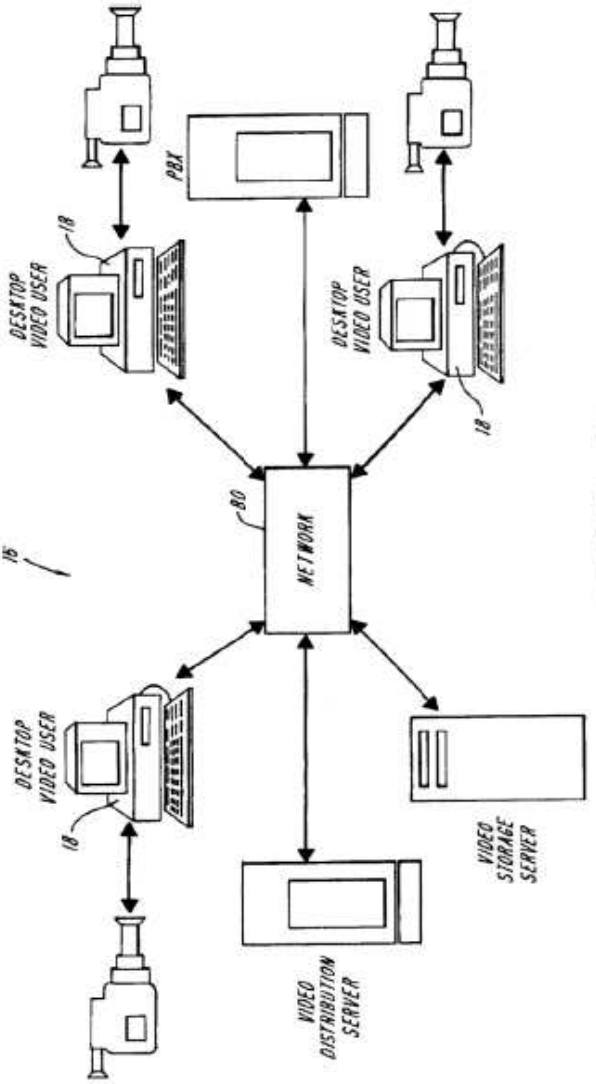

FIG. 3

Figure 3 of Nelson depicts "a network implementation of the digital video management system [DVMS]." *Id*. at 5:4–5. The detailed description of Figure 3 in Nelson states:

> Referring to FIG. 3, a packet switching network in which the DVMS is implemented comprises desktop computer systems 18 which are linked via a packet switching network 80, which is controlled by the DVMS network implementation 16. The network 80 may comprise a local area network (LAN) or a wide area network (WAN), or a combination of one or more LANs and WANs. The DVMS provides access to and capture of media streams from live analog video capture, *e.g.*, a VCR or camcorder, a network, storage or PBX server, or one of the desktop computers, and in turn manages the transmission of the media stream data across the network back to any of the access points.

Id. at 6:65–7:9.

As noted previously, Patent Owner argues that Petitioner has failed to establish that Nelson teaches a "rendering system" as recited in the challenged claims. PO Resp. 31–42. However, this argument is based on Patent Owner's contention that Petitioner has failed to establish that Nelson teaches a "rendering system" according to the construction proposed by Petitioner that we have not adopted. *See id.* We construe "rendering system" to mean "a system for rendering temporal sequence presentation data." *Supra* Section II.C.1. Applying this construction, Petitioner has shown that Nelson teaches a "rendering system" as recited in the context of the preambles of the challenged, independent claims, and Patent Owner does not argue to the contrary. *See* PO Resp. 31–42.

We find that the preamble of claim 1 is taught by Nelson.

> **"(A) maintaining a value of a presentation time parameter tangibly stored in a second computer-readable medium and representing an amount of time elapsed during rendering of a portion of the temporal sequence presentation data"**

Petitioner contends that Nelson's description of a "reference time base" that is maintained and used in synchronization of media streams discloses the "presentation time parameter" as recited in this limitation. Pet. 41–42 (citing Ex. 1002 (Schonfeld Decl.) ¶¶ 59–64). The Petition states:

> *Nelson* discloses maintaining a value of a reference time base ("a value of a presentation time"), which is stored in a computer-readable medium of the DVMS ("stored in a second computer-readable medium"), where the value represents an amount of time elapsed during rendering of a portion of the media stream ("representing an amount of time elapsed during rendering of a portion of the temporal sequence presentation data"). ([Ex. 1002] ¶ 59.).

Pet. 41. And, "[i]n either the implicit timing scheme or the explicit timing scheme, 'a reference time base' obtained from a reference clock ([Ex. 1006], 13:38-43) is used to control synchronization. (*See, e.g.*, [Ex. 1006,] 14:44-48, 15:20-25.)" *Id.* at 24. With regard to the use of the "reference time base" in synchronization, the Petition states:

> *Nelson* explains that synchronization amongst media streams is "inherently required for the coordinated presentation." (Ex. 1006, 12:17-29;

> Ex. 1002, ¶ 60.) Synchronization of the streams may be achieved by maintaining "*a common reference time base*" in the disclosed synchronization schemes, including an implicit timing scheme and an explicit timing scheme. (Ex. 1006, 12:49-51 (disclosing that "independent constituent streams may . . . be stored in separate file containers and be synchronized, before presentation, with a common reference time base"), 13:38-43 (disclosing that in either synchronization scheme "a reference time base is obtained from a reference clock"), 13:22-26 (disclosing that synchronization of stream may be achieved using implicit or explicit timing scheme).) The implicit timing scheme is "based on the fixed periodicity of the presentation units in the constituent streams of a stream group to be synchronized." (*Id.*, 13:24-26; *see also id.*, 13:26 31.) The explicit timing scheme is based on embedded presentation time stamps (and optionally presentation duration stamps) within each of the streams.

Id. at 41–42.

Patent Owner disputes whether Nelson discloses "maintaining a value of a presentation time parameter . . . representing an amount of time elapsed during rendering of a portion of the temporal sequence presentation data." PO Resp. 42–50. First, Patent Owner argues that the "reference time base" that Petitioner relies on as teaching the "presentation time parameter" is not maintained. *Id.* at 43 ("[W]hat Petitioner identifies as the presentation time parameter is not *maintained*—it is, according to Petitioner and its expert, merely utilized at the point at which it is required for comparison by the stream interpreter.").

This argument is contradicted by Patent Owner's own statements and by the disclosure of Nelson cited by Patent Owner. In the same section of its Response (Section V.B. (PO Resp. 42–50)), Patent Owner acknowledges that the reference time "clock value is always available" (*id.* at 45) and that "an external clock time is maintained" (*id.* at 48). Patent Owner's Preliminary Response states:

> "Reference time base" is also referred to as the "current presentation time" ([Ex. 1006], 14:53-58, 15:20-22) and the "currently maintained time count" (*id.*, 14:25-29). An example of the reference time base is an "external clock." *Id.*, 14:55–58.
>
> * * *
>
> To be clear, *Nelson* also refers to the external clock time as the current reference time, and also as the currently maintained time count. EX1006, 13:38-41, 14:26-29, 14:55-58, 15:29-32, 58 (CoC, Feb. 17, 1998).

Prelim. Resp. 23 n.6, 26. *Cook Group Inc. v. Boston Sci. Scimed, Inc.*, 809 F. App'x. 990, 1000 (Fed. Cir. 2020) ("[A]n admission in a preliminary patent owner response, just like an admission in any other context, is evidence appropriately considered by a factfinder."). We find that Nelson teaches maintaining the reference time base (external clock).

Second, Patent Owner argues that "Nelson does not teach or suggest the claimed 'presentation time parameter.'" PO Resp. 46. This argument is based on Patent Owner's claim construction argument relating to this limitation particularly "during rendering." *Id.* at 46–50. Specifically, Patent Owner argues, "[a]s explained above, based on the plain meaning of the

claim language, this presentation time parameter must represent 'an amount of time elapsed *during rendering*' of the relevant portion of presentation data." *Id.* at 46. As discussed above (*supra* Section II.C.2.), the '903 patent defines "presentation time" as "time elapsed since the beginning of the media content presentation." As acknowledged by Patent Owner, "[t]he Petition relies on *Nelson*'s disclosure that the reference clock 'indicates the current real time relative to the start time of the presentation unit consumption process for the corresponding stream.' *E.g.*, Petition, 43 (*citing* EX1006, 14:27-29)." PO Resp. 47. We do not find this argument persuasive.

With regard to the portion of claim element (A) relating to storing the presentation time parameter ("maintaining a value of a presentation time parameter tangibly stored in a second computer-readable medium"), Petitioner provides a well-supported showing that Nelson meets this limitation. *See* Pet. 43–44. The Petition states:

> Moreover, this value is "tangibly stored in a second computer-readable medium," as claimed. (Ex. 1002, ¶ 62.) For example, as discussed above, *Nelson* discloses that the DVMS utilizes the reference time base (the claimed "value of a presentation time parameter") to compare it with a calculated product. (Ex. 1006, 14:34-36.) Thus, the disclosed "value" is at least temporarily stored on the DVMS. Furthermore, as discussed above in claim 1 preamble, a POSITA would have found it obvious to store data, program instructions, and other parameters in non-volatile storage elements. (*See supra* Section IX.A.1.pre.) Accordingly, for similar reasons discussed therein,

> a POSITA would have would found it obvious to store the disclosed "value of a presentation time parameter" in non-volatile storage elements (the claimed "second computer-readable medium"). (Ex. 1002, ¶ 62; Section VIII.C.)

Id. at 43. Patent Owner does not address this storing limitation or dispute Petitioner's showing that Nelson teaches or suggests it.[26]

We find that Nelson teaches or suggests limitation (A) of claim 1.

> **"(B) providing the value of the presentation time parameter to a first component of the rendering system"**

With regard to this limitation, Petitioner argues, "*Nelson* discloses providing the value of the reference time base ('the value of the presentation time parameter') to the stream interpreter of the DVMS [Digital Video Management System] ('a first component of the rendering system')." Pet. 46. Petitioner contends, "*Nelson* discloses that the stream interpreter module is responsible for synchronizing streams using either the implicit or explicit timing scheme," and "the stream interpreter module uses the value of the reference time base to determine whether to release a presentation unit for synchronization purposes." *Id.* Nelson supports Petitioner's argument. Nelson states:

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[26] Patent Owner does not dispute that the storing limitations of the challenged claims ("tangibly stored"/"tangibly storing") would have been obvious to a skilled artisan. *See generally* PO Resp.

> [T]he synchronization of streams within a stream group is the responsibility of the stream interpreter module during a scaling process. . . . The embedded time stamps are then used explicitly for synchronization of the streams relative to a chosen reference time base.
>
> Using either the implicit or explicit timing self-synchronization schemes, a reference time base is obtained from a reference clock, which advances at a rate termed the reference clock rate. This rate is determined by the reference [cl]ock period, which is the granularity of the reference clock ticks.

Ex. 1006, 13:19–43.

Patent Owner argues, "the stream interpreter does not *provide* the reference time base (the alleged 'value of a presentation time parameter') *to* anything—not the rendering system or any component thereof, or even to itself—as the Challenged Claims explicitly require in this element." PO Resp. 44. Patent Owner's argument is not responsive to Petitioner's showing with regard to this limitation. Again, Petitioner argues "*Nelson* discloses providing the value of the reference time base ('the value of the presentation time parameter') to the stream interpreter of the DVMS [Digital Video Management System] ('a first component of the rendering system')." Pet. 46. And, as the above-quoted passage states, Nelson discloses that the "reference time base is obtained from a reference clock" and provided to the stream interpreter. Patent Owner's argument does not undermine Petitioner's persuasive showing.

We find that Nelson teaches this limitation.

> **"(C) maintaining a value of a data time parameter tangibly stored in a third computer-readable medium and representing an amount of time required by the rendering system to render the portion of the temporal sequence presentation data at a default presentation rate"**

Petitioner relies on Nelson's description of calculated and embedded presentation times as disclosing the "data time parameter" of this limitation. Pet. 47. Petitioner argues:

> *Nelson* discloses maintaining a value of a calculated or an embedded presentation time ("maintaining a value of a data time parameter"), which is stored in a computer-readable medium of the DVMS ("stored in a third computer-readable medium"), where the value represents an amount of time required by the DVMS to render a portion of the media stream at the original presentation rate ("representing an amount of time required by the rendering system to render the portion of the temporal sequence presentation data at a default presentation rate").

Id. Petitioner asserts that Nelson discloses this limitation in two distinct ways. *Id.* First, the Petition states:

> *Nelson* discloses in the implicit timing scheme that the DVMS "maintains a separate presentation unit counter" for each audio and video stream pipe (Ex. 1006, 14:8-17, 14:18-21), where the unit counter "indicates the number of already consumed presentation units in the corresponding

> stream" (*id.*, 14:29-32). (*Supra* Section IX.A.1.a; Ex. 1002, ¶ 68.) The scheme then calculates a product between the presentation unit count and the fixed presentation duration of each presentation unit. (Ex. 1006, 14:32-34; *see also id.*, 13:26-27.) *Nelson* explains that the calculated product "specifies *the real time which has elapsed to present the counted units*." [*Id.*] 14:32-34 (emphasis added).).

Id. at 47–48. Petitioner contends "this product represents 'an amount of time required by the rendering system to render the portion of the temporal sequence presentation data at a default presentation rate,' as claimed, [because] it is the same time requirement regardless of the presentation rate." *Id.* at 48. The cited portions of Nelson support this contention by Petitioner.

> Second, the Petition states:
>
> *Nelson* discloses in the explicit timing scheme that the DVMS "reads the embedded time stamp of each presentation token . . . to determine presentation time and duration for each presentation unit in the sequence." (Ex. 1006, 15:10-13; *supra* Section IX.A.1.a.) The scheme then compares "a reference time base with the presentation time and presentation duration stamp embedded in each presentation unit" to determine whether a presentation unit should be released for presentation. (Ex. 1006, 15:20-25.) The embedded presentation time discloses "a value of a data time parameter . . . representing an amount of time required by the rendering system to render the portion of the temporal sequence presentation data at a default presentation rate," as claimed

> at least because it is equivalent to the calculated presentation time (the presentation unit-duration product), as discussed above in the first way of disclosing the claimed "value of a data time parameter." (*Id.*, 14:67-15:3 ("The stream interpreter does not maintain a presentation unit counter in [the explicit timing] scheme, as it does in the implicit timing scheme. Rather, the embedded time stamps in the streams provide equivalent information."); Ex. 1002, ¶ 70.)

Id. at 50. The cited portions of Nelson support this contention by Petitioner. Thus, Petitioner shows Nelson's disclosure of "presentation time" (calculated or embedded) teaches the "value of a data time parameter" as recited in the claims.[27]

Nelson also provides this further description of the presentation of streams of time-based media data using its digital video management system (DVMS):

> Segments of streams contains presentation units. A presentation unit is a unit of continuous, temporally-based data to be presented, and accordingly, has an associated presentation time and presentation duration. A presentation time indicates the appropriate point in the sequence of a presentation at which the associated

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[27] Patent Owner recognizes that the differences in the terminology used in the '903 patent and Nelson could cause confusion and explains, "[w]hat Nelson calls 'presentation time' is not equivalent to the challenged claims' 'presentation time,' and Petitioner does not rely on what Nelson calls 'presentation time' as the 'presentation time' of the challenged claims." PO Resp. 47 n.14; *see also* Prelim Resp. 22 ("Petitioner relies on the 'presentation time' time stamps of *Nelson* to disclose the claimed 'data time.'").

> presentation unit is to be played, relative to the time base for the ongoing presentation. A presentation duration indicates the appropriate interval of time over which the associated presentation unit is to be played in the ongoing presentation.

Ex. 1006, 6:44–53. This passage also supports Petitioner's contention that Nelson teaches "maintaining a value of a data time parameter . . . representing an amount of time required by the rendering system to render the portion of the temporal sequence presentation data at a default presentation rate" as recited in independent claims.

The Petition also references the following passages in Nelson as disclosing "data time":

> "[e]ach presentation unit is characterized by a prespecified *presentation time* during a computer presentation of the media data." (1006, 2:14-17; *see also id.*, 6:44-56 (disclosing that "[a] presentation time indicates the appropriate point in the sequence of a presentation at which the associated presentation unit is to be played, relative to a time base for the ongoing presentation"), 11:7-11 (disclosing "retriev[ing] the time stamp information from the corresponding [audio and video] frames"), 14:8-48 (describing use of presentation time), 15:10-40 (same), 15:66-16:19 (same), 16:21-53 (same).)

Pet. 30–31 (bracketed material in original).

Patent Owner does not contest that Nelson discloses "a data time parameter" that "represents an amount of time required by the rendering system to render a portion of the temporal sequence pre-

sentation data at a default presentation rate." Indeed, Patent Owner appears to acknowledge that Nelson teaches "maintaining a value of a data time parameter." In the Response, Patent Owner acknowledges that Nelson's stream interpreter compares the "reference clock base to the *value of an explicit or calculated (implicit) timestamp*" and "Nelson . . . mak[es] the decision on when to render a unit based on a comparison of the *unit's time stamp* to a single reference time base." PO Resp. 52, 55 (emphasis added). The Preliminary Response states that "'[d]ata [t]ime' can be regarded as a time value (*e.g.*, timestamp) that specifies 'how long it would take to reach that location, starting from the beginning of the media content, and playing at [a] normal rate.'" Prelim. Resp. 13 (citing Ex. 1001, 2:2–8). With regard to Nelson, the Preliminary Response states:

> In *Nelson*, presentation time indicates the appropriate time at which the unit is to be played, relative to a reference time base. [Ex. 1001], 6:47-50. Presentation times are either explicit time stamps or the implicit calculated equivalent.
>
> * * *
>
> The token for each unit [as shown in Figure 7] represents an audio or video presentation unit (114) and a time stamp for that unit (116). *Id.*, 11:11-14.
>
> * * *
>
> Explicit timing synchronization is based on the time stamps that are embedded in the stream tokens. *Id.*, 14:50-52.

Prelim. Resp. 17, 19, 20.

With regard to the portion of this limitation relating to storing the data time parameter ("maintaining a value of a data time parameter tangibly stored in a third computer-readable medium"), Petitioner provides a well-supported showing that Nelson meets this limitation. *See* Pet. 49–50. The Petition states:

> Moreover, this value is "tangibly stored in a third computer-readable medium," as claimed. (Ex. 1002, ¶ 69.) For example, as discussed above, *Nelson* discloses that the DVMS utilizes the calculated product (the claimed "value of a data time parameter") to compare it with the reference time base. (Ex. 1006, 14:34-36.) Thus, the disclosed "value" is at least temporarily stored on the DVMS. Furthermore, as discussed above in claim 1 preamble, a POSITA would have found it obvious to store data, program instructions, and other parameters in non-volatile storage elements. (*See supra* Section IX.A.1.pre.) Accordingly, for similar reasons discussed therein, a POSITA would have would found it obvious to store the disclosed "value of a data time parameter" in non-volatile storage elements (the claimed "third computer-readable medium"). (Ex. 1002, ¶ 69; Section VIII.C.)

Id. at 49. Patent Owner does not address this storing limitation or dispute Petitioner's showing that Nelson teaches or suggests it.

We find that Nelson teaches or suggests limitation (C) of claim 1.

"(D) providing the value of the data time parameter to a second component of the rendering system"

Petitioner argues:

> *Nelson* discloses providing the calculated or embedded presentation time ("the value of the data time parameter") to the stream interpreter of the DVMS ("a second component of the rendering system"), where the value of the reference time base ("the value of the presentation time parameter") is not equal to the value of the calculated or embedded presentation time ("the value of the data time parameter"). ([Ex. 1002] ¶ 71.)
>
> As discussed in claim element 1(b), the stream interpreter module is responsible for synchronizing streams using either the implicit or explicit timing scheme. (*See supra* Section IX.A.1.b; Ex. 1006, 13:19-26, FIG. 6; Ex. 1002, ¶ 72.) Consistent with as discussed in claim element 1(c), the stream interpreter module uses the calculated or embedded presentation time to determine whether to release a presentation unit for synchronization purposes. (*See supra* Section IX.A.1.c; *see also* Ex. 1006, 14:37-48, 15:10-25.) Thus, each of the disclosed "value of the data time parameter" discussed above is provided to the stream interpreter module of the DVMS ("a second component of the rendering system").

Pet. 51–52 (footnote omitted). Nelson supports Petitioner's argument. We determine that Nelson teaches providing the calculated or embedded presentation time to the stream interpreter. Patent

Owner does not dispute Petitioner's showing with regard to this limitation or argue that Nelson fails to teach or suggest this limitation. *See generally* PO Resp.

We find that Nelson teaches this limitation.

"wherein the value of the presentation time parameter is not equal to the value of the data time parameter"

Petitioner contends, "*Nelson* discloses that the value of the calculated or embedded presentation time ('the value of the data time parameter'), and the value of the reference time base ('the value of the presentation time parameter') are not equal." Pet. 52. Petitioner argues:

> *Nelson* discloses controlling the synchronization of media streams based on these values not being equal. As discussed in claim elements 1(a) and (c), these two values are compared to determine whether a presentation unit should be released for presentation. (*See supra* Sections IX.A.1.a and c.) Only when these two values match, a presentation unit will be released. (Ex. 1006, 14:34-48, 15:20-25.) Indeed, *Nelson* discloses that "if the appropriate release time for those [presentation] units has passed," *i.e.*, if the two times values are not equal, both the implicit and explicit schemes delete those units. (*Id.*, 15:26-40.)

Id. (bracketed material in original). Nelson supports Petitioner's contention.

Patent Owner argues that "*Nelson* does not teach or suggest the 'not equal' limitation of the

challenged claims." PO Resp. 50. Notwithstanding Patent Owner's argument, Patent Owner appears to acknowledge this limitation is taught by Nelson. In its Response with regard to the claimed invention, Patent Owner states, "in the context of the invention . . . portions of the temporal sequence data are rendered at a rate other than the default rate (potentially more than one rate) and rendering time ('presentation time') will not be the same as the time it would take to render the same content at a default rate ('data time')" (*id.* at 50–51) and "the two values will only be equal when media is presented at a 'normal' or default rate. When at least a portion of the data being rendered is presented at a rate other than the default rate, then the two will not be equal as required in every challenged claim" (*id.* at 11). With regard to Nelson, Patent Owner states, "[t]he *Nelson* system can operate at a speed other than the default rate; it does so by speeding up or slowing down the reference time base. EX1006, 17:43-50; EX2016, ¶ 103" (*id.* at 17) and "*Nelson* effectuates faster or slower playback of media by simply changing the speed of the reference time base. *See e.g.*, EX1006, at 17:43-48; *see also* 16:54-17:50, Appx. D." (*id.* at 59).

We find that Nelson teaches this limitation.

Summary as to Claim 1

Petitioner's showing that claim 1 of the '903 patent would have been obvious in view of Nelson is well-supported. In contrast, we do not find Patent Owner's arguments regarding claim 1 undermine Petitioner's persuasive showing. We conclude that Petitioner has shown by a preponderance of the

evidence that claim 1 would have been obvious in view of Nelson.

b) Claims 12, 13, and 22

Independent claims 12, 13, and 22 include limitations similar to the limitations of independent claim 1. Petitioner relies on similar arguments and evidence as discussed above with respect to claim 1 for these claims. *See* Pet. 56–64. Patent Owner's arguments concerning claims 12, 13, and 22 are the same as those discussed above with respect to claim 1. *See* PO Resp. 30–57. We have reviewed the contentions of the parties and supporting evidence and we conclude that Petitioner has shown by a preponderance of the evidence that claims 12, 13, and 22 would have been obvious in view of Nelson.

3. Dependent Claims 2–4, and 14

Petitioner asserts that Nelson teaches each of the additional limitations of dependent claims 2–4 and 14. *See* Pet. 52–55, 62. Petitioner supports these assertions with citations to the record and the testimony of Dr. Schonfeld. *See id.* Patent Owner does not dispute these assertions, or raise arguments separate from those discussed above with respect to claim 1. *See generally* PO Resp. Indeed, claims 2–4 and 14 are not specifically addressed by Patent Owner. *Id.*

a) Claims 2 and 14

Claim 2 depends from claim 1 and claim 14 depends from claim 13. Ex. 1001, 23:40–42, 25:32–34. Claims 2 and 14 recite, "the first component and the second component are the same component of the rendering system." *Id.* The Petition states, "*Nelson*

discloses that either under the implicit or explicit timing scheme, 'synchronization of streams within a stream group is the responsibility of the stream interpreter module'" and "the stream interpreter module uses the presentation time value (either calculated or embedded) and a reference time base to determine whether to release a presentation unit for synchronization purposes." Pet. 52–53 (citing Ex. 1006, 13:19–26, 14:37–48, 15:10–25, Fig. 6); *see also id.* at 62. The cited passages in Nelson support these undisputed contentions. We conclude that Petitioner has shown by a preponderance of the evidence that claims 2 and 14 would have been obvious in view of Nelson.

b) Claim 3

Claim 3 recites, "step (B) comprises a step of providing the presentation time parameter value in response to a request from the first component for a current time." Ex. 1001, 23:43–46. The Petition states, "*Nelson* discloses pseudocodes in Appendix D and E for running the implicit and explicit timing synchronization schemes, where a variable, 'reference time base,' and another variable, presentation time (calculated or embedded), are requested by the stream interpreter for comparison" and "Nelson discloses that the 'reference time base is obtained from a reference clock.'" Pet. 53–54 (citing Ex. 1006, 12:4–15, 13:38–43, 14:37–48, 15:10–25). With regard to showing the "request [is] for a current time," the Petition states, "*Nelson* discloses that the requested 'reference time base indicates the *current real time* relative to the start time of the presentation unit consumption process for the corresponding stream.'" *Id.* at 54 (citing Ex. 1006, 14:27–29). The cited passages in Nelson support

these undisputed contentions. We conclude that Petitioner has shown by a preponderance of the evidence that claim 3 would have been obvious in view of Nelson.

c) Claim 4

Claim 4 recites, "step (D) comprises a step of providing the data time parameter value in response to a request from the second component for a current time." Ex. 1001, 23:47–49. The Petition states, "*Nelson* discloses providing the calculated or embedded presentation time ('the data time parameter value')" and "*Nelson* discloses that running the implicit and explicit timing synchronization schemes involves requesting variables for comparison, including the reference time base and the presentation time (calculated or embedded), and the disclosed request is 'for a current time,' as claimed." Pet. 55 (citing Ex. 1006, 14:34–36, 15:22–40). The cited passages in Nelson support these undisputed contentions. We conclude that Petitioner has shown by a preponderance of the evidence that claim 4 would have been obvious in view of Nelson.

E. Obviousness Challenge Based on Nelson and DeMoney

Petitioner contends that claims 7 and 17 would have been obvious in view of Nelson and DeMoney. Pet. 3, 64–69.

1. DeMoney

DeMoney was filed on June 5, 1996, and issued on May 16, 2000. Ex. 1012, codes (22), (45). Therefore, DeMoney is prior art to the '903 patent under 35

U.S.C. § 102(a). *See* Pet. 3. Patent Owner does not dispute that DeMoney is prior art. *See generally* Prelim. Resp.

DeMoney relates to "a video server system and method for indexing between video streams having different presentation rates, *i.e.*, normal play, fast forward and fast reverse video streams." Ex. 1012, 1:16–19. The fast forward and fast reverse video streams are called "trick play video streams." *Id.* at 5:4–7. "The present invention generates index look-up tables (ILUTs) between the normal play and trick play video streams which enable indexing between the streams." *Id.* at 5:7–10. A server "maps . . . presentation timestamps to a 'normal play time' (NPT) standard." *Id.* at 8:26–27. "For the scaled streams, *e.g.*, the fast forward and fast reverse streams, a scale factor is introduced into the normal play time values of the index look-up tables to compensate for the different presentation rates." *Id.* at 9:32–35.

2. Claims 7 and 17

Dependent, method claim 7 depends from claim 1 and dependent, device claim 17 depends from claim 13. Ex. 1001, 24:4–15, 25:56–67. *Id.* Claims 7 and 17 recite:

7./17. The method/device of claim 1/13, wherein (C) comprises steps of:

(C)(1) for each element in the portion of the temporal sequence presentation data:

(a) identifying an actual rendition period of the element;

(b) identifying an actual presentation rate of the element;

(c) multiplying the actual rendition period of the element by the actual presentation rate of the element to produce a product; and

(C)(2) maintaining a sum of the products produced by (C)(1) as the data time parameter in the second computer-readable medium.

Id. Petitioner provides detailed arguments and cites to the asserted art to show that the limitations of claims 7 and 17 are taught and that a motivation existed to combine the relevant teachings of Nelson and DeMoney. Pet. 64–69. Petitioner supports these assertions with citations to the record and the testimony of Dr. Schonfeld. *See id.*

The Petition states, "*Nelson* discloses a 'presentation decision scheme,' in which '[a] stream counter of each stream pipe indicates the number of already consumed presentation units in the corresponding stream,' wherein '[m]ultiplying this count by the (fixed) duration of each of the presentation units specifies the real time which has elapsed to present the counted units" and "[a] person of ordinary skill in the art would have understood that calculating a product (*e.g.*, multiplying the fixed duration by unit count) is equivalent to calculating a sum by repeated addition (*e.g.*, repeatedly adding the fixed duration a number of times corresponding to the presentation unit count)." Pet. 65 (citing Ex. 1006, 14:29–48) (bracketed material in original). With regard to DeMoney, the Petition states, "*DeMoney* generally relates to a video delivery system in which video may be played back at different presentation rates" and

"*DeMoney* explains, a 'compressed presentation timestamp value' can be converted into a normal presentation time value by multiplying the compressed value by the ratio of the presentation rate to the normal presentation rate (*i.e.*, the presentation rate scale factor)." *Id.* at 67–68 (citing Ex. 1012, 1:15–20, 9:32–41, 11:42–65). With regard to combining the teachings of Nelson and DeMoney, the Petition states:

> [A] POSITA would have recognized that taking into account actual durations of presentation units would have not only been desirable, but also could have readily been implemented by multiplying each such duration against the presentation rate to arrive at a duration equivalent to that described in Nelson. (Ex. 1002, ¶ 111.) As discussed above, maintaining a sum of such products would have provided a value that is equivalent to that calculated in Nelson and compared against the reference time base, but would have provided the added benefit of accounting for varying and actual durations of presentation units. (*Id.*) As such, it would have been obvious to a POSITA to apply the mathematical algorithm recited in claim 7. (*Id.*)

Id. at 68.

Patent Owner does not argue that the combination of Nelson and DeMoney fails to teach or suggest the additional limitations recited in claims 7 and 17. PO Resp. 57–60. Patent Owner does argue that Petitioner has not shown why a skilled artisan would have combined the teachings of Nelson and DeMoney. *Id.* Patent Owner contends that, because Nelson already explicitly discloses "a value of a data time parameter," there is no reason why a skilled artisan would look to

DeMoney to determine how to calculate it. *Id.* at 57 ("[A] POSITA who saw that *Nelson* already explicitly disclosed the value would have had no motivation to find another reference to determine how to calculate it."). Petitioner replies that Patent Owner is wrong because, "[w]hile *Nelson* discloses the claimed 'data time parameter value,' it does not explicitly disclose, for example, calculating the data time using *actual* duration of each unit." Pet. Reply 23.

With regard to the calculation disclosed in Nelson's "Base Level Implicit Timing Synchronization" method (Ex. 1006, 14:1–48), Nelson uses an assumed fixed "duration of each of the presentation units" (*see id.* at 13: 24–29, 14:32–34). Nelson discloses that the DVMS "maintains a separate presentation unit counter" for each audio and video stream pipe (Ex. 1006, 14:8–21), where each unit counter "indicates the number of already consumed presentation units in the corresponding stream" (*id*. at 14:29–32). Having determined the number of presentation units that have been consumed, the scheme calculates a product of the presentation unit count and the presentation duration of each unit, assuming that each presentation unit has a fixed duration. *Id*. at 14:32–34; *see also id*. at 13:26–27 (disclosing that in the implicit timing scheme, "each presentation unit is assumed to be of a fixed duration"). Petitioner contends that a skilled artisan would have recognized that it would not always be the case that each presentation unit would have the same, fixed duration and that it would have been desirable to take into account situations when the duration of the presentation units differs. Pet. 66. And, as shown by Petitioner (*id.* at 67–68), DeMoney teaches that video may be played back at

"different presentation rates, *i.e.*, normal play, fast forward and fast reverse" (Ex. 1012, 1:15–20) and teaches "compensat[ing] for the different presentation rates" by multiplying the presentation unit timestamps "by the ratio of the [actual] presentation rate to the normal presentation rate" (*id.* at 9:32–38). Accordingly, Petitioner contends a skilled artisan would have understood that accounting for actual duration times for the presentation units "could have readily been implemented" and "would have provided the added benefit of accounting for varying and actual durations of presentation units." Pet. 68. We find Petitioner's contentions to be well-supported and reasonable and, accordingly, we do not find Patent Owner's argument undermines Petitioner's persuasive showing.

We find that the combination of Nelson and DeMoney teaches all the limitations of claims 7 and 17 and that a skilled artisan would have been motivated to combine the relevant teachings of these references. We conclude that Petitioner has shown by a preponderance of the evidence that claims 7 and 17 would have been obvious in view of Nelson and DeMoney.

III. Conclusion[28]

For the foregoing reasons, we conclude that Petitioner has established by a preponderance of the evidence that claims 1–4, 12–14, and 22 would have been obvious in view of Nelson and claims 7 and 17 would have been obvious in view of Nelson and DeMoney.

IV. Order

In consideration of the foregoing, it is hereby:

ORDERED that claims 1–4, 7, 12–14, 17, and 22 of the '903 patent are unpatentable.

In summary:

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[28] Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this decision, we draw Patent Owner's attention to the April 2019 *Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding*. *See* 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. *See* 37 C.F.R. § 42.8(a)(3), (b)(2).

Claims	1–4, 12–14, 22	7, 17	Overall Outcome
35 U.S.C. §	103	103	
Reference(s)/ Basis	Nelson	Nelson, DeMoney	
Claims Shown Unpatentable	1–4, 12–14, 22	7, 17	1–4, 7, 12–14, 17, 22
Claims Not shown Unpatentable			

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USPTO FINAL WRITTEN DECISION
IPR2019-01243, '400 PATENT
(JANUARY 12, 2021)

Paper 39
Entered: January 12, 2021

UNITED STATES PATENT AND
TRADEMARK OFFICE

BEFORE THE PATENT TRIAL
AND APPEAL BOARD

GOOGLE LLC,

Petitioner,

v.

VIRENTEM VENTURES, LLC,

Patent Owner.

IPR2019-01243

Patent 9,785,400 B2

Before: Meredith C. PETRAVICK, Jennifer MEYER CHAGNON, and Terrence W. McMILLIN, Administrative Patent Judges.

JUDGMENT
Final Written Decision
Determining All Challenged Claims Unpatentable
35 U.S.C. § 318(a)

McMILLIN, Administrative Patent Judge.

I. Introduction

A. Background and Summary

Google LLC ("Petitioner")[1] filed a petition to institute an *inter partes* review of claims 1–4, 7, 12–15, and 18 of U.S. Patent No. 9,785,400 B2 (Ex. 1001, the " '400 patent") pursuant to 35 U.S.C. § 311 *et seq*. Paper 1 ("Petition" or "Pet."). Virentem Ventures, LLC ("Patent Owner") filed a Preliminary Response to the Petition. Paper 11 ("Prelim. Resp."). On January 15, 2020, we instituted trial. Paper 16 ("Inst. Dec."). Patent Owner filed a Response. Paper 27 ("PO Resp."). Petitioner filed a Reply. Paper 29 ("Pet. Reply"). Patent Owner filed a Sur-reply. Paper 32 ("PO Sur-reply"). An oral argument was held on November 18, 2020, and a transcript was entered into the record. Paper 38 ("Tr.").

We have jurisdiction to conduct this *inter partes* review under 35 U.S.C. § 6. This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. For the reasons discussed herein, we determine that Petitioner has shown, by a preponderance of the evidence, that claims 1–4, 7, 12–15, and 18 of the '400 patent are unpatentable.

B. Related Matters

The parties indicate that the '400 patent has been asserted in the following case filed in the United States District Court for the District of Delaware on

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[1] Petitioner identifies Google LLC and YouTube LLC as the real parties-in-interest to this proceeding. Pet. 1.

November 9, 2018: *Virentem Ventures, LLC v. YouTube, LLC*, *Case No. 1:18-cv-00917*. Pet. 1; Paper 3, 1.

C. The '400 Patent

The '400 patent is titled "Enhancing a Rendering System to Distinguish Presentation Time From Data Time." Ex. 1001, code (54). The earliest priority date claimed for the '400 patent is based on a provisional filing date of December 12, 2000. *Id.* at code (60).

By way of background, the '400 patent explains that traditional digital rendering systems, such as RealNetworks RealPlayer digital media players, maintain an internal variable during playback of media content that reflects a current presentation time, which is referred to as "Current Time." *Id.* at 1:12–16. Current Time reflects a current position in the media content, starting at zero at the beginning of the media content. *Id.* at 1:16–22. The '400 patent explains that Current Time conflates two different properties of media playback: (1) "Presentation Time," which is the time elapsed since the beginning of the media content presentation; and (2) "Content Time," which is the location in the media content stream that is currently being played. *Id.* at 1:41–58. The '400 patent also describes that "Data Time" is a time value associated with each content element "specifying how long it would take to reach that location, starting from the beginning of the media content, and playing at normal rate." *Id.* at 1:58–67. The '400 patent explains that "Presentation Time and Data Time are identical in traditional players, because traditional players can only present media content at a fixed 'normal' rate." *Id.* at 2:1–3.

In the case of media players enhanced with Time-Scale Modification (TSM) capability, the player can present media content at various rates, and thus Presentation Time and Data Time may diverge. *Id.* at 2:3–5. For example, a player with TSM functionality could play a 60 second clip in only 30 seconds if the content is presented at a fixed rate that is twice the normal rate. *Id.* at 2:7–11. The '400 patent describes two problems resulting from the possible disparity between Presentation Time and Data Time in media players with TSM functionality. *Id.* at 2:12–27. A first problem is that "the significance of the time value distributed to multiple objects is, in general, ambiguous." *Id.* at 2:12–23. A second problem "is that Data Time does not, in general, equal Presentation Time, and the calculation, storage, and distribution of a single time value is inadequate to specify both values." *Id.* at 2:23–27. In particular, the '400 patent explains that it is common for media players to rely on an audio renderer to calculate and update the Current Time value. *Id.* at 2:28–31. When "a media player does in fact acquire the Current Time value from the audio renderer, the value that the audio renderer will return to the system will typically be the Presentation Time." *Id.* at 2:42–45. This creates a problem in media players with TSM functionality because "most of the rest of the system needs Data Time," and thus "most of the rest of the system can no longer employ the value returned by the audio renderer object." *Id.* at 2:45–48.

The invention manages "Presentation Time in a digital rendering system for presentation of temporally-ordered data when the digital rendering system includes a Variable Rate Presentation capability." *Id.*

at 2:55–58. Figure 1 of the '400 patent is reproduced below.

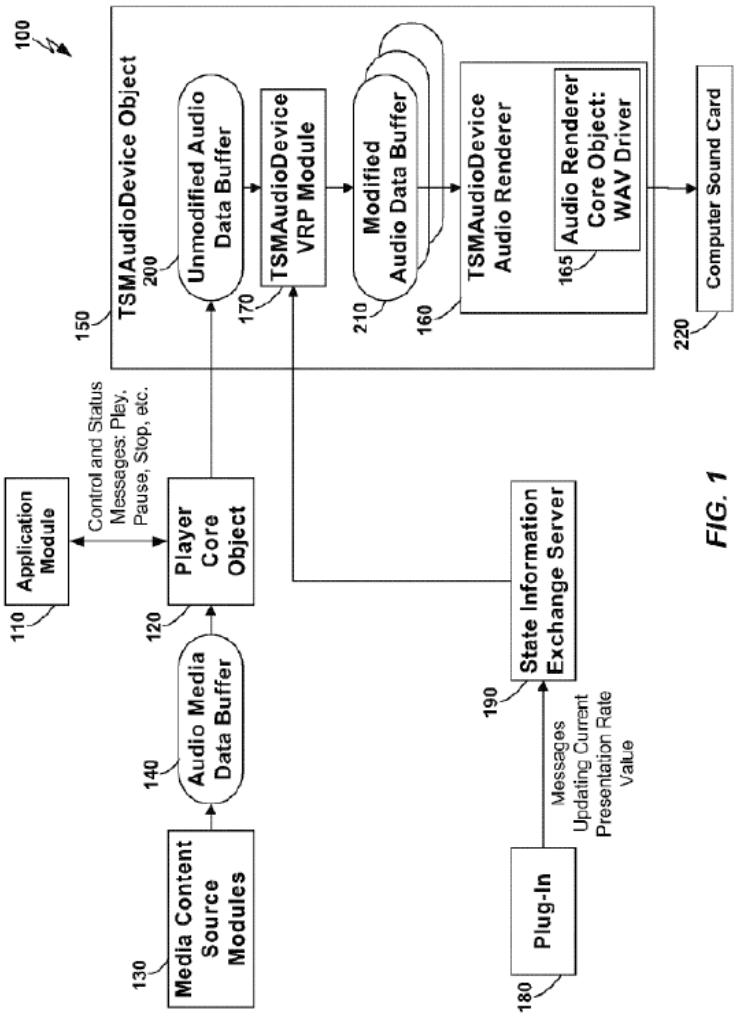

FIG. 1

Figure 1, above, depicts "a block diagram of a Presentation System embodied as a RealNetworks RealPlayer application running on a computer." *Id*. at

5:23–25. Presentation System 100 includes an application module 110 which communicates control and status messages (*e.g.*, Play, Pause, Stop), to Player Core object 120. *Id.* at 6:2–5. "Temporal Sequence Presentation Data" or "Presentation Data" are embodied as streaming media content and are delivered to the RealPlayer application. *Id.* at 6:6–10. Presentation Data are received by media content source module(s) 130, and are placed in audio media data buffers 140. *Id.* at 6:5–16. TSMAudioDevice object 150 combines functions of the Renderer for audio data (TSMAudioDevice Audio Renderer 160) and a Variable Rate Presentation Module. *Id.* at 6:50–52. The '400 patent notes that, although the RealNetworks RealPlayer application does not natively include support for variable rate playback, plug-in 180 adds variable rate playback capability to the RealPlayer application. *Id.* at 6:59–62. Plug-in 180 communicates with TSMAudioDevice object 150 by sending messages that specify a desired playback or presentation rate through an object called State Information Exchange Server 190 ("SIX Server 190"). *Id.* at 7:1–11. The '400 patent notes that Player Core object 120 of the RealPlayer application includes methods to query the Current Time, and Player Core object 120 interprets all returned times as Data Times. *Id.* at 7:50–62. In order to support the concept of Presentation Times that are different than Data Times, according to one embodiment of the '400 patent, TSMAudioDevice object 150 performs conversion of Presentation Time into Data Time (as needed by Player Core object 120). *Id.* at 7:64–67.

D. Challenged Claims

Petitioner challenges claims 1–4, 7, 12–15, and 18 of the '400 patent. Pet. 2–3. Of the challenged claims, claim 1 is an independent method claim and claim 12 is an independent apparatus claim. Ex. 1001, 23:25–25:10. Claim 1 recites:

> 1. A method, performed by at least one machine, for rendering temporal sequence presentation data in a machine-implemented rendering system, the temporal sequence presentation data being tangibly stored in a first computer-readable medium, the method comprising:
>
> (A) maintaining a value of a data time parameter tangibly stored in a second computer-readable medium and representing an amount of time required by the rendering system to render a portion of the temporal sequence presentation data at a default presentation rate;
>
> (B) providing the value of the data time parameter to a first component of the rendering system;
>
> (C) calculating, based on the value of the data time parameter, a value of a presentation time parameter tangibly stored in a third computer-readable medium and representing an amount of time elapsed during rendering of the portion of the temporal sequence presentation data; and

(D) providing the value of the presentation time parameter to a second component of the rendering system;

wherein the value of the presentation time parameter is not equal to the value of the data time parameter.

Id. at 23:26–48. Claim 12 recites:

12. A device for rendering temporal sequence presentation data in a machine-implemented rendering system, the temporal sequence presentation data being tangibly stored in a first computer-readable medium, the device comprising at least one processor and at least one second computer-readable medium tangibly storing computer program instructions for:

(A) maintaining a value of a data time parameter tangibly stored in a second computer-readable medium and representing an amount of time required by the rendering system to render a portion of the temporal sequence presentation data at a default presentation rate;

(B) providing the value of the data time parameter to a first component of the rendering system;

(C) calculating, based on the value of the data time parameter, a value of a presentation time parameter tangibly stored in a third computer-readable medium and representing an amount of time elapsed during rendering of the portion

of the temporal sequence presentation data; and

(D) providing the value of the presentation time parameter to a second component of the rendering system;

wherein the value of the presentation time parameter is not equal to the value of the data time parameter.

Id. at 24:54–25:10. Although claim 1 is directed to a method and claim 12 is directed to a device, outside of the preambles, the claims are identical and recite the same method steps or elements. The same is true of the challenged dependent claims. Outside of the preambles, dependent method claims 2–4 and 7 are identical to dependent device claims 13–15 and 18. *See id*. at 23:49–57, 24:9–21, 25:11–19, 25:38–26:8.

E. Prior Art and Asserted Grounds

Petitioner asserts that claims 1–4, 7, 12–15, and 18 of the '400 patent would have been unpatentable on the following grounds:

Claims Challenged	35 U.S.C. §[2]	Reference(s)/Basis
1–4, 12–15	103	Nelson[3] and Rothermel[4]

[2] Because the application leading to the '400 patent was filed before March 16, 2013, patentability is governed by the version of 35 U.S.C. § 103 preceding the Leahy-Smith America Invents Act ("AIA"), Pub L. No. 112–29, 125 Stat. 284 (2011).

[3] US Patent No. 5,719,786 (Ex. 1006) filed Feb. 3, 1993, issued Feb. 17, 1998.

7, 18	103	Nelson, Rothermel, and DeMoney[5]

II. Analysis

A. Legal Standards

A patent claim is unpatentable under 35 U.S.C. § 103(a) if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *KSR Int'l Co. v. Teleflex Inc*., 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including: (1) the scope and content of the prior art; any differences between the claimed subject matter and the prior art; the level of ordinary skill in the art; and (4) when in evidence, objective evidence of nonobviousness.[6] *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). Consideration of the Graham factors "helps inform the ultimate obviousness determination." *Apple Inc. v. Samsung Elecs. Co.,* 839 F.3d 1034, 1048 (Fed. Cir. 2016) (en banc).

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[4] *Clock Hierarchies: An Abstraction for Grouping and Controlling Media Streams*, Rothermel et al., IEEE Journal on Selected Areas in Communications, Vol. 14, No. 1, January 1996 (Ex. 1011).

[5] US Patent No. 6,065,050 (Ex. 1012) filed June 5, 1996, issued May 16, 2000.

[6] Neither party presents any argument relating to objective evidence of nonobviousness.

"In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable." *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review petitions to identify "with particularity . . . the evidence that supports the grounds for the challenge to each claim")). This burden of persuasion never shifts to Patent Owner. *See Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (discussing the burden of proof in *inter partes* review).

B. Level of Ordinary Skill in the Art

With regard to the level of ordinary skill in the art, Petitioner contends that a person of ordinary skill would have either "(a) a Master's or doctoral degree in computer science, electrical engineering, or a similar discipline" or "(b) a Bachelor's degree in computer science, electrical engineering, or a similar discipline and at least two years of work experience in content presentation systems, or a related area." Pet. 3–4 (citing Ex. 1002 (Schonfeld Decl.) ¶¶ 19–20). "Patent Owner accepts Petitioner's proffered level of ordinary skill in the art in analyzing Petitioner's allegations of obviousness." PO Resp. 25 (citing Ex. 2016 (Boncelet Decl.) ¶¶ 30–32). We find Petitioner's undisputed contention to be reasonable, and we adopt the level of ordinary skill in the art as proposed by Petitioner.

C. Claim Construction

"[I]n an *inter partes* review proceeding, a claim of a patent . . . shall be construed using the same claim

construction standard that would be used to construe the claim in a civil action under 35 U.S.C. § 282(b), including construing the claim in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent."[7] *See* Changes to the Claim Construction Standard for Interpreting Claims in Trial Proceedings Before the Patent Trial and Appeal Board, 83 Fed. Reg. 51,340, 51,340, 51,358 (Oct. 11, 2018) (amending 37 C.F.R. § 42.100(b) effective November 13, 2018) (now codified at 37 C.F.R. § 42.100(b) (2019)). In applying a district court-type claim construction, we are guided by the principle that the words of a claim "are generally given their ordinary and customary meaning" as understood by a person of ordinary skill in the art at the time of the invention. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (en banc) (citation omitted). "In determining the meaning of the disputed claim limitation, we look principally to the intrinsic evidence of record, examining the claim language itself, the written description, and the prosecution history, if in evidence." *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1014 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312–17). There is a "heavy presumption," however, that a claim term carries its ordinary and customary meaning. *CCS*

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[7] 37 C.F.R. § 42.100(b) also states that "Any prior claim construction determination concerning a term of the claim in a civil action, or a proceeding before the International Trade Commission, that is timely made of record in the *inter partes* review proceeding will be considered." The District Court claim construction is of record in this proceeding. *See* Ex. 2003.

Fitness, Inc. v. Brunswick Corp., 288 F.3d 1359, 1366 (Fed. Cir. 2002) (citation omitted).

We are also guided by the principle that we only construe claim terms to the extent that it is necessary for the purpose of the proceeding. *See, e.g.*, *Wellman, Inc. v. Eastman Chem. Co.*, 642 F.3d 1355, 1361 (Fed. Cir. 2011) ("[C]laim terms need only be construed 'to the extent necessary to resolve the controversy.'") (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

1. Petitioner's Proposed Constructions

Petitioner provides proposed constructions of the following claim terms: "temporal sequence presentation data," "rendering system," "tangibly stored in a . . . computer-readable medium"/"a computer-readable medium tangibly storing," and "current time." Pet. 14–20. Patent Owner contends that Petitioner's constructions are not proper or necessary and should not be adopted. PO Resp. 36–37.[8] There is no dispute that requires that we construe "temporal sequence presentation data," "rendering system," "tangibly stored in a . . . computer-readable medium"/"a computer-readable medium tangibly storing," or "current time." Patent Owner does not dispute that the cited art teaches these elements in the context of the challenged claims. *See generally* PO Resp. Thus, we need not construe these terms for purposes of this Decision.

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[8] In its Preliminary Response, Patent Owner also argued Petitioner's constructions were unnecessary and did not propose any constructions. Prelim Resp. 26–28. We determined that no explicit construction of any claim term was necessary in order to make the determination to institute *inter partes* review. Inst. Dec. 10.

2. Patent Owner's Proposed Constructions

In the "Claim Construction" section of its Response, Patent Owner addresses the following terms:

> *"a value of a presentation time parameter . . . representing an amount of time elapsed during rendering of the portion of the temporal sequence presentation data"*
>
> *"providing"*
>
> *"a portion of the temporal sequence presentation data" "presentation rate"*
>
> *"time-scale modification (TSM)"*[9]

PO Resp. 25–36. Petitioner asks us to reject Patent Owner's proposed constructions. Pet. Reply 1. After considering the presentations of the parties, and as discussed in more detail below, we determine that it is appropriate to use the plain and ordinary meanings of the first four terms in construing the challenged claims, and that "time-scale modification (TSM)" should be construed as "speeding up or slowing down the playback rate."

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[9] As discussed *infra*, "time-scale modification (TSM)" is not a term recited in any of the claims of the '400 patent. *See* Ex. 1001, 23:26–26:41. Patent Owner asks us to construe "[t]he term 'time-scale modification' [because it] is incorporated in all of the claims challenged here by virtue of the definition of presentation rate." PO Resp. 34.

"a value of a presentation time parameter . . . representing an amount of time elapsed during rendering of the portion of the temporal sequence presentation data"

This term is recited in challenged, independent claims 1 and 12. Ex. 1001, 23:26–48, 24:54–25:10. Patent Owner requests that we give this term its plain meaning. PO Resp. 25 ("Patent Owner does not believe that this limitation requires construction apart from the plain meaning of the words of the claim."). Patent Owner states that it raised this term as a claim construction issue because it believed the Board misconstrued it in the Decision on Institution in this proceeding (Paper 16) and in IPR2019-01237 (Ex. 2012). PO Resp. 25–27. Patent Owner focuses its argument on the "during rendering" portion of the term and argues that the Board has read the term as if it said "during [and after] rendering." *Id.* at 27 ("[I]f the 'presentation time parameter' can represent time elapsed 'during [and after] rendering' instead of 'during rendering' as claimed, the 'during rendering' limitation is effectively read out of the claim."). Petitioner responds that Patent Owner's argument is based on a false premise and that the Board did not interpret the claims as suggested by Patent Owner. Pet. Reply 1 ("[N]either [Petitioner] nor the Board has interpreted the claim in this way. Rather, the real dispute centers on what 'during rendering' means."). Petitioner argues that, to the extent there is a dispute regarding the interpretation of this term, the dispute can be resolved by looking at the definition of "Presentation Time" as set forth in the Specification of the '400 patent. *Id.* at 1–2. We agree with Petitioner.

At column 1, lines 44–48, the '400 patent defines "Presentation Time" as "time elapsed since the beginning of the media content presentation" and provides this example: "if the media has been playing for one minute, the value of Presentation Time is 60,000 milliseconds." And, the '400 patent provides this further example in order to highlight the difference between "Presentation Time" and "Data Time:"

> Presentation Time and Data Time are identical in traditional players, because traditional players can only present media content at a fixed "normal" rate. However, when a player is enhanced with a Time-Scale Modification (TSM) capability, it can present media content at various rates. Because of this, Presentation Time and Data Time are no longer the same. For example, if a 60-second clip of media content is presented at a fixed rate that is twice normal rate, at the end of the clip the Data Time is 60,000 milliseconds, but the Presentation Time is 30,000 milliseconds. This is because it only takes 30 seconds to play the 60-second clip.

Ex. 1001, 2:1–11. In accordance with these passages, the District Court in the related district court proceeding determined "[t]he specification . . . defines presentation time as 'time elapsed since the beginning of the media content presentation.'" Ex. 2003, 12.[10]

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[10] The District Court cites the '903 patent (US Patent No. 7,683,903) which is in the same patent family as the '400 patent (Ex. 1001, code (60)) and shares the same specification. The quoted passage appears at column 1, lines 44–46, of the '400 patent. During oral argument, Patent Owner acknowledged that the quoted passage was a definition of "presentation time" "in the context of each of these patents." Tr. 45:8–13.

As requested by Patent Owner and not disputed by Petitioner, we give the term "a value of a presentation time parameter . . . representing an amount of time elapsed during rendering of the portion of the temporal sequence presentation data" its ordinary and customary meaning.[11] However, contrary to Patent Owner's interpretation, we determine that in the context of the claims and the '400 patent, the plain meaning of "during rendering" is the "time elapsed since the beginning of the presentation" of the portion or element of interest.

"providing"

The term "providing" is recited in challenged, independent claims 1 and 12 and dependent claims 3, 4, 14, and 15. Ex. 1001, 23:26–48, 23:52–57, 24:54–25:10, 25:14–19. Patent Owner asks that it be accorded its plain meaning. PO Resp. 31 ("The '400 specification does not accord any special meaning to the word 'providing,' nor does it have a particular meaning in the art. Thus, Patent Owner contends it should be accorded its plain meaning: 'to supply or make available.'"). Petitioner argues construing this term is unnecessary. Pet. Reply 5 ("In any event, construing this term is unnecessary and only introduces ambiguity as [Patent Owner] never applies its construction in the Response."). We agree with Petitioner. We discern no dispute relating to "providing" as used in the

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[11] In its Response, Patent Owner describes "presentation time" as "the length of time of the actual presentation." PO Resp. 3; *see also* Prelim. Resp. 8 ("'presentation time' . . . tracks the elapsed rendering time of [a] media presentation"), 13 ("the time elapsed during rendering the content [is] called 'Presentation Time.'").

challenged claims and we determine it is not necessary to explicitly construe this term.

"a portion of the temporal sequence presentation data"

The term "a portion of the temporal sequence presentation data" is recited in challenged, independent claims 1 and 12. Ex. 1001, 23:26–48, 24:54–25:10. Patent Owner contends "*a portion* of the temporal sequence presentation data" of Elements 1(A) and 12(A) should be construed to be the same "portion of the temporal sequence presentation data" as recited in Elements 1(C) and 12(C). PO Resp. 32–33. Petitioner argues "such a construction is unnecessary as [Petitioner's] mapping does not differ from [Patent Owner's] proposed construction." Pet. Reply 6. We agree with Petitioner. We discern no dispute relating to this term as used in the challenged claims and we determine it is not necessary to explicitly construe this term.[12]

"presentation rate" & "time-scale modification (TSM)"

We analyze the terms "presentation rate" and "time-scale modification (TSM)" together. The term "presentation rate" is recited in challenged, independent claims 1 and 12 and dependent claims 7 and 18. Ex.

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[12] Although not referenced by either party with regard to construction of the term "a portion of the temporal sequence presentation data," we note that the District Court in the related proceeding construed "portion(s)" to mean "a part of any whole, either separated from or integrated with it." Ex. 2003, 3, 13. Patent Owner proposed this definition as the plain and ordinary meaning of "portion(s)." *See id.* at 13.

1001, 23:26–48, 24:9–21, 24:54–25:10, 25:38–26:8. The term "time-scale modification (TSM)" is not recited in any of the claims of the '400 patent. *See id.* at 23:26–26:41. As noted previously, Patent Owner asks us to construe "[t]he term 'time-scale modification' [because it] is incorporated in all of the claims challenged here by virtue of the definition of presentation rate." PO Resp. 34.

Patent Owner contends that "presentation rate" means "the speed at which media is played back in a time-scale modification system" and that "time-scale modification (TSM)" means "speeding up and slowing down the perceived rate of speech while substantially preserving both intelligibility and the perceived pitch for audio and audio-visual media." PO Resp. 33–34. Petitioner argues that neither of Patent Owner's proposed constructions should be adopted. Pet. Reply 6–10.

Patent Owner argues that its proposed construction of "presentation rate" was agreed to by the parties in the District Court litigation[13] and adopted

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[13] Petitioner argues that it did not agree to construction of "presentation rate" as "the speed at which media is played back in a time-scale modification system." Pet. Reply 6–7 ("[A]s the district court observed, there was simply a lack of 'dispute' on the term in light of the court's construction of 'time-scale-modification.'"). However, at the claim construction hearing, the District Court asked Petitioner's counsel if there was an agreement or a dispute as to the construction of "presentation rate." *See* Ex. 1018, 109:3–110:10. Although reluctant to agree to inclusion of "in a time-scale modification system" in the construction, Petitioner's counsel consented to the District Court construing "presentation rate" as "the speed at which media is played back in a time-scale modification system." *Id.* In light of this exchange with the District Court, we determine

by the District Court and "[t]herefore, the Board should construe the term 'presentation rate' here consistently with the parties' agreed-upon construction in the District Court case." PO Resp. 33. Patent Owner provides no additional reasoning or argument in support of its construction of "presentation rate." *Id.*

With regard to "time-scale modification (TSM)," Patent Owner proposes the same construction that it proposed in the District Court and that was rejected by the District Court. *See* Ex. 2003, 8–10. The District Court construed "time-scale modification/time-scale modified" as meaning "speeding up or slowing down the playback rate." *Id.* at 2. Patent Owner does not explain why we should adopt the District Court's construction of "presentation rate" and at the same time incorporate into the challenged claims a definition of "time-scale modification (TSM)" that the District Court rejected. Adopting the District Court's construction of "presentation rate," but also incorporating a definition of "time-scale modification (TSM)" that was rejected by the District Court into the challenged claims, would result in a construction inconsistent with the District Court.[14]

Petitioner agreed to the construction of "presentation rate" in the District Court case.

[14] Patent Owner argues that the District Court's claim construction is not determinative and that the District Court "has already agreed that claim construction may need to be revisited to arrive at the correct construction following the IPR proceedings." PO Sur-reply 13 (citing Ex. 2032, 1–2); *see also* IPR2109-01244, Paper 29 (Patent Owner's Sur-reply), 14 ("The Delaware district court's ruling should not control because the district court has already agreed that claim construction may need to be revisited to arrive at the correct construction following the

Petitioner's position on construction of "presentation rate" is inconsistent with the position taken by it before the District Court. In this proceeding, Petitioner argues, "[Patent Owner's] construction improperly incorporates limitations into the claims by requiring playback to occur 'in a timescale modification system.' Nothing in the intrinsic or extrinsic record supports reading 'timescale modification system' into the claims, particularly as 'timescale modification' is not even required by the claims." Pet. Reply 6–7. Despite the inconsistencies in Petitioner's position, we agree with Petitioner that "time-scale modification" should not be read into the challenged claims through construction of "presentation rate."

We determine that "presentation rate" should be interpreted according to its ordinary and customary meaning of "the speed of presentation." This meaning is consistent with that portion of the District Court's construction of "presentation rate" as "the speed at which media is played back." As cited previously, there is a heavy presumption that a claim term has its ordinary and customary meaning. *CCS Fitness*, 288 F.3d at 1366. We have not been presented with any evidence to overcome that heavy presumption. Neither party directs our attention to any intrinsic or extrinsic evidence to support incorporating "in a time-scale modification system" into the construction

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IPR proceedings, suggesting that the Board may likely reach a different conclusion.") (citing Ex. 2032, 1–2). Exhibit 2032 is an Order issued by the District Court that indicates that the litigation is stayed through issuance of final written decisions by the Board. Ex. 2032, 1.

of "presentation rate."[15,16] And, we determine that the ordinary and customary meaning of the term "presentation rate" is consistent with its use in the claims of the '400 patent. The term "presentation rate" is recited once in each of challenged, independent claims 1 and 12 as part of identical limitations 1(A) and 12(A) which recite "maintaining a value of a data time parameter . . . representing an amount of time required by the rendering system to render a portion of the temporal sequence presentation data at a default *presentation rate*."[17] Ex. 1001, 23:26–48, 24:54–25:10 (emphasis added).

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[15] The only support Patent Owner cites in its Response for its construction of "presentation rate" besides the District Court's claim construction order (Ex. 2003, 2, 10) is paragraph 61 of the Boncelet Declaration. PO Resp. 33. In paragraph 61 of his Declaration (Ex. 2016), Dr. Boncelet does not refer to any intrinsic or extrinsic evidence in support of this construction but, instead, merely cites the District Court's claim construction order (Ex. 2003, 2, 10) and states, "I agree with this construction and have applied it in my analysis and opinions herein."

[16] Based on our independent analysis of the '400 patent and its file history, we do not discern any support for incorporating "in a timescale modification system" into the meaning of "presentation rate" as recited in the claims of the '400 patent or otherwise limiting the construction of "presentation rate" from its ordinary and customary meaning.

[17] Patent Owner never explains how its construction of "presentation rate" with its incorporated construction of "time-scale modification" should be interpreted in the phrase "default presentation rate" or in the greater context of the "maintaining" limitation (A) of independent claims 1 and 12. If we construe "presentation rate" as proposed by Patent Owner and place it into limitation (A) of independent claims 1 and 12, the limitation becomes "maintaining a value of a data time parameter . . . representing an amount of time required by the rendering system

As defined in the Specification, the "default rate" is the "normal" rate of presentation and does not involve "time-scale modification" or varying the rate of the presentation.[18] *See* Ex. 1001, 9:54–56. Stated differently, the "default presentation rate" is the speed at which systems (including prior art systems such as the Real-Networks Real Player (*see* Ex. 1001, 1:12–22)) play back media without "time-scale modification." Adding "in a time-scale modification system" to the construction of "presentation rate" conflicts with the broader use of the term "presentation rate" in the independent claims and the Specification of the '400 patent. We reject Patent Owner's proposed construction of "presentation rate," because it is not supported by the language of the claims or the Specification of the '400 patent. Thus, we construe

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to render a portion of the temporal sequence presentation data at a default speed at which media is played back in a system speeding up or slowing down the perceived rate of speech while preserving both intelligibility and the perceived pitch for audio and audio-visual media." Patent Owner's construction, which adds "speeding up or slowing down," conflicts with "default speed" and, thus, the recitation of "default presentation rate." The recitation of a "default presentation rate" does not require "speeding up or slowing down." Thus, Patent Owner's construction renders claims 1 and 12 inconsistent and confusing and is, at best, superfluous in the context of claims 1 and 12.

[18] In a related proceeding, Patent Owner acknowledges that "[a] presentation rate or playback rate can include playing at 1[X] or normal, while a TSM rate involves speeding up or slowing down the audio or audio visual work using Time-Scale *Modification*" (IPR2019-01244, Paper 25 (Patent Owner's Response), 32) and "[p]laying at normal does not qualify as Time-Scale Modifying—it is normal" (*id.* at 55). *See also* IPR2019-01244, Paper 29 (Patent Owner's Sur-reply), 18 ("The parties agree that normal (1x) is a presentation rate.").

the term "presentation rate" differently than the District Court, because the records in the District Court case and in this proceeding relating to construction of "presentation rate" are different. In the District Court proceeding, there was a construction of "presentation rate" that was agreed to by the parties. *See* Ex. 1018, 109:3–110:10. In this proceeding, there is a dispute between the parties as to the construction of "presentation rate." *Compare* PO Resp. 33, *with* Pet. Reply 6–7. However, our conclusion that the challenged claims of the '400 patent would have been unpatentable in view of the asserted art would not be different under either our construction or the District Court's construction of "presentation rate."

In any event, we also reject Patent Owner's proposed construction of "time-scale modification system" because we discern no basis for limiting the claims of the '400 patent to "speeding up and slowing down the perceived rate of speech while substantially preserving both intelligibility and the perceived pitch for audio and audio-visual media" through recitation of "presentation rate" as requested by Patent Owner. *See* PO Resp. 34–36.

As in the District Court, "[t]he dispute here is over [Patent Owner's] attempt to read in 'preserving both intelligibility and the perceived pitch.'" Ex. 2003, 8. However, as the District Court noted, "[t]he terms 'intelligibility' and 'pitch' do not appear in either the '903[19] or '228 patent family. In fact, the

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19 The '400 patent is in the '903 patent (U.S. Patent No. 7,683,903) family. Ex. 1001, code (60).

term 'pitch' does not appear in any of the asserted patent families." *Id*. The District Court said:

> I find that the construction of time-scale modification that does not require preservation of intelligibility and pitch is supported by the intrinsic evidence of the asserted patents here.
>
> For example, the description of "time-scale modification" at column 2, lines 24 through 28 of the '050 specification [in the '903 patent family] states that "Presentation Time and Data Time are identical in traditional players, because traditional players can only present media content at a fixed 'normal' rate. However, when a player is enhanced with a Time-Scale Modification (TSM) capability, it can present media content at various rates."[20]
>
> * * *
>
> None of these descriptions of time-scale modification mentions preservation of pitch or intelligibility.
>
> * * *
>
> Finally, I note that [Patent Owner's] construction is problematic insofar as it requires "substantially preserving pitch." It is wholly unclear what "substantially" means in the context of these patents.

Ex. 2003, 9–10 (first bracketed material in original).

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20 The quoted '050 patent (US Patent No. 8,345,050) has the same Specification as the '400 patent. The quoted description appears at column 2, lines 1–5, of the '400 patent.

In support of its position, Patent Owner cites the following passage from the Specification of the '400 patent:

> TSMAudioDevice VRP Module 170 processes buffers 200 through a library of signal processing routines, for example, a suitable library of signal processing routines called the Time Scale Tailor package is available from Enounce, Incorporated of Palo Alto, Calif. In accordance with this embodiment, this library carries out digital signal processing procedures on buffers 200 of audio samples that has the effect of reducing the number of samples in the buffer (when playing faster than real time) or increasing the number of samples in the buffer (when playing slower than real time), thereby effectively changing the playback rate. For example, in accordance with this embodiment, processing the buffer using the library decreases or increases the samples in a particular way *so as to leave the perceptual and linguistic information in the buffers unchanged,* but to change the duration of the buffers.

PO Resp. 35–36 (citing Ex. 1001, 7:20–36). However, this passage is explicitly designated as an example and as related to a commercial embodiment. And, the '400 patent states that the embodiments described in the Specification are not limiting. Ex. 1001, 22:32–35 ("It is to be understood that although the invention has been described above in terms of particular embodiments, the foregoing embodiments are provided as illustrative only, and do not limit the scope of the invention."); *see Openwave Sys., Inc. v. Apple, Inc.*, 808 F.3d 509, 514 (Fed. Cir. 2015) ("[I]t is improper to read limitations from a preferred embodiment

described in the specification—even if it is the only embodiment—into the claims absent a clear indication in the intrinsic record that the patentee intended the claims to be so limited.") (quoting *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 913 (Fed. Cir. 2004)). Furthermore, this passage does not specifically refer to "speeding up and slowing down the perceived rate of speech while substantially preserving both intelligibility and the perceived pitch for audio and audio-visual media," and Patent Owner does not persuasively explain how or why this passage supports its proposed construction. *See* PO Resp. 35–36.

Accordingly, we determine that Patent Owner's proposed construction of "time-scale modification" is not supported. We agree with and adopt the District Court's reasoning and decision that the term "time-scale modification" means "speeding up or slowing down the playback rate" and does not include "preserving both intelligibility and the perceived pitch." *See* Ex. 2003, 2, 8–10. To the extent appropriate to support our analysis of the unpatentability of the challenged claims in view of the asserted art,[21] we construe "time-scale modification" as "speeding up or slowing

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[21] Patent Owner asserts that "resolution of the dispute regarding preservation of pitch need not be resolved," because "Petitioner's alleged grounds for obviousness fail even under Petitioner's own proposed construction of the term" "time-scale modification." PO Resp. 35 n.9. And, the Patent Owner Response states: "none of Patent Owner's arguments depend on Patent Owner's construction of time-scale modification, and instead adopt the district court's construction of speeding up and slowing down playback rate, which Patent Owner understands to be consistent with Petitioner's construction here, which is 'playback rate modification.'" *Id.* at 4–5.

down the playback rate."[22] If we combine the District Court's constructions of "presentation rate" as "the speed at which media is played back in a time-scale modification system" and of "time-scale modification" as "speeding up or slowing down the playback rate," the combination yields a construction of "presentation rate" as "the speed at which media is played back in a system for speeding up or slowing down the playback rate."

D. Ground Based on Nelson and Rothermel

Petitioner contends that claims 1–4 and 12–15 would have been obvious in view of Nelson and Rothermel. Pet. 2–3, 20–63.

1. Nelson (Ex. 1006)

Nelson was filed on February 3, 1993, and issued on February 17, 1998. Ex. 1006, codes (22), (45). Nelson is prior art to the '400 patent under 35 U.S.C. § 102(b). *See* Pet. 3. Patent Owner does not contest the prior art status of Nelson. *See generally* PO Resp.

Nelson is titled, "Digital Media Data Stream Network Management System." Ex. 1006, code (54). Nelson is directed to a "computer-based media data processor for controlling transmission of digitized

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[22] Except for those sections of its Response arguing the construction of "time-scale modification" and whether Nelson teaches "time-scale modification," Patent Owner adopts and uses this same construction of "time-scale modification" in its Response. PO Resp. 5 ("Thus, other than as discussed in Sections IV.E. and V.G. below, time-scale modification as set forth herein should be read to mean speeding up or slowing down (modifying) the playback rate.").

media data in a packet switching network." *Id*. at code (57) (Abstract). Nelson "relates to the management of digitized media stream data, *e.g.*, digitized video, and particularly relates to the capture, storage, distribution, access and presentation of digital video within a network computing environment." *Id*. at 1:7–10. Nelson discloses a digital video management system (DVMS) that provides the ability to capture, store, transmit, access, process and present live or stored media stream data, independent of its capture or storage location, in either a stand-alone or a network environment. *Id.* at 5:45–50.

Figure 4 of Nelson is reproduced below.

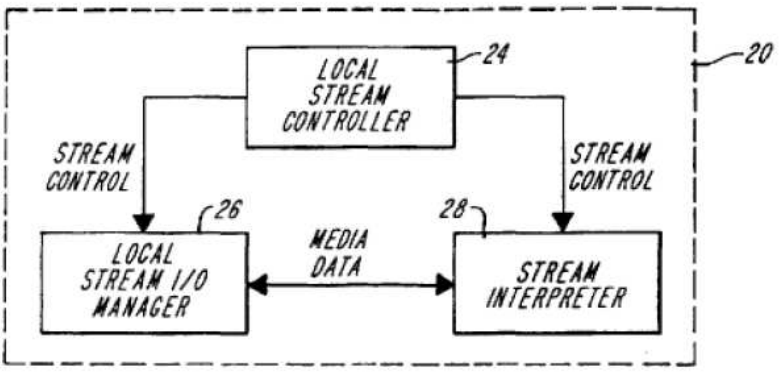

FIG. 4

Figure 4 of Nelson (above) is a schematic diagram of a network implementation of the DVMS. *Id.* at 5:4–6. The description of Figure 4 states:

> [T]he local DVMS manager 20 consists of three modules: the stream controller 24, stream input/output (I/O) manager 26, and the stream interpreter 28. This modularity is exploited in the DVMS design to separate the flow of data in a media data streams from the flow of control information for that media stream through the system. Based on this data and control separation, streams data and stream control information are each treated as producing distinct interactions among the three manager modules, which operate as independent agents.

Id. at 7:57–66. The description of Figure 4 further states:

> The stream interpreter module 28 is responsible for managing the dynamic computer-based

> representation of audio and video as that representation is manipulated in a standalone computer or a computer linked into a packet network. This dynamic management includes synchronization of retrieved audio and video streams, and control of the rate at which the audio and video information is presented during a presentation sequence.

Id. at 8:25–32. Figure 5 of Nelson is reproduced below.

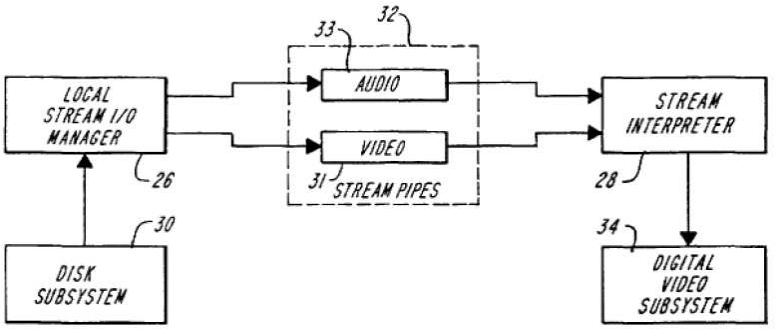

FIG. 5

Figure 5 of Nelson (above) depicts a stream flow when the DVMS requests access to audio or video streams. *Id.* at 9:62–63. The description of Figure 5 states:

> The stream I/O manager 26 module retrieves the requested streams from a stream input 30; this stream input comprises a storage access point, *e.g.*, a computer file or analog video source. The stream I/O manager then separates the retrieved streams according to the specified file format of each stream. If two streams, *e.g.*, audio and video streams, which are accessed were interleaved in storage, the stream I/O manager dynamically

> separates the streams to then transform them to distinct internal representations, each comprising a descriptor which is defined based on their type (*i.e.* audio or video). Once separated, the audio and video stream data are handled both by the stream I/O manager and the stream interpreter as distinct constituent streams within a stream group. The stream I/O manager 26 then exchanges the stream data, comprising sequences of presentation units, with the stream interpreter 28 via a separate queue of presentation units called a stream pipe 32, for each constituent stream; an audio stream pipe 33 is thus created for the audio presentation units, and a video stream pipe 31 is created for the video presentation units. Each audio stream (of a group of audio streams) has its own pipe, and each video stream has its own pipe. During playback of streams, the stream I/O manager continually retrieves and produces presentation units from storage and the stream interpreter continuously consumes them, via the stream pipes, and delivers them to a digital media data subsystem for, *e.g.*, presentation to a user.

Id. at 9:63–10:22. "[T]he digital video management system of the invention provides synchronization of audio to video, and in general, synchronization between any two or more dynamic stream[s] being presented." *Id.* at 12:16–21.

Figure 6 of Nelson is reproduced below.

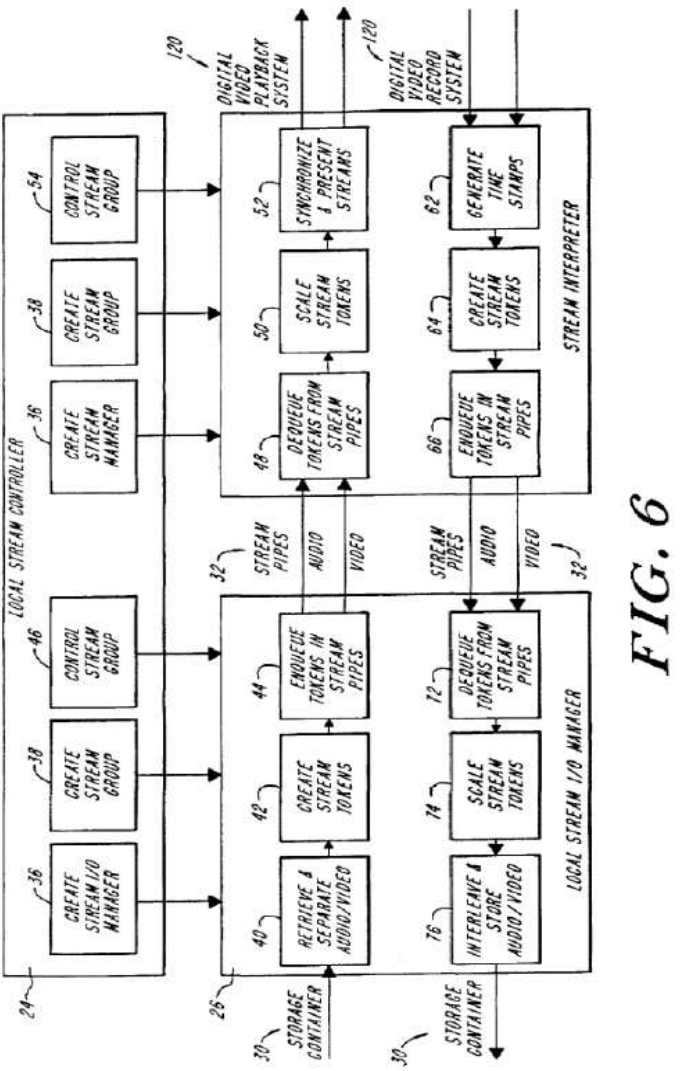

FIG. 6

Figure 6 of Nelson (above) depicts "a schematic flow chart illustrating presentation and capture scenarios carried out by the local digital video management

system manager of FIG. 4." *Id.* at 5:13–15. The description of Figure 6 states:

> [T]he synchronization of streams within a stream group is the responsibility of the stream interpreter module during a scaling process. The streams may be self-synchronized using either an implicit timing scheme or an explicit timing scheme. Implicit timing is based on the fixed periodicity of the presentation units in the constituent streams of a stream group to be synchronized. In this scheme, each presentation unit is assumed to be of a fixed duration and the presentation time corresponding to each presentation unit is derived relative to a reference presentation starting time. This reference starting time must be common to all of the constituent streams. Explicit timing is based on embedding of presentation time stamps and optionally, presentation duration stamps, within each of the constituent streams themselves and retrieving the stamps during translation of streams from the storage format to the token format. The embedded time stamps are then used explicitly for synchronization of the streams relative to a chosen reference time base.
>
> Using either the implicit or explicit timing self-synchronization schemes, a reference time base is obtained from a reference clock, which advances at a rate termed the reference clock rate. This rate is determined by the reference [cl]ock[23]

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23 Elsewhere in the Specification, "dock" was changed to "clock." *See* Ex. 1006 at p. 58 (Certificate of Correction) ("each occurrence of the word 'dock' should read-clock-").

> period, which is the granularity of the reference clock ticks.
>
> The DVMS of the invention supports two levels of self-synchronization control, namely, a base level and a flow control level. Base level synchronization is applicable to stream process scenarios in which the stream I/O manager is able to continuously feed stream data to the stream interpreter, without interruption, and in which each presentation unit is available before it is to be consumed. In this scenario, then, the stream I/O manager maintains a process rate and a process work load that guarantees that the stream I/O manager stays ahead of the stream interpreter.

Id. at 13:19–53. Figure 10 of Nelson is reproduced below.

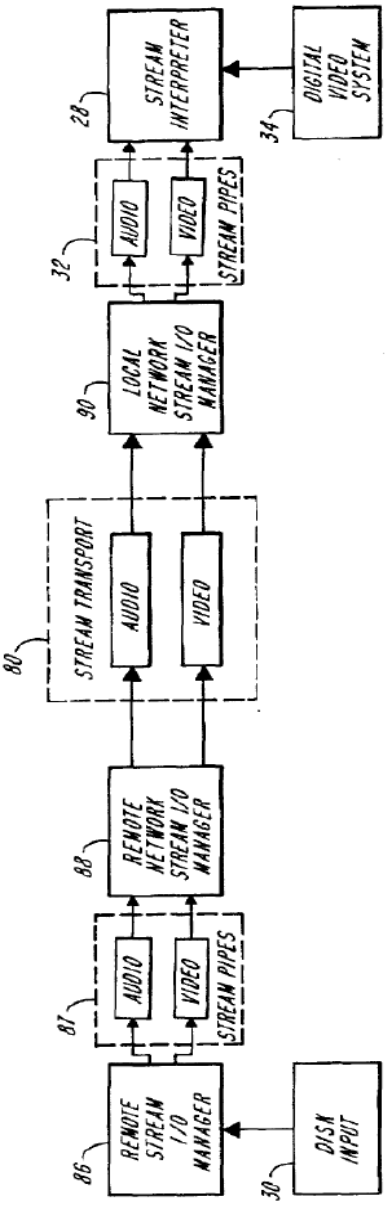

FIG. 10

Figure 10 of Nelson (above) depicts "a schematic diagram illustrating the flow of media stream data

between the remote and local digital video management manager modules." *Id.* at 5:29–31. The description of Figure 10 states:

> Upon initialization from the request, and based on the network servers' stream group advertisements, the appropriate remote stream I/O manager 86 retrieves stored streams, *e.g.*, audio and video streams, from the appropriate file storage 30 containing the requested stream group. The manager then separates the retrieved streams, if necessary, thereby producing separate audio and video presentation unit streams, and enqueues corresponding stream descriptor tokens in separate stream pipes 87, one pipe for each presentation unit token stream.
>
> The remote network stream I/O manager 88 consumes the presentation unit tokens from each of the stream pipes, assembles transmission packets based on the streams, and releases them for transmission across the network 80 directly to the corresponding local network stream I/O manager 90, based on the DVMS stream data transport protocols; the particular transport protocol used is set by the network environment.

Id. at 20:21–38.

2. Rothermel (Ex. 1011)

Rothermel was published in the *IEEE Journal on Selected Areas in Communications* in January 1996. Ex. 1011, 3. Rothermel is prior art to the '400 patent under 35 U.S.C. § 102(b). *See* Pet. 3. Patent Owner does not contest the prior art status of Rothermel. *See generally* PO Resp.

Rothermel is titled, "Clock Hierarchies: An Abstraction for Grouping and Controlling Media Streams." Ex. 1011, 5. Rothermel is directed to "controlling and synchronizing continuous media streams in distributed environments." *Id*. at 5 (Abstract). Rothermel discloses a "configurable integrated multimedia architecture (CINEMA) system [18]" that "is a platform providing system services for the configuration of distributed multimedia applications and the communication and synchronization of multimedia information in distributed environments." *Id.* Rothermel explains that "[a] continuous media stream is defined to be a sequence of data units, each of which is associated with a media time stamp." *Id.* at 6. Rothermel discloses that in "CINEMA, media time systems are provided by media clocks (or clocks for short)." *Id.* Rothermel explains that "[c]locks are the basic abstraction for controlling the flow of media streams" and discloses an equation for deriving media time m from real time t in Equation 1 (E1), reproduced below. *Id*.

$$m = M + S + R\,(t–T) \qquad (E1)$$

The clock attributes in Equation 1 (above) are described as follows:

R	Determines the ratio between real time and media time: R time units in media time correspond to one second in real time.
M	Is the start value of the clock in media time, i.e., the value of the clock at the first clock tick.
T	Is the start time of the clock in real time,

	i.e., the real time of the first clock tick.
S	Determines the speed of the clock: $S \bullet R$ time units in media time correspond to one second in real time. Consequently, media time progresses in normal speed if S equals one. A speed higher than one causes the clock to move faster, a speed less than one causes it to progress slower, and a negative speed causes it to move backward.

Id.

3. Analysis of Independent Claims 1 and 12

a) Claim 1

"A method, performed by at least one machine, for rendering temporal sequence presentation data in a machine-implemented rendering system, the temporal sequence presentation data being tangibly stored in a first computer-readable medium, the method comprising:"

We need not determine whether the preamble is limiting because Petitioner shows that the subject matter of the preamble is taught by the cited art.[24]

[24] Neither party takes a position as to whether the preamble of claim 1 is limiting. Pet. 20 ("To the extent that the preamble of claim 1 is limiting, *Nelson* discloses the limitations therein."); *see generally* PO Resp. "[W]here a patentee defines a structurally complete invention in the claim body and uses the preamble

Pet. 20–41. Patent Owner does not dispute any aspect of Petitioner's showing with respect to the preamble of claim 1 (or any other claim). *See generally* PO Resp.

Parsing the preamble, it recites, (1) "[a] method, performed by at least one machine;" (2) "rendering temporal sequence presentation data in a machine-implemented rendering system;" and (3) tangibly storing the temporal sequence presentation data in a computer-readable medium. The Petition states, "*Nelson* discloses '*a computer-based media data processor* for controlling the *computer presentation* of digitized continuous time-based media data composed of a *sequence of presentation units*'" and "*Nelson* discloses a DVMS [Digital Video Management System], which 'provides the ability to capture, store, transmit, access, process and *present live or stored media streams data*.'" Pet. 21 (citing Ex. 1006, 2:10–13, 5:45–50). The Petition further states that "*Nelson* discloses that a stream includes 'dynamic information . . . with *temporal predictability*' and '*a succession of sequences* . . . in turn, each sequence contains *a succession of segments*'" and "each stream contains a presentation unit being 'a unit of continuous, *temporally*-based data to be presented,' which 'has an *associated presentation time and presentation duration*.'" *Id*. at 22 (citing Ex. 1006, 6:10–26, 6:44–47).

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only to state a purpose or intended use for the invention, the preamble is not a claim limitation." *Rowe v. Dror*, 112 F.3d 473, 478 (Fed. Cir. 1997).

Figure 2 of Nelson is reproduced below.

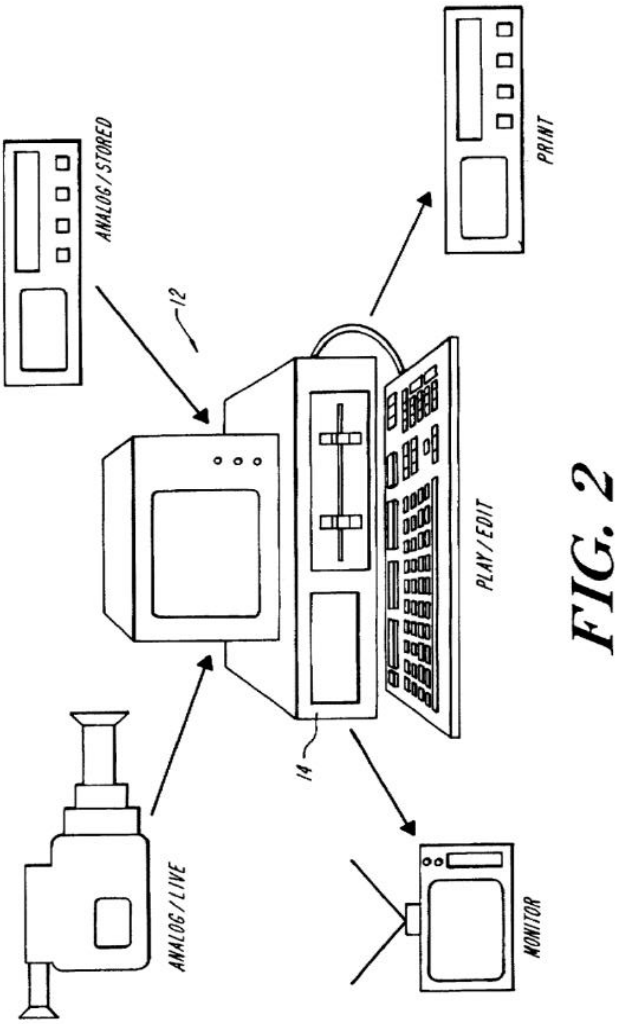

Figure 2 of Nelson depicts, "a stand-alone implementation of the digital video management system [DVMS]." Ex. 1006, 5:1–2. The detailed description of Figure 2 in Nelson states:

> [T]he DVMS may be implemented in a stand-alone computer system or a computer-based, packet switched network. Referring to FIG. 2, in a stand-alone computer system implementation 12, live or stored media streams are accessed and captured for presentation and editing on the stand-alone computer 14. The captured, and optionally edited media streams may then be delivered to a presentation monitor or to a VCR tape printer utility.

Id. at 6:57–64. Figure 3 of Nelson is reproduced below.

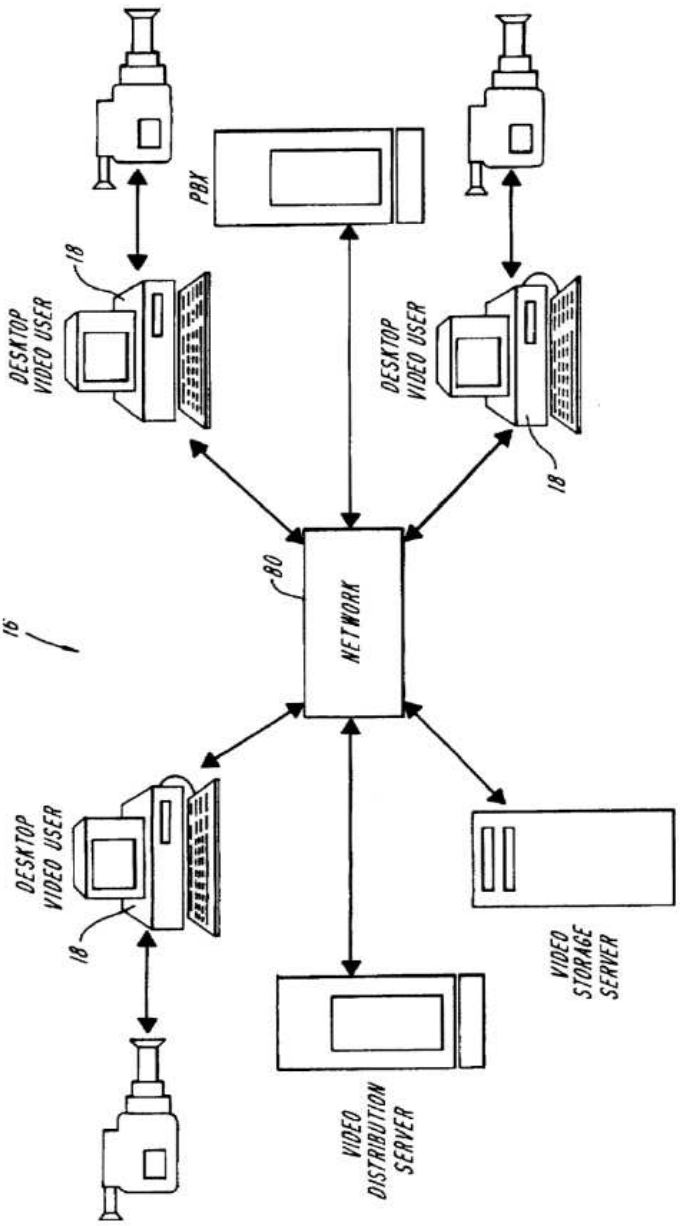
16
80
NETWORK
PBX
DESKTOP VIDEO USER
DESKTOP VIDEO USER
DESKTOP VIDEO USER
18
18
18
VIDEO DISTRIBUTION SERVER
VIDEO STORAGE SERVER

FIG. 3

Figure 3 of Nelson depicts, "a network implementation of the digital video management system [DVMS]."

Id. at 5:4–5. The detailed description of Figure 3 in Nelson states:

> Referring to FIG. 3, a packet switching network in which the DVMS is implemented comprises desktop computer systems 18 which are linked via a packet switching network 80, which is controlled by the DVMS network implementation 16. The network 80 may comprise a local area network (LAN) or a wide area network (WAN), or a combination of one or more LANs and WANs. The DVMS provides access to and capture of media streams from live analog video capture, *e.g.*, a VCR or camcorder, a network, storage or PBX server, or one of the desktop computers, and in turn manages the transmission of the media stream data across the network back to any of the access points.

Id. at 6:65–7:9.

As noted previously, Patent Owner does not dispute that Nelson teaches the preamble. *See generally* PO Resp. Patent Owner acknowledges that Nelson "discloses an entire digital video management system" and "Nelson reformats standard interleaved audio-visual streams into separate streams of audio tokens and video tokens, the release of which are carefully controlled by I/O manager, interpreter and control components." *Id.* at 2.

We find that the preponderance of the evidence shows the preamble of claim 1 is taught by Nelson.

> **"(A) maintaining a value of a data time parameter tangibly stored in a second computer-readable medium and representing an amount of time required by the rendering system to render a portion of the temporal sequence presentation data at a default presentation rate"**

Petitioner relies on Nelson as teaching this limitation. Pet. 42–48. Petitioner asserts that Nelson discloses this limitation in two distinct ways. *Id.* First, Petitioner relies on Nelson's teachings related to a "Base Level Implicit Timing Synchronization" method. *Id.* at 43–47 (citing Ex. 1006, 14:1–48). Petitioner contends that Nelson teaches this limitation by calculating the product of the number of presentation units which have been presented and the fixed presentation duration of each presentation unit. *Id.* at 43. The Petition states:

> *Nelson* discloses that the DVMS "maintains a separate presentation unit counter" for each audio and video stream pipe (Ex. 1006, 14:8-17, 14:18-21), where each unit counter "indicates the number of already consumed presentation units in the corresponding stream" (*id.*, 14:29-32). Having determined the number of presentation units that have been consumed, the scheme calculates a product of the presentation unit count and the presentation duration of each unit, assuming that each presentation unit has a fixed duration. (*Id.*, 14:32-34; *see also id.*, 13:26-27 (disclosing that in the implicit timing scheme, "each presentation unit is assumed to be of a fixed duration"); Ex. 1002, ¶ 64.) Subsequently, by comparing the

> calculated product (indicating the real time) with the current reference time (*i.e.*, the current time provided by the reference time base), the scheme determines whether the next presentation unit should be released for presentation. (Ex. 1006, 14:34-36; *see also id.*, 14:37-48.)

Pet. 43–44. Petitioner contends "[t]he calculated product discloses the 'value of a data time parameter,' as claimed." *Id.* at 44 (citing Ex. 1002 (Schonfeld Decl.) ¶ 65). The cited portions of Nelson support this contention by Petitioner.

Second, Petitioner relies on Nelson's teachings related to a "Base Level Explicit Timing Synchronization" method. Pet. 47–48 (citing Ex. 1006, 14:49–15:25). The Petition states:

> *Nelson* in the base level explicit timing scheme discloses maintaining a presentation time ("a value of a data time parameter") and applying the same in the synchronization scheme. (*Id.*) For example *Nelson* discloses in this scheme that the DVMS "reads the embedded time stamp of each presentation token . . . to determine presentation time and duration for each presentation unit in the sequence." (Ex. 1006, 15:10-13.) The scheme then compares "a reference time base with the presentation time and presentation duration stamp embedded in each presentation unit" to determine whether a presentation unit should be released for presentation. (*Id.*, 15:20-25.) The embedded presentation time discloses "a value of a data time parameter . . . representing an amount of time required by the rendering system to render a portion of the temporal sequence presentation

> data at a default presentation rate," as claimed at least because it is equivalent to the calculated presentation time (the presentation unit-duration product), as discussed above in the first way of disclosing the claimed "value of a data time parameter." (*Id.*, 14:67-15:3 ("The stream interpreter does not maintain a presentation unit counter in [the explicit timing] scheme, as it does in the implicit timing scheme. Rather, the embedded time stamps in the streams provide equivalent information."); Ex. 1002, ¶ 68.) Thus, for reasons similar to as discussed in the first way of disclosing this limitation, *Nelson*'s explicit timing scheme discloses this limitation too. (Ex. 1002, ¶ 68.)

Id. Petitioner relies on Nelson's disclosure of "presentation time" (calculated or embedded) as teaching the "value of a data time parameter" as recited in the claims.[25] The cited portions of Nelson support this contention by Petitioner.

The Petition also makes reference to the following passages in Nelson as disclosing "data time:"

> "[e]ach presentation unit is characterized by a prespecified *presentation time* during a computer presentation of the media data." (Ex. 1006, 2:14-17; *see also id.*, 6:44-56 (disclosing that "[a] presentation time indicates the appropriate point in

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[25] Patent Owner recognizes that the differences in the terminology used in the '400 patent and Nelson could cause confusion and explains, "[w]hat *Nelson* calls 'presentation time' is not equivalent to the challenged claims' 'presentation time' and Petitioner does not rely on what *Nelson* calls 'presentation time' as the "presentation time' of the challenged claims." PO Resp. 43 n.10.

> the sequence of a presentation at which the associated presentation unit is to be played, relative to a time base for the ongoing presentation"), 11:7-11 (disclosing "retriev[ing] the time stamp information from the corresponding [audio and video] frames"), 14:8-48 (describing use of presentation time), 15:10-40 (same), 15:66-16:19 (same), 16:21-53 (same).)

Pet. 31–32 (alterations in Petition).

Nelson also provides this further description of the presentation of streams of time-based media data using its digital video management system (DVMS):

> Segments of streams contain presentation units. A presentation unit is a unit of continuous, temporally-based data to be presented, and accordingly, has an associated presentation time and presentation duration. A presentation time indicates the appropriate point in the sequence of a presentation at which the associated presentation unit is to be played, relative to the time base for the ongoing presentation. A presentation duration indicates the appropriate interval of time over which the associated presentation unit is to be played in the ongoing presentation.

Ex. 1006, 6:44–53. This passage also supports Petitioner's contention that Nelson teaches, "maintaining a value of a data time parameter . . . representing an amount of time required by the rendering system to render a portion of the temporal sequence presentation data at a default presentation rate" as recited in independent claim 1.

In its Response, Patent Owner describes "data time" as "a time value (*e.g.*, timestamp) that specifies

'how long it would take to reach that location, starting from the beginning of the media content, and playing at normal rate.'" PO Resp. 7 (citing Ex. 1001, 1:62–67); *see also* Tr. 66:16–17 (Patent Owner's counsel: "data time is essentially a time stamp or a calculated time to present a particular portion at the default rate."). And, Patent Owner acknowledges that, in the method described in Nelson, "[a] linked list of tokens is . . . created, with each token representing a separate audio or visual presentation unit and the time stamp for that unit." *Id.* at 17 (citing Ex. 1006, 11:10–20). With regard to Nelson, Patent Owner's Preliminary Response states:

> In *Nelson*, presentation time indicates the appropriate time at which the unit is to be played, relative to a reference time base. [Ex. 1006], 6:47-50. Presentation times are either explicit time stamps or the implicit calculated equivalent.
>
> * * *
>
> The token for each unit [as shown in Figure 7] represents an audio or video presentation unit (114) and a time stamp for that unit (116). *Id.*, 11:11-14.
>
> * * *
>
> Explicit timing synchronization is based on the time stamps that are embedded in the stream tokens. *Id.*, 14:50-52.

Prelim. Resp. 17, 19, 20. Thus, Patent Owner acknowledges Nelson teaches "maintaining a value of a data time parameter." *Cook Group Inc. v. Boston Sci. Scimed, Inc.*, 809 Fed. App'x. 990, 1000 (Fed. Cir. 2020) ("[A]n admission in a preliminary patent owner

response, just like an admission in any other context, is evidence appropriately considered by a factfinder.").

Patent Owner argues that Nelson does not teach a "presentation rate" as properly construed. PO Resp. 58–59. As discussed above (section II.C.2.), we reject Patent Owner's construction which incorporates "substantially preserving both intelligibility and the perceived pitch" and construe "presentation rate" as "the speed of presentation" or "the speed at which media is played back." And, combining the District Court's constructions of "presentation rate" as "the speed at which media is played back in a time-scale modification system" and of "time-scale modification" as "speeding up or slowing down the playback rate," the combination yields a construction of "presentation rate" as "the speed at which media is played back in a system for speeding up or slowing down the playback rate." Notwithstanding Patent Owner's argument, Patent Owner acknowledges, "[t]he *Nelson* system can operate at a speed other than the default rate; it does so by speeding up or slowing down the reference time base" (PO Resp. 21 (citing Ex. 1006, 17:43–50; Ex. 2016 (Boncelet Decl.) ¶ 103)) and "*Nelson* simply speeds up or slows down the reference clock rate to change the playback rate of the media" (PO Sur-reply 17). Considering all arguments and evidence submitted by the parties, we find Nelson teaches, "maintaining a value of a data time parameter . . . representing an amount of time required by the rendering system to render a portion of the temporal sequence presentation data at a default presentation rate."

With regard to the portion of Element (A) relating to storing the data time parameter ("maintaining a

value of a data time parameter tangibly stored in a second computer-readable medium"), Petitioner provides a well-supported showing that Nelson meets this limitation. *See* Pet. 45–47. The Petition states:

> Moreover, this value is "tangibly stored in a second computer-readable medium," as claimed. (Ex. 1002, ¶ 66.) For example, as discussed above, *Nelson* discloses that the DVMS utilizes the calculated product (the claimed "value of a data time parameter") to compare it with the reference time base. (Ex. 1006, 14:34-36.) Thus, the disclosed "value" is at least temporarily stored on the DVMS. Furthermore, as discussed above in claim 1 preamble, a POSITA would have found it obvious to store data, program instructions, and other parameters in non-volatile storage elements. (*See supra* Section IX.A.1.pre.) Accordingly, for similar reasons discussed therein, a POSITA would have would found it obvious to store the disclosed "value of a data time parameter" in non-volatile storage elements (the claimed "second computer-readable medium"). (Ex. 1002, ¶ 66; Section VIII.C.)

Id. at 45–46. And, with regard to storing the "data time" in the form of "tokens" or "time stamps," the Petition states:

> *Nelson* explains that the audio and video streams are typically stored in interleaved disk buffers, as shown in the left portion of Figure 7, having a sequence of stream group frames 105, each including a header 106, a video frame 108, and an audio frame 110. (Ex. 1006, 10:59-66; Ex. 1002, ¶ 42.)

> After the I/O manager retrieves the disk buffers, it obtains "the time stamp information from the corresponding frames" (Ex. 1006, 10:59-11:11) and generates a "linked list of descriptors, called tokens 112" for the audio and video frames (*id.*, 11:11-12). (Ex. 1002, ¶ 43.) As shown on the right portion of Figure 7, "each token represents an audio or video presentation unit 114 and the time stamp 116 for that unit," where the tokens are linked into lists representing stream pipes, one list being an audio stream pipe and the other list being a video stream pipe. (Ex. 1006, 11:12-20.)

Pet. 11–12. Patent Owner does not address this storing limitation or dispute Petitioner's showing that Nelson teaches it.[26] *See generally* PO Resp. We find the evidence shows this limitation is taught by Nelson.

> **"(B) providing the value of the data time parameter to a first component of the rendering system"**

Petitioner contends, "*Nelson* discloses this limitation." Pet. 48 (citing Ex. 1002 (Schonfeld Decl.) ¶¶ 69–70). Petitioner argues, "Nelson discloses providing the calculated or embedded presentation time ('the value of the data time parameter') to the stream interpreter of the DVMS [Digital Video Management System] ('a first component of the rendering system')." *Id.* Nelson states, "the interpreter reads the embedded time stamp of each presentation

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[26] Patent Owner does not dispute any of the storing limitations (recited as "tangibly stored in a . . . computer-readable medium") in any of the challenged claims. *See generally* PO Resp.

token, as that token is processed, to determine presentation time and duration for each presentation unit in the sequence." Ex. 1006, 15:10–13. Patent Owner does not argue this limitation. *See generally* PO Resp. We find Nelson teaches this limitation.[27]

> **"(C) calculating, based on the value of the data time parameter, a value of a presentation time parameter tangibly stored in a third computer-readable medium and representing an amount of time elapsed during rendering of the portion of the temporal sequence presentation data"**

Petitioner contends, "*Nelson* in view of *Rothermel* discloses this limitation." Pet. 49 (citing Ex. 1002 (Schonfeld Decl.) ¶¶ 71–77). With regard to Nelson, the Petition states:

> *Nelson*'s disclosure of the reference time base discloses the claimed "value of a presentation time parameter . . . representing an amount of time elapsed during rendering of the portion of the temporal sequence presentation data." (Ex. 1002, ¶¶ 71.) This is at least because the reference time base "indicates the current real time relative to the start time of the presentation unit consumption process for the corresponding stream." (Ex. 1006, 14:27-29.)

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[27] *See also In re NuVasive*, 841 F.3d 966, 974 (Fed. Cir. 2016) (explaining that the Board need not make specific findings as to claim limitations that Patent Owner does not dispute are disclosed in the prior art).

Id. And, "[i]n either the implicit timing scheme or the explicit timing scheme, 'a reference time base' obtained from a reference clock (*id.*, 13:38- 43) is used to control synchronization. (*See, e.g.,* [Ex. 1006,] 14:44-48, 15:20-25.)" *Id.* at 25. With regard to the use of the "reference time base" in synchronization, the Petition states:

> *Nelson* explains that synchronization amongst media streams is "inherently required for the coordinated presentation." (Ex. 1006, 12:17-29; Ex. 1002, ¶ 62.) Synchronization of the streams may be achieved by maintaining "a common reference time base" in the disclosed synchronization schemes, including an implicit timing scheme and an explicit timing scheme. (Ex. 1006, 12:49-51 (disclosing that "independent constituent streams may . . . be stored in separate file containers and be synchronized, before presentation, with a common reference time base"), 13:38-43 (disclosing that in either synchronization scheme "a reference time base is obtained from a reference clock"), 13:22-26 (disclosing that synchronization of stream may be achieved using implicit or explicit timing scheme).) The implicit timing scheme is "based on the fixed periodicity of the presentation units in the constituent streams of a stream group to be synchronized." (*Id.*, 13:24-26; *see also id.*, 13:26- 31.) The explicit timing scheme is based on embedded presentation time stamps (and optionally presentation duration stamps) within each of the streams.

Id. at 42–43.

The Petition further states that "*Nelson* does not explicitly disclose 'calculating' the value of the

presentation time parameter 'based on' the value of the data time parameter. Nevertheless, this feature would have been obvious to a POSITA in view of the teachings of *Nelson* and *Rothermel*." Pet. 50 (citing Ex. 1002 (Schonfeld Decl.) ¶ 72).

With regard to Rothermel and "calculating, based on the value of the data time parameter, a value of a presentation time parameter," Petitioner argues, "*Rothermel* discloses a well-known and simple mathematical relationship in Equation 1 that allows mapping and conversion between media time (m) and real time (t)." Pet. 50 (citing Ex. 1011, 6). Petitioner provides an annotated Equation 1 from Rothermel, reproduced below.

$$m = M + S + R\,(t - T). \qquad (E1)$$

media time *real time*

Id. We determine that "data time" as recited in claim 1 corresponds to M in the calculation taught by Rothermel and that "presentation time" as recited in claim 1 corresponds to m (labelled as "media time" above) as calculated in Rothermel.

With regard to combining the relevant teachings of Nelson and Rothermel, Petitioner contends:

> *Nelson* itself already recognizes that some initialization process is necessary for the reference time base. (*See, e.g.*, Ex. 1006, 17:6-12.) However, *Nelson* assumes that the process of presenting a stream would start at the beginning of the stream. (Ex. 1002, ¶ 74.) In view of *Rothermel*'s disclosure, however, a POSITA would have been motivated to modify *Nelson* to take into account situations in which a user wishes to start a

stream at a presentation unit other than the first unit. (*Id.*) Indeed, *Nelson* discloses that in certain situations presentation units may become unavailable and these units are "skip[ped] over" even if these units later become available. (Ex. 1006, 16:34-53; *see also id.*, 13:54-67 (disclosing that "instantaneous occurrences of computational and I/O resource fluctuations" may halt the transmission of presentation units), 15:42-50 (same).) Thus, a user in those situations would have missed a certain part of the streaming program, and likely might have wanted to start viewing the program at a time location right before (or after) the program starts skipping—rather than starting at the beginning of the program. (Ex. 1002, ¶ 74.)

Given *Nelson*'s explanation that, for times when a presentation unit is ready to be consumed, the reference time base (*i.e.*, what is mapped to the claimed "presentation time") should equal the presentation time (calculated or embedded) (*i.e.*, what is mapped to the claimed "data time"), a POSITA would have been motivated to calculate the reference time base, when initializing it to correspond to an altered start time, based on the calculated presentation time. (Ex. 1002, ¶ 75; *see also* Ex. 1006, 14:32-36, Appendix D.) A POSITA would have found this desirable as it would have improved efficiency and flexibility of the disclosed rendering system and increased user experience. Furthermore, a POSITA would have found this to be a straightforward implementation given that *Nelson* already discloses instances in which

> the reference time base is equated with the presentation time. (Ex. 1002, ¶ 75.)
>
> Additionally, a POSITA would have understood and appreciated that the above-described combination would have merely involved a combination of known prior art elements and technologies (*e.g.*, a media stream rendering system like that described in *Nelson* and a well-known option of starting a media stream at a time other than the beginning of the stream like the situation described in *Rothermel*) according to known methods (*e.g.*, combining known methods of processing and synchronizing media streams) to yield the predictable result of a media stream rendering system modified to improve functionality. (Ex. 1002, ¶ 76.) *See KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 550 U.S. 398, 421 (2007).

Pet. 51–52. Petitioner's showing regarding the combination of Nelson and Rothermel is well-supported by these references.

Patent Owner argues that "[t]he [c]ombination of *Nelson* and *Rothermel* does not teach or suggest 'calculating, based on the value of the data time parameter, a value of a presentation time parameter.'" PO Resp. 37 (heading V.A.) (emphasis omitted). However, either under this heading or elsewhere in the Response, Patent Owner does not dispute Petitioner's showing that, as discussed above, Rothermel provides an equation and an explanation for calculating, based on data time, a presentation time. *See generally* PO Resp. Thus, although Patent Owner frames this argument as a failure of the asserted art to contain a relevant teaching, Petitioner's

showing that Rothermel contains such a teaching is not challenged.

Notwithstanding Patent Owner's mislabeling of this argument, it appears that Patent Owner is challenging Petitioner's showing regarding combining Rothermel's teaching of calculating presentation time based on data time with Nelson because Nelson already contains a disclosure of determining presentation time. *See* PO Resp. 37–41. Patent Owner argues, "[a] POSITA who saw that *Nelson already* explicitly disclosed the value would have had no motivation to find another reference to determine how to calculate it" (*id.* at 38 (citing Ex. 2016 (Boncelet Decl.) ¶¶ 107–108)) and "this is nonsensical given that 'presentation time' is already explicitly disclosed according to Petitioner" (*id.* at 39). In response, Petitioner points out that Patent Owner "fails to recognize that claim 1 does not simply require 'calculating' a value of a presentation time parameter, but doing so 'based on the value of the data time parameter.'" Pet. Reply 11. And, Petitioner notes that, while Nelson determines presentation time in situations where the presentation starts at the beginning, Rothermel adds to this disclosure by teaching how to calculate presentation time when starting elsewhere. *Id.* at 11–12. Petitioner argues, "th[e] sort of calculation . . . explicitly taught in *Rothermel*, would have been desirable in situations where a user wishes to start a stream at a presentation unit other than the first unit (*i.e.*, where there is an altered start time), and the combination of *Nelson* and *Rothermel* would have resulted in a system with improved efficiency, flexibility, and user experience." *Id.* at 11. Petitioner advanced this same reasoning in the Petition. *See* Pet. 51 ("In view of *Rothermel*'s

disclosure, however, a POSITA would have been motivated to modify *Nelson* to take into account situations in which a user wishes to start a stream at a presentation unit other than the first unit."). We agree with Petitioner that a skilled artisan would have recognized that the usefulness of Nelson would be enhanced through use of the calculation taught by Rothermel.

Patent Owner argues that "[e]ven if the combination should support the 'calculating' portion of this limitation, the combination still fails" because "[t]he [c]ombination of *Nelson* and *Rothermel* does not teach or suggest the claimed 'presentation time parameter.'" PO Resp. 42 (emphasis omitted). However, this argument is based on Patent Owner's claim construction argument relating to "a value of a presentation time parameter . . . representing an amount of time elapsed *during rendering* of the portion of the temporal sequence presentation data." *See id.* at 42–46. As noted above (section II.C.2.), we reject this claim construction argument and, accordingly, we do not find this further argument based on Patent Owner's proposed claim construction to be persuasive.[28]

We find that the preponderance of the evidence shows that this limitation is taught by the cited art.

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[28] Method claim 1 contains no rendering step. Claim 1 recites, "maintaining a [first] value . . . ; providing the [first] value . . . ; calculating a [second] value . . . ; providing the [second] value . . . ; wherein the [second] value . . . is not equal to the [first] value. . . . " Ex. 1001, 23:26–48. Claim 1 does not recite performing any steps beyond maintaining, providing, calculating, and providing. Rendering is not recited in claim 1 (or any of the other challenged claims).

"(D) providing the value of the presentation time parameter to a second component of the rendering system"

Petitioner contends, "*Nelson* in view of *Rothermel* discloses this limitation." Pet. 53 (citing Ex. 1002 (Schonfeld Decl.) ¶¶ 78–79). Petitioner argues, "Nelson discloses providing the value of the reference time base ('the value of the presentation time parameter') to the stream interpreter of the DVMS [Digital Video Management System] ('a second component of the rendering system')." *Id.* With regard to the recited "second component," claims 2 and 13 of the '400 patent recite, "the first component [recited in Element (B)] and the second component are the same component of the rendering system." Ex. 1001, 23:49–51, 25:11–13. Thus, the recited first and second components in claims 1 and 12 must be construed at least broadly enough to describe the same component. Nelson states:

> [T]he synchronization of streams within a stream group is the responsibility of the stream interpreter module during a scaling process. . . . The embedded time stamps are then used explicitly for synchronization of the streams relative to a chosen reference time base.
>
> Using either the implicit or explicit timing self-synchronization schemes, a reference time base is obtained from a reference clock, which advances at a rate which advances at a rate termed the reference clock rate. This rate is determined by the reference [cl]ock period, which is the granularity of the reference clock ticks.

Ex. 1006, 13:19–43. Patent Owner does not argue this limitation. *See generally* PO Resp. We find that the cited art teaches this limitation.

"wherein the value of the presentation time parameter is not equal to the value of the data time parameter"

Petitioner contends, "*Nelson* discloses this limitation." Pet. 54 (citing Ex. 1002 (Schonfeld Decl.) ¶¶ 80–81). Petitioner argues:

> *Nelson* discloses that the value of the calculated or embedded presentation time ("the value of the data time parameter"), and the value of the reference time base ("the value of the presentation time parameter") are not equal. (*Id.*, ¶ 80.) Specifically, *Nelson* discloses controlling the synchronization of media streams based on these values not being equal. As discussed in claim elements 1(a) and (b), these two values are compared to determine whether a presentation unit should be released for presentation. (*See supra* Sections IX.A.1.a-b.) Only when these two values match a presentation unit will be released. (Ex. 1006, 14:34-48, 15:20-25.) Indeed, *Nelson* discloses that "if the appropriate release time for those [presentation] units has passed," *i.e.*, if the two times values are not equal, both the implicit and explicit schemes delete those units. (*Id.*, 15:26-40.)

Id. at 54–55. Within the cited portions, Nelson states:

> In addition to determining the appropriate time for releasing presentation units in the sequence, both the implicit and explicit timing schemes

> delete presentation units if the appropriate release time for those units has passed. For example, in the implicit timing scheme, when the product of processed units and unit duration exceeds the currently maintained time count, the next sequential unit is deleted, rather than presented. Similarly, in the explicit timing scheme, [w]hen the current presentation time exceeds the time stamp presentation time of a presentation unit, that unit is deleted, rather than presented. In this way, synchronization of streams is maintained, even if units arrive for presentation at a later time than expected.

Ex. 1006, 15:26–38. This passage in Nelson support Petitioner's contention.

Patent Owner argues that "*Nelson* does not teach or suggest the 'not equal' limitation of the challenged claims." PO Resp. 46. Here again, this argument relies on Patent Owner's claim construction argument relating to "a value of a presentation time parameter . . . representing an amount of time elapsed *during rendering* of the portion of the temporal sequence presentation data." *See id.* at 46–50. As noted above (section II.C.2.), we rejected Patent Owner's claim construction argument. And, Patent Owner acknowledges:

> Petitioner . . . points to *Nelson's* deletion function in support of its claim that the "not equal" limitation can be met by *Nelson*. Petition, 54-55; EX1002, ¶ 80.
>
> > The *Nelson* system deletes a presentation unit when it arrives too late. Petition 54-55, EX1002, ¶ 80; EX1006, 15:26- 40; EX2016,

> ¶ 104. The stream interpreter compares the reference time base with the presentation time stamp of the unit, and if *the timestamp for that unit is less that the reference time base (i.e., they don't match)*, the appropriate release time for that presentation unit has passed. EX1006, 15:26-29; EX2016, ¶ 104. If *the clock time (reference time base) exceeds the time stamp presentation time* of a presentation unit, that unit is deleted. EX1006, 15:33-36; EX2016, ¶ 104.

PO Resp. 22–23 (emphasis added). Thus, Patent Owner acknowledges that Nelson discloses circumstances "wherein the value of the presentation time parameter is not equal to the value of the data time parameter." We find that the preponderance of the evidence establishes that Nelson teaches this limitation.

Conclusion as to Claim 1

We determine that Petitioner's showing that claim 1 of the '400 patent would have been obvious in view of Nelson and Rothermel to be well-supported. Petitioner establishes that Nelson teaches (A) maintaining (1) a product of the presentation unit count and the presentation duration of unit and (2) an embedded time stamp for each presentation unit (either (1) or (2) a data time parameter) (Pet. 42–48); (B) providing this parameter to the stream interpreter module of the DVMS (*id.* at 48); (C) maintaining a reference time base obtained from a reference clock (a presentation time parameter) (*id.* at 49); and (D) providing this parameter to the stream interpreter of the DVMS (*id.* at 53–54). Petitioner establishes that

Nelson discloses circumstances in which the provided presentation time and the provided data time are not equal. *Id.* at 54–55. Petitioner establishes that Rothermel teaches calculating a presentation time parameter, based on a data time parameter, and that incorporating this teaching into Nelson's system would improve efficiency, flexibility, and user experience. *Id.* at 50–53. We determine that Patent Owner's arguments to the contrary are not persuasive. Accordingly, we find that Petitioner has shown by a preponderance of the evidence that claim 1 of the '400 patent is unpatentable.

b) Claim 12

Whereas independent claim 1 is directed to a method, independent claim 12 is directed to a device. Ex. 1001, 23:26–48 (claim 1), 24:54–25:10 (claim 12). However, the limitations recited in the body of claim 12 are identical to the limitations recited in the body of claim 1. *Id.* Petitioner relies on its showing as to claim 1 with regard the limitations recited in the body of claim 12. Pet. 61–62. Patent Owner relies on the arguments discussed above in relation to claim 1 for claim 12 and does not specifically address claim 12. *See generally* PO Resp.

The only differences between claims 1 and 12 are recited in the preamble. The preamble of claim 12 recites:

> *"A device for rendering temporal sequence presentation data in a machine-implemented rendering system, the temporal sequence presentation data being tangibly stored in a first computer-readable medium, the device comprising at least one processor and at least one second*

> *computer-readable medium tangibly storing computer program instructions for:"*

Ex. 1001, 12:54–60 (emphasis added). Claim 12 recites "at least one processor" which is not recited in claim 1. Petitioner argues:

> To the extent that the preamble of claim 12 is limiting, *Nelson* discloses this limitation. (Ex. 1002, ¶¶ 88-91.) For example, as discussed in claim 1 preamble, *Nelson* discloses that the DVMS may be implemented in a stand-alone computer system or a computer-based network (any of the aforementioned computers disclosing the claimed "device") (Ex. 1006, 6:57-59, 6:59-7:9, FIGS. 2 and 3), which includes *a processor* and memory, for rendering media streams ("temporal sequence presentation data") (*id.*, 2:10-17, 5:45-50, 5:57-65, 6:10-26, 6:32-33). (*Supra* Section IX.A.1.pre.) Furthermore, *Nelson* discloses that the media streams are saved in a "file storage 30" (*id.*, 20:19-26) or "disk input 30" (as shown in Figure 10). (*See also id.*, 6:65-7:9, 18:26-27.)

Pet. 59 (emphasis added). Petitioner's showing with regard to claim 12 is well-supported. Accordingly, we also find that Petitioner has shown by a preponderance of the evidence that claim 12 would have been obvious in view of Nelson and Rothermel.

4. Analysis of Dependent Claims 2–4 and 13–15

a) Claims 2 and 13

Claims 2 and 13 of the '400 patent depend from claims 1 and 12, respectively, and further recite "the

first component and the second component are the same component of the rendering system." Ex. 1001, 23:49–51, 25:11–13. Petitioner contends that Nelson discloses this limitation. Pet. 55 (claim 2), 62 (claim 13). Patent Owner does not argue this limitation or specifically address claims 2 and 13. *See generally* PO Resp.

With regard to the limitation of claims 2 and 13, the Petition states:

> *Nelson* discloses this limitation. (Ex. 1002, ¶ 82.) As discussed above with respect to claim elements 1(b) and 1(d), the first component and the second component of the rendering system may both be the stream interpreter of the DVMS. For instance, *Nelson* discloses that either under the implicit or explicit timing scheme, "synchronization of streams within a stream group is the responsibility of the stream interpreter module." (Ex. 1006, 13:19-26, FIG. 6.) Furthermore, the stream interpreter module uses the presentation time value (either calculated or embedded) and a reference time base to determine whether to release a presentation unit for synchronization purposes. (*Id.*, 14:37-48, 15:10-25.)

Pet. 55 (claim 2), *see also id*. at 62 (claim 13). As shown above in discussing claim 1, Petitioner shows that the limitations of the first and second components of the rendering system are taught by the stream interpreter module of Nelson.

Petitioner's undisputed showing with regard to claims 2 and 13 is well-supported. Petitioner has shown by a preponderance of the evidence that

claims 2 and 13 would have been obvious in view of Nelson and Rothermel.

b) Claims 3 and 14

Claims 3 and 14 of the '400 patent depend from claims 1 and 12, respectively, and further recite that step "(D) comprises providing the presentation time value in response to a request from the second component for a current time." Ex. 1001, 23:52–54, 25:14–16. Petitioner contends that Nelson discloses this limitation. Pet. 56–57 (claim 3), 62 (claim 14). Patent Owner does not argue this limitation or specifically address claims 3 and 14. *See generally* PO Resp.

With regard to the limitation of claims 3 and 14, the Petition states:

> *Nelson* discloses this limitation. (Ex. 1002, ¶¶ 83-85.) To begin, as discussed above with respect to claim element 1(d), *Nelson* discloses providing the value of a reference time base ("the presentation time parameter value"). (*See supra* Section IX.A.1.d (claim element 1(d)).)

Nelson additionally discloses that the disclosed "presentation time parameter value" is provided in response to a request from the stream interpreter of the DVMS ("the second component") for a current time ("for a current time"). (Ex. 1002, ¶ 84.) For example, *Nelson* discloses pseudocodes in Appendix D and E for running the implicit and explicit timing synchronization schemes, where a variable, "reference time base," and another variable, presentation time (calculated or embedded), are requested by the stream interpreter for comparison. (Ex. 1006, 14:37-48

(disclosing that the stream interpreter runs the implicit timing scheme based on the pseudocode in Appendix D), 15:10-25 (disclosing that the stream interpreter runs the explicit timing scheme based on the pseudocode in Appendix E); *see also id.*, 12:4-15 (disclosing that the stream interpreter "may be implemented in hardware or software, using standard design techniques, as will be recognized by those skilled in the art").) Indeed, consistent with the above, *Nelson* discloses that the "reference time base is obtained from a reference clock." (*Id.*, 13:38-43.) Accordingly, Nelson discloses "providing the presentation time parameter value in response to a request." (Ex. 1002, ¶ 84.)

> Furthermore, Nelson discloses that the disclosed request is "for a current time," as claimed. (Ex. 1002, ¶ 85; *see also supra* Section VIII.D.) For example, Nelson discloses that the requested "reference time base indicates the current real time relative to the start time of the presentation unit consumption process for the corresponding stream." (Ex. 1006, 14:27-29.) Additionally, the requested time base indicates a position in time of the media stream being displayed and rendered because it is compared with the presentation time (calculated or embedded) for determining whether a presentation should be released for presentation for that time position. (*Id.*, 14:34-36, 15:22-25; *see also id.*, 15:26-40.)

Pet. 56–57 (claim 3), *see also id.* at 62 (claim 14). Petitioner's undisputed showing with regard to claims 3 and 14 is well-supported. Petitioner has shown by a preponderance of the evidence that claims 3 and 14

would have been obvious in view of Nelson and Rothermel.

c) Claims 4 and 15

Claims 4 and 15 of the '400 patent depend from claims 1 and 12, respectively, and further recite that step "(B) comprises providing the data time parameter value in response to a request from the first component for a current time." Ex. 1001, 23:55–57, 25:17–19. Petitioner contends that Nelson discloses this limitation. Pet. 58 (claim 4), 63 (claim 15). Patent Owner does not argue this limitation or specifically address claims 4 and 15. *See generally* PO Resp.

With regard to the limitation of claims 4 and 15, the Petition states:

> *Nelson* discloses this limitation. (Ex. 1002, ¶¶ 86-87.) To begin, as discussed above with respect to claim element 1(b), *Nelson* discloses providing the calculated or embedded presentation time ("the data time parameter value"). (*See supra* claim element 1(b).)
>
> Furthermore, as discussed above in claim 3, *Nelson* discloses that running the implicit and explicit timing synchronization schemes involves requesting variables for comparison, including the reference time base and the presentation time (calculated or embedded), and the disclosed request is "for a current time," as claimed and as proposed under Petitioner's construction (Ex. 1006, 14:34-36, 15:22-25; *see also id.*, 15:26-40). Thus, *Nelson* discloses this limitation. (Ex. 1002, ¶ 87.)

Pet. 58 (claim 4) *see also id*. at 63 (claim 15). Petitioner's undisputed showing with regard to claims 4 and 15 is well-supported. Petitioner has shown by a preponderance of the evidence that claims 4 and 15 would have been obvious in view of Nelson and Rothermel.

E. Ground Based on Nelson, Rothermel, and DeMoney

Petitioner contends that claims 7 and 18 of the '400 patent would have been obvious in view of Nelson, Rothermel, and DeMoney. Pet. 3, 63–68.

1. DeMoney (Ex. 1012)

DeMoney was filed on June 5, 1996, and issued on May 16, 2000. Ex. 1012, code (22). DeMoney is prior art to the '400 patent under 35 U.S.C. § 102(a). *See* Pet. 3. Patent Owner does not dispute that DeMoney is prior art. *See generally* PO Resp.

DeMoney relates to "a video server system and method for indexing between video streams having different presentation rates, *i.e.*, normal play, fast forward and fast reverse video streams." Ex. 1012, 1:16–19. The fast forward and fast reverse video streams are called "trick play video streams." *Id*. at 5:4–7. "The present invention generates index look-up tables (ILUTs) between the normal play and trick play video streams which enable indexing between the streams." *Id*. at 5:7–10. A server "maps [] presentation timestamps to a 'normal play time' (NPT) standard." *Id*. at 8:26–27. "For the scaled streams, *e.g.*, the fast forward and fast reverse streams, a scale factor is introduced into the normal play time values

of the index look-up tables to compensate for the different presentation rates." *Id*. at 9:32–35.

2. Analysis of Claims 7 and 18

Method claim 7 depends from claim 1 and device claim 18 depends from claim 12. Ex. 1001, 24:9, 25:38. Claims 7 and 18 are otherwise identical. *Id.* at 24:9–21, 25:38–26:8. Claims 7 and 18 recite:

> 7./18. The method/device of claim 1/12, wherein (A) comprises:
>
> (A)(1) for each element in the portion of the temporal sequence presentation data:
>
> (a) identifying an actual rendition period of the element;
>
> (b) identifying an actual presentation rate of the element;
>
> (c) multiplying the actual rendition period of the element by the actual presentation rate of the element to produce a product; and
>
> (A)(2) maintaining a sum of the products produced by (A)(1) as the data time parameter in the second computer-readable medium.

Id. Petitioner provides detailed arguments and cites to asserted art to show that the limitations of claims 7 and 18 are taught. Pet. 63–68. Patent Owner disputes Petitioner's showing with regard to motivation to combine the cited references.[29] PO Resp. 41-42.

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[29] Patent Owner does not dispute that the cited combination of references teaches all the additional recited elements of dependent claims 7 and 18. PO Resp. 41–42.

Petitioner relies on its showing with regard to claim 1 for claim 7 and contends, "[t]he *Nelson-Rothermel* combination in view of *DeMoney* further discloses or suggests the limitations of claim 7." Pet. 63 (citing Ex. 1002 (Schonfeld Decl.) ¶¶ 100–101). Petitioner relies on its showings as to claims 7 and 12 for claim 18. *Id*. at 68 (citing Ex. 1002 (Schonfeld Decl.) ¶ 106).

Petitioner cites Nelson's disclosure of "a 'presentation decision scheme' in which '[a] stream counter of each stream pipe indicates the number of already consumed presentation units in the corresponding stream,' wherein '[m]ultiplying this count by the (fixed) duration of each of the presentation units specifies the real time which has elapsed to present the counted units.'" Pet. 63–64 (citing Ex. 1006, 14:29–34) (bracketed material in original). Petitioner contends, "[a] person of ordinary skill in the art would have understood that calculating a product (*e.g.*, multiplying the fixed duration by unit count) is equivalent to calculating a sum by repeated addition (*e.g.*, repeatedly adding the fixed duration a number of times corresponding to the presentation unit count.)." *Id*. at 64 (citing Ex. 1002 (Schonfeld Decl.) ¶ 101). Petitioner relies on DeMoney's disclosure that "a 'compressed presentation timestamp value' can be converted into a normal presentation time value by multiplying the compressed value by the ratio of the presentation rate to the normal presentation rate (*i.e.*, the presentation rate scale factor.)." *Id.* at 66 (citing Ex. 1012, 9:35–41). Petitioner argues:

> *DeMoney* generally relates to a video delivery system in which video may be played back at different presentation rates. (Ex. 1012, 1:15-20.)

> As such, a POSITA would have had reason to look to *DeMoney* when considering the teachings of *Nelson*. (Ex. 1002, ¶ 104.). . . .
>
> As such, a POSITA would have recognized that taking into account actual durations of presentation units would have not only been desirable, but also could have readily been implemented by multiplying each such duration against the presentation rate to arrive at a duration equivalent to that described in Nelson. (Ex. 1002, ¶ 105.) As discussed above, maintaining a sum of such products would have provided a value that is equivalent to that calculated in *Nelson* and compared against the reference time base, but would have provided the added benefit of accounting for varying and actual durations of presentation units. (Ex. 1002, ¶ 105.) As such, it would have been obvious to a POSITA to apply the mathematical algorithm recited in claim 7. (*Id*.)

Pet. 66–67. The cited art supports Petitioner's showing with regard to claims 7 and 18.

Similar to its argument challenging the combination of Nelson and Rothermel discussed above, Patent Owner argues that because "data time is explicitly disclosed in *Nelson*" and "*Nelson* even discloses a method of calculating data time," "Petitioner offers no justification for why a POSITA would look beyond the four corners of what is already explicitly disclosed in *Nelson*" for teachings of how to calculate data time. PO Resp. 41–42. Petitioner replies that, "[a]s explained in the Petition, while *Nelson* discloses the claimed 'data time parameter value,' it does not explicitly disclose, for example, calculating the data

time using the actual duration of each unit." Pet. Reply 12. Patent Owner cites no evidence in support of its argument. S*ee* PO. Resp. 41–42. We find persuasive Petitioner's argument and evidence that a skilled artisan would have recognized that taking into account actual presentation times as recited in claims 7 and 18 would be desirable and provide added benefit (*see* Pet. 67 (citing Ex. 1002 (Schonfeld Decl.) ¶ 105)).

Petitioner's showing with regard to claims 7 and 18 is well-supported. We conclude Petitioner has shown by a preponderance of the evidence that claims 7 and 18 would have been obvious in view of Nelson, Rothermel, and DeMoney.

III. Conclusion[30]

For the foregoing reasons, we conclude that Petitioner has established that claims 1–4 and 12–15 would have been obvious in view of Nelson and Rothermel and claims 7 and 18 would have been obvious in view of Nelson, Rothermel, and DeMoney.

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[30] Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this decision, we draw Patent Owner's attention to the April 2019 *Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding*. *See* 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. *See* 37 C.F.R. § 42.8(a)(3), (b)(2).

IV. Order

In consideration of the foregoing, it is hereby:

ORDERED that claims 1–4, 7, 12–15, and 18 of the '400 patent are unpatentable. In summary:

Claims	1–4, 12–15	7, 18	Overall Outcome
35 U.S.C. §	103	103	
Reference(s)/ Basis	Nelson, Rothermel	Nelson, Rothermel, DeMoney	
Claims Shown Unpatentable	1–4, 12–15	7, 18	1–4, 7, 12–15, 18
Claims Not shown Unpatentable			

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USPTO FINAL WRITTEN DECISION
IPR2019-01247, '433 PATENT
(MARCH 5, 2021)

Paper 34
Entered: March 5, 2021

UNITED STATES PATENT AND
TRADEMARK OFFICE

BEFORE THE PATENT TRIAL
AND APPEAL BOARD

GOOGLE LLC,

Petitioner,

v.

VIRENTEM VENTURES, LLC,

Patent Owner.

IPR2019-01247

Patent 7,043,433 B2

Before: Meredith C. PETRAVICK,
Bryan F. MOORE, and Terrence W. McMILLIN,
Administrative Patent Judges.

JUDGMENT
Final Written Decision
Determining All Challenged Claims Unpatentable
35 U.S.C. § 318(a)

MOORE, Administrative Patent Judge.

I. Introduction

A. Background and Summary

Google LLC ("Petitioner") filed a Petition ("Pet.," Paper 1) pursuant to 35 U.S.C. § 311 to institute an *inter partes* review of claims 1–4 and 7–9 of U.S. Patent No. 7,043,433 B2 ("the '433 patent," Ex. 1001) pursuant to 35 U.S.C. § 311 *et seq*. The Petition is supported by the Declaration of Dan Schonfeld, Ph.D. (Ex. 1002). Virentem Ventures, LLC ("Patent Owner") filed a Preliminary Response ("Prelim. Resp.," Paper 12). On March 9, 2020, we instituted trial. Paper 14 ("Inst. Dec."). Patent Owner filed a Response. Paper 24 ("PO Resp."). Petitioner filed a Reply. Paper 27 ("Reply"). Patent Owner filed a Sur-Reply. Paper 29 ("Sur-Reply"). An oral argument was held on December 4, 2020, and a transcript was entered into the record. Paper 33 ("Tr.").

We have jurisdiction to conduct this *inter partes* review under 35 U.S.C. § 6. This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. For the reasons discussed herein, we determine that Petitioner has shown, by a preponderance of the evidence, that claims 1–4 and 7–9 of the '433 patent are unpatentable.

B. Real Parties in Interest

Petitioner names Google LLC and YouTube LLC as the real parties-in-interest. Pet. 1.

C. Related Matters

The parties advise us that the '433 patent is asserted against a real party in interest in *Virentem Ventures, LLC v. YouTube, LLC*, 1:18-cv-917 (D. Del.) ("the related litigation"). Pet. 1; Paper 4, 1.

D. The '433 Patent

The '433 patent relates to the "creation and presentation of media works to audiences." Ex. 1001, 1:11–14. Specifically, to "creation and presentation of media works in accordance with audience affinity and/or aptitude and to determinations of audience affinity and/or aptitude." *Id.* at 1:14–18.

E. Illustrative Claims

Challenged claims 1, 3, 7, 8, and 9 are independent claims. Challenged claim 2 depends directly from claim 1 and claim 4 depends directly from claim 3. Claim 1, reproduced below, is illustrative.

1. A method for inferring audience affinity or aptitude with regard to content or properties of portions of a media work which comprises:

    presenting the media work to an audience;

    obtaining user input regarding presentation rates for the portions of the media work;

    correlating the content or properties of the portions with the presentation rates; and

> associating audience affinity or aptitude with the presentation rates for the correlated content or properties.

Ex. 1001, 70:44–54.

F. Evidence

Petitioner relies on the following references. Pet. 8–75.

Name	Reference	Exhibit
Rochkind	US 5,848,130, filed Dec. 31, 1996, issued Dec. 8, 1998	1005
Walker	US 5,802,533, filed Aug. 7, 1996, issued Sept. 1, 1998	1006
Bhadkamkar	US 5,893,062, filed Dec. 5, 1996, issued Apr. 6, 1999	1007
Ottesen	US 5,778,135, filed Dec. 30, 1994, issued July 7, 1998	1008
Mauldin	US 5,664,227, filed Oct. 14, 1994 issued Sept. 2, 1997	1009
Iggulden	US 5,696,866, filed Sept. 12, 1994, issued Dec. 9, 1997	1013

G. Prior Art and Asserted Grounds

Petitioner contends that claims 1–4 and 7–9 would have been unpatentable on the following grounds:

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
3, 4, 9	102(a)	Rochkind
9	103(a)	Mauldin, Bhadkamkar
1, 7	103(a)	Walker, Bhadkamkar
2	103(a)	Walker, Bhadkamkar, Iggulden
8	102(a)	Ottesen

II. Analysis

A. Legal Standards

A claim is anticipated if a single prior art reference either expressly or inherently discloses every limitation of the claim. *Orion IP, LLC v. Hyundai Motor Am.*, 605 F.3d 967, 975 (Fed. Cir. 2010). Although the elements must be arranged or combined in the same way as in the claim, "the reference need not satisfy an *ipsissimis verbis* test," *i.e.*, identity of terminology is not required. *In re Gleave*, 560 F.3d 1331, 1334 (Fed. Cir. 2009) (citing *In re Bond*, 910 F.2d 831, 832–33 (Fed. Cir. 1990)) (emphasis omitted).

A patent claim is unpatentable under 35 U.S.C. § 103 if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, "would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains." *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including: (1) the scope and content of the prior art;

(2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) objective evidence of nonobviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

In that regard, an obviousness analysis "need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ." *KSR*, 550 U.S. at 418.

B. Level of Ordinary Skill in the Art

Petitioner contends a person of ordinary skill in the art at the time of invention would have had

> either (a) a Master's or doctoral degree in computer science, electrical engineering, or a similar discipline; or (b) a Bachelor's degree in computer science, electrical engineering, or a similar discipline and at least two years of work experience in content presentation systems, or a related area.

Pet. 4–5 (citing Ex. 1002 ¶¶ 19–20.). Patent Owner does not dispute this contention. *See generally* PO Resp. We adopt Petitioner's articulation of the level of skill and determine that the level of ordinary skill in the art is also reflected by the prior art of record. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001); *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995); *In re Oelrich*, 579 F.2d 86, 91 (CCPA 1978).

C. Claim Construction

Because the Petition was filed after November 13, 2018, we construe the challenged claims by applying "the standard used in federal courts, in

other words, the claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. [§] 282(b), which is articulated in *Phillips* [*v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc)]."[1] Further, "[a]ny prior claim construction determination concerning a term of the claim in a civil action, or a proceeding before the International Trade Commission . . . that is timely made of record in [the *inter partes* review] proceeding will be considered."[2] *Id.* at 51,340.

Under the standard set forth in *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–19 (Fed. Cir. 2005) (en banc), claim terms are given their ordinary and customary meaning, as would have been understood by a person of ordinary skill in the art at the time of the invention, in light of the language of the claims, the specification, and the prosecution history of record. *See Thorner v. Sony Comput. Entm't Am. LLC*, 669 F.3d 1362, 1365–66 (Fed. Cir. 2012). There is a "heavy presumption," however, that a claim term carries its ordinary and customary meaning. *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002) (citation omitted).

We are also guided by the principle that we only construe claim terms if, and to the extent that, it is

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[1] *See* Changes to the Claim Construction Standard for Interpreting Claims in Trial Proceedings Before the Patent Trial and Appeal Board, 83 Fed. Reg. 51,340, 51,343 (amending 37 C.F.R. § 42.100(b) effective November 13, 2018) (now codified at 37 C.F.R. § 42.100(b) (2019)).

[2] The District Court presiding over the litigation between the parties involving the '433 patent issued an order construing certain claim terms (Ex. 2011), which we have considered.

necessary for the purpose of the proceeding. *See, e.g.*, *Wellman, Inc. v. Eastman Chem. Co.*, 642 F.3d 1355, 1361 (Fed. Cir. 2011) ("[C]laim terms need only be construed 'to the extent necessary to resolve the controversy.'") (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

1. "aptitude"

Petitioner offers a construction for the term "aptitude," which appears in the phrase "associating audience affinity or aptitude with the presentation rates for the correlated content or properties" in claim 1, "associating the audience affinity or aptitude associated with the detected content or properties with a presentation rate for the portion" in claim 3, and "correlating the presentation rates with the aptitude for the content or properties of the portions" in claim 7 of the '433 patent. Pet. 6–7; Ex. 1001, 70:53–54, 70:62–64, 71:30–31. Petitioner proposes the term means "comprehension." Pet. 7. Petitioner contends

> [t]his construction is consistent with the specification of the '433 patent, which states that "[t]he Audience (listener) input serves as a proxy for the Audience's . . . aptitude for (this may also be referred to herein as ability to comprehend) the [media work] . . . and will be referred to herein as . . . Audience Aptitude" and that "an Audience member . . . might want to slow down some portion of the [media work] . . . if the Audience member . . . was having difficulty comprehending the portion.. . . " (*Id.*, 16:15-28 (emphasis added); *see also id.*, 5:29-32, 6:20-24, 7:23-27, 22:41-45, 23:65-67, 61:28-29, 67:58-60, 67:66 ("aptitude (comprehension rates)"), 68:31-32 ("aptitude (comprehension

rate)"), 69:26-27 ("aptitude (comprehension rate)"); Ex. 1002, ¶ 47.).

Pet. 7 (emphasis omitted).

Patent Owner argues that "aptitude" means "level of comprehension, familiarity, or proficiency." PO Resp. 15. Patent Owner cites to portions of the Specification that associate aptitude with familiarity and proficiency. *Id.* (citing Ex. 1001, 6:20–24, 7:23–27, 61:17–39, Fig. 21; Ex. 2016 ¶¶ 31–33).

Patent Owner does not argue that its broader construction distinguishes a claim limitation from the asserted prior art. *See* PO Resp. 15–16. Given the parties agreement at least to the term "comprehension," we determine that "aptitude" means at least "comprehension."

2. "presentation rate" and "time-scale modification"

We analyze the terms "presentation rate" and "time-scale modification" (also referred to as "TSM") together. The term "presentation rate" is recited in challenged claims 1 and 7. Ex. 1001, 70:44–67, 71:25–72:15. "Time-scale modification" is not recited in any claim of the '433 patent. *Id.* at 70:44–72:30. However, Patent Owner argues that the term "time-scale modification" is incorporated in all the claims by virtue of the definition of "presentation rate." PO Resp. 17; Dec. to Inst., 7–8; Ex. 2011, 2; Ex. 2016 ¶¶ 28, 44. Patent Owner contends that "presentation rate" means "the speed at which media is played back in a time[-]scale modification system" and that "time-scale modification" means "speeding up and slowing down the perceived rate of speech while substantially

preserving both intelligibility and the perceived pitch for audio and audio-visual media." *Id.* 17–26. Petitioner argues that neither of Patent Owner's proposed constructions should be adopted. Reply 4–7. Petitioner also contends, without explanation, that if "time-scale modification" is construed it should mean "playback rate modification." Reply 4.

Patent Owner cites the Specification for support of this construction. PO Resp. 17. Specifically, Patent Owner argues:

> The agreed-upon construction aligns with the '433 specification, which recognizes that the '433 Patent is directed to the field of Time-Scale Modification ("TSM") and consistently uses the term "presentation rate" to describe the rate of media playback when TSM is employed, or in other words, the TSM rate (which is synonymous with presentation rate). *See, e.g.*, EX1001, 17:3-5, 18:35, 19:26-27, 19:37-38, 21:14, 22:23, 68:30-31, FIG. 1-4, 6, 8-12, 22-30; EX2011, 11, 16; *see also* EX2016, ¶¶ 45, 59.

Id. As shown above, Patent Owner cites several places in the Specification for this proposition. In fact, the Specification recites "PR (TSM rate)" 70 times and "PR (TSM rate and playback rate)" 56 times. *See generally*, Ex. 1001.

Equating the terms using a parenthetical can be done only when it is consistent with the use of these terms throughout the Specification. *See Purdue Pharma L.P. v. Boehringer Ingelheim GMBH*, 237 F.3d 1359, 1364–65 (Fed. Cir. 2001) (determining that a parenthetical is not definitional because of other evidence in the specification and the record).

Although the Specification associates presentation rate with TSM rate, the Specification also explicitly defines "presentation rate" broadly as "information that can be used to obtain a rate at which a Media Work ('MW') is presented to an Audience. The information may be an identifier of a source of the rate which can be obtained using Media Work Communication Technology ('MWCT')." Ex. 1001, 11:26–31. Additionally, Patent Owner's expert admits that there is an "important" difference between TSM rate and presentation rate. Ex. 2016 ¶ 59. He testifies "A presentation rate or playback rate can include playing at rate 1 or normal, while a TSM rate involves speeding up or slowing down the audio or audio-visual work using Time-Scale Modification." *Id.* This cuts against Patent Owner's argument and is consistent with the broad definition of presentation rate in the Specification.

Thus, as confirmed by Patent Owner's declarant, the Specification has a broader definition of presentation rate than TSM rate. Ex. 1001, 11:26–31; Ex. 2016 ¶ 59. For this reason, we do not equate the term "presentation rate" with the term "TSM rate."

As stated above, Patent Owner requests that we explicitly construe the term "time-scale modification." PO Resp. 17–26. This term does not appear in any of the challenged claims. In fact Patent Owner's declarant testifies "the '433 Patent is not about any specific techniques used to do Time-Scale Modification of media itself." Ex. 2016 ¶ 16.

As an initial matter, that "we do not ordinarily construe words that are not in claims." *Edwards Lifesciences LLC v. Cook Inc.,* 582 F.3d 1322, 1334 (Fed. Cir. 2009); *see also Aro Mfg. Co. v. Convertible*

Top Replacement Co., 365 U.S. 336, 339 (1961) ("[T]he claims made in the patent are the sole measure of the grant."). Nevertheless, we can consider Patent Owner's contentions and construe "time-scale modification" if necessary. *Advanced Fiber Techs. Trust v. J & L Fiber Servs., Inc.*, 674 F.3d 1365, 1373 (Fed. Cir. 2012) (finding that a court may construe a term found only in the construction, and not in the claims, if the correct construction of a claim term necessitates it). In performing this so-called "derivative construction," the Court must apply "established claim construction principles," just as if it was interpreting claim language in the first instance with the ultimate goal of elucidating the proper meaning of the actual claim terms. *See Advanced Fiber Techs.*, 674 F.3d at 1374.

With regard to "time-scale modification," Patent Owner proposes a construction that it proposed in the District Court and that was rejected by the District Court. PO Resp. 17; Ex. 2011, 8.[3] The District Court construed "time-scale modification/ time-scale modified" as meaning "speeding up or slowing down the playback rate." Ex. 2011, 8. Patent Owner argues TSM should be construed to mean "speeding up or slowing down the playback rate of audio or audio-visual media, while maintaining pitch and intelligibility." PO Resp. 17. Patent Owner argues the District Court's construction "is an incomplete definition." *Id.* at 18. Patent Owner does not explain sufficiently why we should adopt the District Court's construction of "presentation rate" and at the same time incorporate

[3] Patent Owner notes that the District Court granted it leave to renew a motion for reconsideration of the court's construction of "time-scale modification" such that the construction is not yet final. PO Resp. 18 n.2 (citing Ex. 2033).

into the challenged claims a definition of "time-scale modification" that the District Court rejected. By incorporating a definition of "time-scale modification" that was rejected by the District Court into the challenged claims by adopting the District Court's construction of "presentation rate," we would be construing the claims in a manner inconsistent with the District Court.[4]

Petitioner's position on construction of "presentation rate" is inconsistent with the "agreed-upon"[5] position it took before the District Court. In this proceeding, Petitioner argues, "[Patent Owner's] construction improperly incorporates limitations by requiring playback to occur 'in a timescale modification system.' Nothing in the record supports reading 'timescale modification system' into the claims." Reply 2. Despite the inconsistencies in Petitioner's position, we agree with Petitioner that "time-scale modification" should not be read into the challenged claims through construction of "presentation rate."

We determine that "presentation rate" should be interpreted consistent with its definition in the Specification and according to its ordinary and customary meaning of "the speed of presentation."

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[4] Patent Owner suggests that the District Court's claim construction is not controlling. PO Sur-Reply 13 ("The Delaware district court has already agreed that its claim construction may need to be revisited to arrive at the correct construction following the IPR proceedings, recognizing that the Board may reach a different conclusion.") (citing Ex. 2033, 1–2).

[5] Petitioner assert there was a lack of dispute rather than an agreement on the meaning of "presentation rate" and "time-scale modification." Reply 1.

We believe this meaning is consistent with the portion of the District Court's construction of "presentation rate" as "the speed at which media is played back" and the Specification's definition of "presentation rate" as "information that can be used to obtain a rate at which a Media Work ('MW') is presented to an Audience." As cited previously, there is a "heavy presumption" that a claim term has its ordinary and customary meaning. *CCS Fitness*, 288 F.3d at 1366. We have not been presented with sufficient evidence to overcome that heavy presumption. Patent Owner relies only on the association of TSM rate and presentation rate in the Specification and on the agreement of the parties in District Court. PO Resp. 17. Based on our independent analysis of the '433 patent and its file history, we do not discern sufficient support for incorporating "in a time-scale modification system" into the meaning of "presentation rate" as recited in the claims of the '433 patent or otherwise limiting the construction of "presentation rate" from its ordinary and customary meaning.

Thus, we construe the term "presentation rate" differently than the District Court, because the records in the District Court case and in this proceeding relating to construction of "presentation rate" are different.[6] In the District Court proceeding, there

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[6] In related IPRs such as IPR2019-01245, the Patent Owner failed to argue the relation between TSM rate and presentation rate in the way it does here and the Specification in IPR2019-01245 explicitly stated "Although the detailed description used the terms playback rate and TSM rate, and the terms playback and playback apparatus, *these terms should be understood to include any type of presentation rate* (*i.e.*, a rate of presentation of information) and any type of presentation apparatus. As such, *these terms are to be understood as being used in the*

was a construction of "presentation rate" that was agreed to by the parties. *See* Ex. 2004, 109:3–110:10. In this proceeding, there is a dispute between the parties as to the construction of "presentation rate." *Compare* PO Resp. 17, *with* Reply 1–2. However, our conclusion that the challenged claims of the '433 patent would have been unpatentable in view of the asserted art would not be different under either our construction or the District Court's construction of "presentation rate," as explained below.

Having determined that the proper construction of "presentation rate" in the challenged claims of the '433 patent does not include "in a time-scale modification system," we nonetheless construe "time-scale modification" in light of Petitioner's agreement before the District Court to the construction of "presentation rate" as "the speed at which media is played back in a time-scale modification system." We reject Patent Owner's proposed construction of "time-scale modification system," because, as explained below, we discern no basis for limiting the claims of the '433 patent to "speeding up and slowing down the perceived rate of speech while substantially preserving

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broadest sense." IPR2019-01245, (Paper 41) Final Written Dec. 20 (quoting Ex. 1001, 42:60–66). As such, there are different arguments and different specifications regarding TSM rate in this IPR. For example, in related IPR IPR2019-01239 and IPR2019- 01241, the term at issue was "default presentation rate," and the "default rate" was defined in the Specification of the challenged patent as the normal rate of play. IPR2019-01239, (Paper 39) Final Written Dec. 19, IPR2019- 01241, (Paper 38) Final Written Dec. 21–22, IPR2019-01243, (Paper 39) Final Written Dec. 18–19. Nevertheless, for the reasons described in this decision, we determine it is proper that we arrive at the same construction in this IPR as the related IPRs.

both intelligibility and the perceived pitch for audio and audio-visual media" through recitation of "presentation rate" as requested by Patent Owner. *See* PO Resp. 17–26.

Below we examine the intrinsic and extrinsic evidence with regard to "time-scale modification."

Intrinsic Evidence-Specification

Patent Owner argues the '433 Patent identifies the field as "creation and presentation of media works to audiences including, without limitation, audio and audio-visual works." PO Resp. 18 (quoting Ex. 1001, 1:12–14) (emphasis omitted). Patent Owner further notes "[t]he specification generally uses the phrase 'Time-Scale Modification' (and variations thereof, such as 'Time-Scale Modified') as a capitalized term. *See*, *e.g.*, EX1001, 1:22, 14:42-43, 17:4-5, 17:47, 18:26-27, 18:37, 18:50, 27:62, 28:37, 28:42, 28:53, 39:61, 39:66, 41:14." *Id.* at 18–19. Patent Owner does not argue the significance of it being a capitalized term but suggests that this infers a definition of the term. Thus, to the extent Patent Owner suggests capitalization infers a definitional statement, Patent Owner's argument is unpersuasive because Patent Owner does not cite or explain any authority in support of its proposition that a patentee's capitalization of a term in a specification indicates an intent to define it. *See e.g. Barkan Wireless Access Techs., L.P. v. Cellco P'ship*, 748 F. App'x 987, 991 (Fed. Cir. 2018) ("We also cannot conclude 'Access Point's' capitalization necessarily designates a definition.") (unpublished).

Specification Focus on Audio

Patent Owner argues that the first introduction of TSM in the Specification recites that "[p]resently known methods for Time-Scale Modification ('TSM') enable digitally recorded audio to be modified so that a perceived articulation rate of spoken passages, *i.e.*, a speaking rate, can be modified dynamically during playback." PO Resp. 19 (quoting Ex. 1001, 1:22–25) (emphasis omitted). Patent Owner also points out "[t]he specification further explains that in a LD-TSM application, 'a listener can control the speaking rate during playback of a previously recorded speaker.'" *Id.* (quoting Ex. 1001, 1:29–33) (emphasis omitted). In that application, according to Patent Owner, "'the use of the TSM method . . . enables the sped-up or slowed-down speech or audio to be presented intelligibly at the increased or decreased playback rates,' so that 'a listener can readily comprehend' the content." *Id.* (quoting Ex. 1001, 1:36–42, citing 1:22–40:4) (emphasis omitted). Patent Owner argues that the term intelligibility is "typically associated with speech," citing Petitioner's expert, and thus, the '433 Patent's references to "'intelligibility' would have indicated to a POSITA that the Specification was referring to TSM of works including audio, that is, audio or audio-visual works." *Id.* at 20 (citing Ex. 2015, 107:7–108:9; Ex. 2016 ¶¶ 50–53).

Patent Owner also argues the '433 Specification's specific embodiments relate to media that includes audio. *Id.* at 20–21 (citing Ex. 1001, 1:51–55, 1:62–63; Ex. 2016 ¶ 54). As explained *supra*, Patent Owner argues the Specification consistently recites that media works include audio. *Id.* at 21 (citing Ex. 2016 ¶¶ 34–7, 54, 55). Patent Owner also notes that specific

embodiments explain how to sync a video stream to audio when the audio is time-scale modified. *Id.* at 21–22 (citing Ex. 1001, 17:65–18:67). Additionally, Patent Owner argues that "[t]hroughout the specification, components of the invention are repeatedly described as 'TSM' components," tying TSM to those audio embodiments. *Id.* at 22.

Patent Owner also argues "[t]he '433 Patent identifies the field as 'creation and presentation of media works to audiences including, without limitation, *audio and audio-visual works*.'" *Id.* at 18 (quoting Ex. 1001, 1:12–14). The quoted language is permissive rather than limiting, however, stating that the field "includ[es], without limitation" audio and audio visual.

Patent Owner also argues an advantage of the invention depends on TSM being limited to increasing intelligibility because "the specification recognizes that listener interest in a given portion of a media work cannot be accurately determined if the listener cannot understand the audio or the audio is otherwise unintelligible." *Id.* at 22–23 (citing Ex. 1001, 1:62–2:10; Ex. 2016 ¶ 58). Nevertheless, the Federal Circuit has explained that "[t]he fact that a patent asserts that an invention achieves several objectives does not require that each of the claims be construed as limited to structures that are capable of achieving all of the objectives." *Liebel–Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 908 (Fed. Cir. 2004).

Although Patent Owner shows that embodiments and advantages of the invention are directed to audio, Patent Owner has not shown that the claims were intended to be so limited. In fact, Petitioner responds that the Specification discloses an example of presenting email (text-only) messages. Reply 3

(Ex. 1001, 54:51–55:3).[7] Thus, the Specification does not consistently limit TSM to audio only.

The '769 Patent

Patent Owner also relies on the '769 patent which is incorporated by reference in the '433 patent.[8] PO Resp. 23. Patent Owner argues the '769 patent "makes clear that TSM requires preservation of pitch and intelligibility." *Id.* Patent Owner relies on quotes from the '769 Specification stating that that TSM refers to "reproduction of the signal at a wide variety of playback rates *without an accompanying change in local periodicity*" and that "to preserve intelligibility, no phoneme should be removed completely." *Id.* at 23–24 (quoting Ex. 2005, 1:5–10; 1:27–33, 1:44–62). Based on this quote, Patent Owner argues "the disclosed TSM method would be *the method of performing TSM relevant to the '433 Patent* . . . [thus,] a POSITA considering the '433 Patent would have understood that its inventor defined TSM, *as used in the '433 Patent*, as requiring preservation of pitch and intelligibility." *Id.* at 24.

Incorporated patents are "effectively part of the host [patents] as if [they] were explicitly contained therein." *Telemac Cellular Corp. v. Topp Telecom, Inc.*, 247 F.3d 1316, 1329 (Fed. Cir. 2001) (citations omitted); *see Ultradent Prods., Inc. v. Life–Like Cosmetics, Inc.*, 127 F.3d 1065, 1069 (Fed. Cir. 1997) (citing Manual of Patent Examining Procedure § 608.01(p) (6th

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[7] This point is discussed further, below, with respect to the term "Media Work."

[8] U.S. Patent No. 5,175,769 (Ex. 2005, "Hejna").

ed.1996)) (explaining that, unless indicated otherwise, incorporation by reference of a patent renders "the entire contents" of that patent's disclosure a part of the host patent); *see also Harari v. Lee,* 656 F.3d 1331, 1335–36 (Fed. Cir. 2011). As a result, the disclaimers and definitions of the incorporated patents are a part of the asserted patents.

Here, however, the '769 patent does not have a clear disclaimer because the '769 patent actually defines the term more broadly stating "time scale modification ('TSM'), *i.e.*, changing the rate of reproduction, of a signal." Reply 5 (quoting Ex. 2005, 1:6–13).[9]

Patent Owner's description of the history of TSM actually cuts against its argument that the '769 patent limits the invention to preserving pitch. For example, Patent Owner argues "the study of TSM dates back to at least the 1940's, and in more modern digital signal processing as described in the '769 Patent, TSM methods operate by inserting or deleting segments of a digitally sampled speech signal in a manner that preserves the local pitch and intelligibility." PO. Resp. 23. Patent Owner's argument does not suggest the TSM is defined as preserving pitch but, rather, suggests that more modern specific methods in the '769 patent do so.

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[9] A patentee's use of "*i.e.*," in the intrinsic record, however, is often definitional. *Edwards Lifesciences LLC v. Cook Inc.*, 582 F.3d 1322, 1334 (Fed. Cir. 2009) ("[U]se of '*i.e.*' signals an intent to define the word to which it refers."); *see also Abbott Labs. v. Novopharm Ltd.*, 323 F.3d 1324, 1330 (Fed. Cir. 2003) (holding that a patentee "explicitly defined" a term by using "*i.e.*" followed by an explanatory phrase).

Finally, the District Court in the related litigation disagreed that the '769 patent's references to pitch served to limit the construction of TSM to preserving intelligibility and pitch. Ex. 2011, 9. In its claim construction ruling, the District Court explains

> [t]he court in California [in another litigation] agreed with the plaintiff in that case and did not read pitch into the meaning of the general term "time-scale modification" and construed the term to mean "speeding up or slowing down the playback rate." The plaintiff in the California case stated that it "proposed a clear definition [*i.e.*, the definition Defendants here propose] drawn directly from the patent specification. . . . In fact the specification [of the '769 patent] very clearly uses the term 'time-scale modification' to refer only to the speeding up or slowing down playback of a signal."[6] The court in California concluded that that construction was supported by the use of the term in the claims and the specification.[7]
>
> I find that Court's reasoning persuasive. In addition, I find that the construction of time-scale modification that does not require preservation of intelligibility and pitch is supported by the intrinsic evidence of the asserted patents here.

Id. (bracketed material in original). We agree with the District Court. The Specification does not support limiting the construction of TSM to preserving intelligibility and pitch.

Extrinsic Evidence

"[E]xtrinsic evidence may sometimes illuminate a well understood technical meaning." *Immunex Corp. v. Sanofi-Aventis U.S. LLC*, 977 F.3d 1212, 1221 (Fed. Cir. 2020). Patent Owner also argues that publications cited on the face of the '769 patent define TSM. PO Resp. 25. These publications also describe specific methods of TSM. A first publication states "[i]n time—scale modification, we wish to modify the perceived rate of speech while preserving the formant structure (for intelligibility) and the perceived pitch (for naturalness)." Ex. 2006, 1. That publication also recites, however, "[i]n this paper, we discuss an earlier algorithm for time-scale modification (TSM)." *Id.* A second publication recites "[c]hanging the speed of the speech signal without changing the voice quality is known as time-scale modification, or TSM." Ex. 2007, 1. That publication also recites "In this paper, we apply the synchronized-overlap-add (SOLA) method of TSM." *Id.* In other words, these publications indicate they are describing a particular method of TSM.

Patent Owner also points to several other publications that allegedly support a finding that "TSM would have been understood to involve the speeding up or slowing down of digital multi-media content in a manner that preserves the pitch of the audio, such that it remains understandable and perceptible to the user." PO. Resp. 25 (citing Ex. 2006, 1; Ex. 2007, 1; Ex. 2022; Ex. 2027, 12; Ex. 2028, 2; Ex. 2029, 2; Ex. 2030, 4; Ex. 2031, 8–9; Ex. 2016 ¶¶ 65–75). However, we find that they only show, as the first two, that there are specific methods of time-scale modification that preserve pitch and intelligibility. We do not find that these publications show a well

understood definition of TSM that excludes methods that do not preserve the perceived pitch and intelligibility of audio. Additionally, even if these publications suggest TSM could in some circumstances be understood in such a way, "we give the intrinsic evidence 'priority,' . . . over extrinsic evidence with which it is 'inconsistent.'" *Immunex Corp.*, 977 F.3d at 1221.

Conclusion

In sum, as to TSM, the claim language does not contain the term; the extrinsic evidence presents specific methods of TSM but not a well-understood definition; and, while the intrinsic evidence provides a view consistent with Patent Owner's construction in some embodiments, it also provides a broad definition of TSM and does not provide an explicit disavowal of any scope of the claim. We do not discern that this evidence supports Patent Owner's claim construction.

As explained above, we do not incorporate TSM into the definition of "presentation rate." Additionally, for the reasons above, to the extent TSM remains relevant to this proceeding, we adopt the District Court's construction of TSM to mean "speeding up or slowing down the playback rate." PO Resp. 18; Ex. 2011, 8. Accordingly, we do not limit TSM to playback rate "of audio or audio-visual media, while maintaining pitch and intelligibility," as urged by Patent Owner.

3. "media work"

Patent Owner argues "media work" should be construed as "audio or audio-visual media." PO Resp. 26. Patent Owner relies on the following quote from the Specification:

> Media Work: A Media Work ("MW") may comprise, without limitation, one or more of text, pictures, audio, for example, a speech, an audio-visual work, for example, a movie or instructional video tape.

Ex. 1001, 8:20–24. Patent Owner argues that all the examples of media work include audio. PO Resp. 26–27. "It is . . . not enough that the only embodiments, or all of the embodiments, contain a particular limitation" to import a limitation from the specification into the claims. *Thorner v. Sony Computer Entm't Am. LLC*, 669 F.3d 1362, 1366 (Fed. Cir. 2012). Additionally, the language quoted above that Patent Owner relies on allows for text to be one of the examples of a media work. Patent Owner argues that text is mentioned in association with an example that includes text and speech (*id.*), but we find that the quotation above is clear that Media Work includes "*one* or more" of text, pictures, and audio of which text alone could be the *one*. Patent Owner also argues its construction of TSM shows that a media work must have audio in order to have pitch and intelligibility to preserve. PO. Resp. 27–28. As explained above, we do not adopt that construction. Thus, we do not adopt Patent Owner's construction that media work is limited to works that include an audio component.

4. "media work content properties"

Patent Owner argues "'media work content properties' must not be construed as coextensive with 'content,' and should instead be construed as 'properties other than the content of a media work.'" Patent Owner relies on the prosecution, in which keyword searches in a text to speech converter were distinguished

because they detected the content not properties of the content. PO Resp. 29–32 (citing Ex. 1004, 59, 86, 122–23, 152, 163–64; Ex. 2016 ¶ 38). Patent Owner also relies on claim differentiation because claims 3 through 6 recite "detecting [the] content or properties" while claims 8 and 9 recite "detecting media work content properties." *Id.* at 31.

Additionally, Patent Owner argues "[a]ll of these examples [of media work content properties in the specification] involve the results of analyzing the Media Work (such as how many letters are in a word, how many letters make up a syllable, grammatical analysis, a count of people or objects in a frame, aptitude or complexity analysis). They do not merely reflect the content of the Media Work." *Id.* at 31–32.

Petitioner, on the other hand, argues the fact that properties are different than content is "self-evident" and does not need construction. Reply 7–8. We agree.

Rather than a dispute on construction, Patent Owner's argument regarding obviousness relies on the assertion that examples Petitioner relies on in Rochkind are similar to examples distinguished in prosecution rather than explicitly relying on their suggested construction. Sur-Reply 3–6. Thus, we decline to explicitly construe "media work content properties." Rather we discuss this limitation in the analysis below.

5. Other Terms

We conclude that no express claim construction of any other claim term is necessary to determine whether to institute review of the challenged claims. *See, e.g., Nidec Motor Corp. v. Zhongshan Broad Ocean*

Motor Co., 868 F.3d 1013, 1017 (Fed. Cir. 2017) (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)) ("[W]e need only construe terms 'that are in controversy, and only to the extent necessary to resolve the controversy.'").

D. Anticipation of Claims by Rochkind–Ground 1

Petitioner argues that claims 3, 4, and 9 are unpatentable under 35 U.S.C. § 102(a) as anticipated by *Rochkind*. Pet. 2. To support its contentions, Petitioner provides explanations as to how the prior art allegedly discloses each claim limitation. *Id.* at 8–24. Rochkind is summarized below.

1. Rochkind (Ex. 1005)

Rochkind (Ex. 1005) discloses "a system and method for playing back a recorded voice message, and, in particular, for playing back a spoken numeric portion of the message automatically at a rate that is slower than the rate for playing back the remaining portion of the recorded voice message." Ex. 1005, 1:66–2:3.

2. Analysis of Claim 3

a) "A method of utilizing audience affinity or aptitude associated with content or properties to present a media work which comprises"

Patent Owner argues that the preamble is limiting. Patent Owner argues "[t]he preamble provides the antecedent basis for" "the audience affinity or

aptitude," "the content or properties," and "the media work" terms in the body of claim 3. PO Resp. 16 (citing *In re Fought*, 941 F.3d 1175, 1178 (Fed. Cir. 2019)). For the purpose of this decision, we do not need to decide whether the preamble is limiting because Petitioner recognizes that the preamble may be limiting by presenting contentions "[t]o the extent the preamble of claim 3 is limiting." Pet. 8.

Petitioner establishes sufficiently by a preponderance of the evidence that Rochkind discloses a "method of utilizing audience affinity or aptitude associated with content or properties to present a media work," as recited in claim 3. Pet. 9 (citing Ex. 1002 ¶¶ 64–72; Ex. 1005, Abstract, 1:26–29, 1:31–37, 1:39–40, 1:44–48, 1:66–2:3, 2:15–18, 5:15–23, Figs. 2, 2B, 3, 5, 6).

Petitioner relies on Rochkind's disclosure of an "'enhanced intelligibility mode' that, when enabled, causes 'any spoken numbers detected in messages played back to the user thereafter [to] automatically be played back at a slower rate than the rest of the message.'" Pet. 9–10 (citing Ex. 1005, 5:15–18; 5:20–23; Ex. 1002 ¶ 68.) According to Petitioner, "[b]y disclosing a playback technique that results in numeric content (which *Rochkind* explains is harder to comprehend than non-numeric content [*see* Pet. 8 citing Ex. 1005, 1:31–37]) of a voice message being played back at a slower rate than non-numeric content, *Rochkind* discloses a method of utilizing audience aptitude associated with content or properties to play back ('present') the voice message ('media work')." *Id.*

b) "detecting the content or properties in a portion of the media work"

Petitioner establishes sufficiently by a preponderance of the evidence that Rochkind discloses "detecting the content or properties in a portion of the media work," as recited in claim 3. Pet. 11–14 (citing Ex. 1002 ¶¶ 73–75; Ex. 1005, Abstract, 2:5–8, 2:15–18, 3:64–4:6, 4:19–39, 4:41–44, 5:4–8, Figs. 3, 4).

c) "associating the audience affinity or aptitude associated with the detected content or properties with a presentation rate for the portion"

Petitioner establishes sufficiently by a preponderance of the evidence that Rochkind discloses "associating the audience affinity or aptitude associated with the detected content or properties with a presentation rate for the portion," as recited in claim 3. Pet. 14–17 (citing Ex. 1002 ¶¶ 76–79; Ex. 1005, 4:32–39, 4:64–5:3, 5:15–18, 5:20–23, 6:17–25, Fig. 3, 6).

Patent Owner argues "[t]he antecedent basis for 'the audience affinity or aptitude' is in Element 3(a)'s recitation of 'utilizing audience affinity or aptitude associated with content or properties to present a media work.'" PO Resp. 33. Patent Owner further argues the Petitioner relies only on aptitude rather than affinity. *Id.* Thus, according to Patent Owner, Petitioner is required to show an aptitude associated with content or properties. We agree.

Patent Owner argues that alleged "aptitude" regarding numeric content in Rochkind is not "asso-

ciat[ed] . . . with a presentation rate for the portion" as recited in claim 3. *Id.* at 33–38. Patent Owner first argues that "Rochkind does not disclose assessing aptitude, and relies on generalizations that do not address aptitude for any given numeric content, such as whether the number is familiar, already known, or otherwise readily understandable at normal speed." *Id.* at 33 (emphasis omitted). We disagree. The claim does not recite or require "assessing" aptitude but rather "utilizing" aptitude, which can include using a previously assessed aptitude as is done in Rochkind.

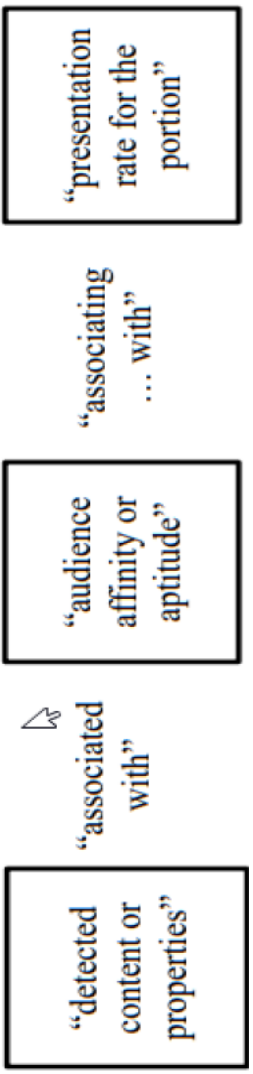
Patent Owner further argues that the "alleged 'audience . . . aptitude' is not 'associat[ed] . . . with a presentation rate for the portion.' Instead, the presentation rates are associated with '0's and '1's in Rochkind. And those '0's and '1's correspond only to what position in the media corresponds to numeric content." *Id.* at 34 (emphasis omitted). We disagree. The presentation rate can be, in this case, slow or fast which Rochkind associates with "0" or "1" where the "0" is a non-numeric section of the text for which the audience has a high aptitude and where the "1" is a numeric section of the text for which the audience has a low aptitude. Pet., 13, 17–18. Patent Owner appears to argue that associating with a presentation rate requires some step of storing or creating some unexplained durable association between content, aptitude, and presentation rate.

Patent Owner argues that because presenting the portion at the rate is a separate step than associating there must be some association of an "aptitude" with a "rate" and failure to do so is a failure to give meaning to all terms in the claim. PO Resp. 36. We disagree. In order for the Rochkind system

to work as described these things must occur: the system must be configured to play content associated with a 1 or a 0 (Ex. 1005, 5:15–18); content must be identified and associated with a 1 or 0 based on the property of the content being either numeric or non-numeric (*id.* at 4:32–38); and the system must play content associated with a 1 or 0 at a particular speed (*id.* at 5:15–18).

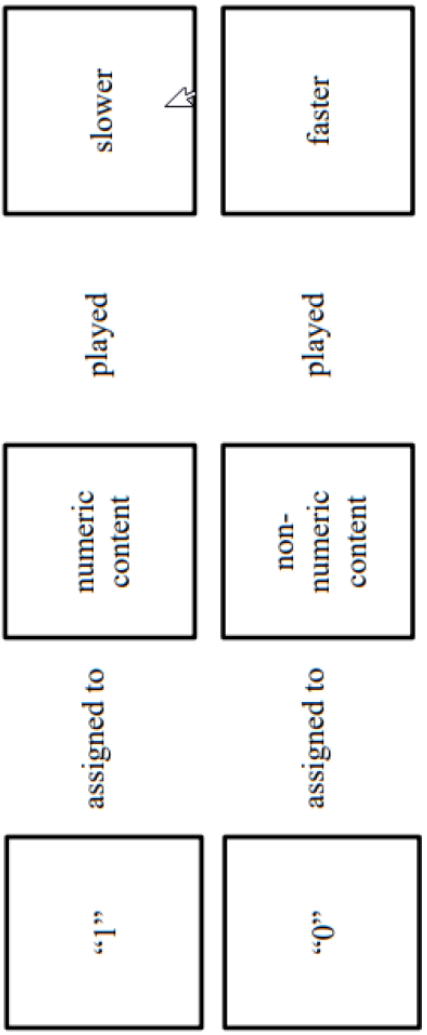
The first step–configuring the system to play content associated with 0 at a high rate–for example, is shown in Figure 4. The phrase "This is an example of a message that includes a spoken number" is associated with 0's. Ex. 1005, Fig 4. Patent Owner cites to the Specification at column 7, lines 23–32, for an "example of associating audience affinity or aptitude with a presentation rate for the relevant content." PO Resp. 37 (citing Ex. 1001, 7:23–32). An example at that citation relied on by Patent Owner associates data such as "onomatopoeia" as a concept with data such as "well-known" as the aptitude for that concept. Ex. 1001, 7:25–28. We find that the fact that 0 is a number and "well-known" is a word does not change the fact that they both represent an aptitude. Both "well-known" and 0 are codes representing a level of aptitude. Thus, we are not persuaded by this argument.

Patent Owner also presents the following visual aids. Reproduced below is Patent Owner's chart showing the claim language. PO Resp. 36.



Reproduced above is Patent Owner's chart representing the claim language "detected content or properties" "associated with" "audience affinity or aptitude" "associating with," and "presentation rate for the portion." Below Patent Owner presents a chart purporting to represent Rochkind's system of assigning

"0" or "1" to content based on the property that the content is numeric or non-numeric and then playing the content either slower or faster. *Id.*



Reproduced above is a chart Patent Owner presents purporting to represent Rochkind's system of assigning "0" or "1" to content. We find this chart misleading at

best. "[A]ssigned to" and "played" in the above chart require some association was also made.

Additionally, Patent Owner argues "*Rochkind*'s '0's and '1's correspond only to whether any given position in the media includes numeric content; the '0's and '1's do not represent aptitude." PO Resp. 37. We find that the "0"s and "1"s represent segments of the media in which numeric content is either present or not present which, because the numeric character of a word is associated with a listener's ability to comprehend the media content (Ex. 1005, 1:31–37), *does* represent levels of aptitude. Pet. 9; Ex. 1005, 4:33–41. Those segments representing levels of aptitude are also associated with presentation rates. Pet. 9; Ex. 1005, 5:16–18 ("any spoken numbers detected in messages played back to the user thereafter [to] automatically be played back at a slower rate than the rest of the message."). Thus, we are not persuaded by Patent Owner's argument.

d) "presenting the portion at the presentation rate"

Petitioner establishes sufficiently by a preponderance of the evidence that Rochkind discloses "presenting the portion at the presentation rate," as recited in claim 3. Pet. 17–18 (citing Ex. 1002 ¶ 80; Ex. 1005, 5:15–18, 5:20–23, 6:17–25, Fig. 6).

3. Analysis of Claim 4

Claim 4 depends from claim 3. As explained above, Petitioner has shown that Rochkind discloses all of the limitations of claim 3. Petitioner also establishes sufficiently by a preponderance of the evidence that Rothkind discloses "associating includes

accepting user input to determine the presentation rate," as recited in claim 4. Pet. 18–20 (citing Ex. 1002 ¶¶ 81–83; Ex. 1005, 5:11–15, 5:17–23, 5:37–47, Fig. 5). Patent Owner does not raise any arguments specific to claim 4.

4. Analysis of Claim 9

a) "A method of presenting a media work which comprises"

Patent Owner does not argue that the preamble is limiting. For the purpose of this decision, we do not need to decide whether the preamble is limiting because Petitioner recognizes that the preamble may be limiting by presenting sufficient evidence showing the preamble is disclosed in Rochkind. Pet. 20.

b) "detecting media work content properties in a portion of the media work"

Petitioner establishes sufficiently by a preponderance of the evidence that Rochkind discloses "detecting media work content properties in a portion of the media work," as recited in claim 9. Pet. 20–22 (citing Ex. 1002 ¶¶ 85–86; Ex. 1005, Fig. 4; discussion of claim 3, *supra*).

For example, Petitioner contends "*Rochkind* discloses 'detecting *media work* content properties . . . ' because whether numeric information (or non-numeric information) is present or not in a voice message is a property of the content of the voice message, which is a 'media work' as discussed above for the preamble of claims 3 and 9." Pet. 21. Additionally, as to claim 9, Petitioner contends "*Rochkind* discloses detecting media

work content properties . . . because the property of being numeric (or non-numeric) content is detected." Pet. 22.

By contrast, in association with claim 3's recitation of "content or properties," Petitioner contends that Rochkind "discloses detecting *non*-numeric content (which can be mapped to 'the content or properties') where numeric content is not present." Pet. 11. Petitioner contends "in addition to determining the relative position of spoken numbers within the voice message, *Rochkind*'s system and process also determines the complement of such positions (*i.e.*, where numeric information is not present). (Ex. 1002, ¶ 75.) In Figure 4, *Rochkind* explicitly shows the detected non-numeric content with zeros and shows the detected numeric content with ones." Pet. 13.

Patent Owner argues that the Petition cannot use the same numeric and non-numeric content as the claimed "content" for claim 3 and as the "content property" for claim 9. PO Resp. 39–40. We disagree. The spoken words which are numeric or non-numeric can be considered "content" as claimed. As to claim 3, Petitioner contends that Rochkind detects the "non-numeric content" and the "spoken numbers," this is sufficient to refer to "content." Pet. 13. As to claim 9, on the other hand, Petitioner points to "whether numeric information (or nonnumeric information) is present or not in a voice message is a property." Pet. 21.

Patent Owner also suggests that the examples from the Specification, *i.e.* "syllables spoken, letters in a syllable, number of people or objects in a video frame, complexity of content, grammatical structure, rate of occurrence" etc. are not properties of content in the way that the presence of numeric or non-

numeric information relates to content. PO Resp. 40. We disagree. For example, syllables in a spoken word is a property of the words containing those syllables just as the numeric character of a word is a property of a word.

c) "associating a presentation rate of the portion with the detected media work content properties"

Petitioner establishes sufficiently by a preponderance of the evidence that Rochkind discloses "associating a presentation rate of the portion with the detected media work content properties," as recited in claim 9. Pet. 22 (citing Ex. 1002 ¶ 87; Ex. 1005, 4:32–39, 5:15–18, 5:20–23, 6:17–25, Fig. 3).

Patent Owner makes the same argument regarding the term "content properties" for this limitation as it did for the limitation above. Thus, for the same reasons as above, we are not persuaded by that argument. *See* PO Resp. 40.

d) "presenting the portion at the presentation rate"

Petitioner establishes sufficiently by a preponderance of the evidence that Rochkind discloses "presenting the portion at the presentation rate," as recited in claim 9. Pet. 23 (citing Ex. 1002 ¶ 88; discussion of claim 3, *supra*).

e) "wherein the media work content properties comprise indicia of actions of objects"

Petitioner establishes sufficiently by a preponderance of the evidence that Rochkind discloses "wherein the media work content properties comprise indicia of actions of objects," as recited in claim 9. Pet. 23–24 (citing Ex. 1002 ¶ 89; discussion of claim 3, *supra*).

For example, Petitioner contends:

> *Rochkind* discloses detecting whether given content contains numeric as opposed to non-numeric information at various time instants ("media work content properties"). (*Supra* Section IX.A.3(b); *see also supra* Section IX.A.1(b) . . .) Because *Rochkind*'s content is speech content of a voice message, *Rochkind*'s detections of whether the content is numeric/non-numeric at various time instants ("the media work content properties") comprise indicia of whether the speaker (*i.e.*, person speaking the voice message) spoke a number or something other than a number at those times. (Ex. 1002, ¶ 89.) A POSITA would have understood that in the context of the '433 patent a person is an example of an object and that instances of a person speaking a number or something other than a number constitute actions of objects. (*Id.*) A POSITA would further have understood that because *Rochkind* discloses a voice message system and process without regard to any specific speaker, *Rochkind*'s process is applicable to multiple speakers. (*Id.*) As such, the detections of whether content is numeric/non-numeric at various time instants ("the media

work content properties") comprise indicia of actions of objects (plural). (*Id.*).

Pet. 23–24. In other words, Petitioner relies on the actions of a person speaking.

5. Summary for Ground 1

Having reviewed the record, we determine that the information presented establishes by a preponderance of the evidence that Petitioner would prevail in showing that claims 3, 4, and 9 are unpatentable under 35 U.S.C. § 102(a) as anticipated by Rochkind.

E. Obviousness of Claim 9 over Mauldin and Bhadkamkar–Ground 2

Petitioner argues that claim 9 is unpatentable under 35 U.S.C. § 103(a) as obvious over Mauldin and Bhadkamkar. Pet. 3. To support its contentions, Petitioner provides explanations as to how the prior art allegedly teaches each claim limitation. *Id.* at 24–37.

Because we find that claim 9 is unpatentable as anticipated by Rochkind, we do not reach the issue of whether it is also obvious over Mauldin and Bhadkamkar.

F. Obviousness of Claims 1 and 7 over Walker and Bhadkamkar–Ground 3

Petitioner argues that claims 1 and 7 are unpatentable under 35 U.S.C. § 103 as obvious over Walker and Bhadkamkar. Pet. 3. To support its contentions, Petitioner provides explanations as to

how the prior art allegedly discloses each claim limitation. *Id.* at 37–59.

Walker and Bhadkamkar are summarized below.

1. Walker (Ex. 1006)

Walker (Ex. 1006) is directed to a "presentation of text for improved human reading" by using attributes of text, such as "paragraphs, sentences, words, and punctuation." Ex. 1006, Abstract, 1:4–7, 9:56–58. Walker teaches presenting text one sentence at a time, broken up based on sentence structure, to "create a system of meaningful visual cues" and where the eyes need to move a shorter distance from phrase to phrase. *Id.* at 2:29–58.

Walker also varies the rate at which its sentences are presented, and can alter the amount of time for which text is displayed, and the time interval between sentences. *Id.* at 7:40–53. For example, Walker may increase the amount of time between sentences in order to indicate a new paragraph. *Id.* "The sentences advance at a rate using a rule previously selected by the reader," where "[t]he formula is a function of the text type, number or words, educational level, and number of syllables present in the line." (Ex. 1006, 3:42–45; 7:44–48, 10:25–29.

A reader may manually advance text, such as by mouse click, or the text advancement may be controlled by reader-specified parameters. *Id.* at 15:10–22. Advancement can take into account text properties, such as text type, number of words, number of syllables, and difficulty of words. *Id.* at 2:8–9, 3:43–46, 5:27–36.

2. Bhadkamkar (Ex. 1007)

Bhadkamkar (Ex. 1007) "relates to the display of audio and video data and, in particular, to variation of the apparent display rate at which the audio and video data is displayed." Ex. 1007, Abstract, 1:6–8. Bhadkamkar further discloses that "it may be desirable to slow the apparent display rate so that the display can be more carefully scrutinized, or because the content of the display can be better digested at a slower rate." *Id.* at 1:20–23. Bhadkamkar further describes varying the playback rate of audio data, *e.g.*, based on an analysis of whether an audio segment contains a "particular speaking voice or voices." *Id.* at 10:17–19.

3. Motivation to Combine

Petitioner contends that "[t]o the extent that *Walker*'s disclosure of correlating the content or properties of sentences with the presentation time intervals does not explicitly disclose correlating the content or properties of the portions with the presentation *rates* . . . it would have been obvious in view of *Walker* and *Bhadkamkar* to implement this feature." Pet. 46. Petitioner also contends "*Walker* in combination with *Bhadkamkar* discloses or suggests" associating audience affinity or aptitude with the presentation rates for the correlated content or properties. *Id.* at 47.

Patent Owner argues that Petitioner has not shown sufficient motivation to combine Walker and Bhadkamkar. PO Resp. 56–63. As explained below, we disagree. Petitioner articulates sufficient reasons for combining the teachings of Walker and Bhadkamkar. Pet. at 41–44, 46–47, 48–51.

As an initial matter, Petitioner also contends "a POSITA would have known that a presentation rate is merely the reciprocal of a presentation time duration," and that "it would have been a matter of simple arithmetic convenience to decide whether to correlate with one mathematical quantity or with the reciprocal of that mathematical quantity." Pet. 46–47. Patent Owner argues that in the context of the limitation of "correlating the content or properties of the portions with the presentation rates," recited in claim 1, Petitioner does not explain *why* one of ordinary skill *would* associate display times with presentation rates as opposed to simply explaining that it *could* be done. PO Resp. 60. We disagree with Patent Owner's argument because Walker explicitly relates rates to duration so no other motivation to do so need be shown. *See* Pet. at 46. As Petitioner contends, "*Walker* describes its technique in terms of both a rate and a duration because the relationship between the two is simple. (Pet. at 46; Ex. 1006, 7:40-42.)." Reply 22–23.

As to motivation to combine, Petitioner argues "*Bhadkamkar* is in a similar technical field as *Walker*, *e.g.*, because both references relate to presenting video (*Walker*'s displayed text can be considered to be video) and address a similar problem (*e.g.*, determining presentation rate for content)." Pet. 42 (citing Ex. 1002 ¶ 118.). Patent Owner argues there are differences between Walker's text–based system and Bhadkamkar's system for synchronizing audio and video at an altered playback speed. PO Resp. 56. Specifically, Patent Owner argues that, despite Petitioner's contention that they are in the same technical field, Bhadkamkar is concerned with the "specific problem" of audio distortion when adjusting

the playback rate and Walker's text based system does not address that issue at all. *Id.* at 57.

Despite Patent Owner's focus on the problem solved by Walker and Bhadkamkar, the motivation to combine inquiry focuses on whether one of ordinary skill would have been motivated to combine the teachings of both references as a whole, not whether the problems solved by the prior art are the same. *See Bosch Auto. Serv. Sols., LLC v. Matal*, 878 F.3d 1027, 1036 (Fed. Cir. 2017), as amended on reh'g in part (Mar. 15, 2018) (citing *EWP Corp. v. Reliance Universal Inc.*, 755 F.2d 898, 907 (Fed. Cir. 1985) ("A reference must be considered for everything it *teaches* by way of technology and is not limited to the particular *invention* it is describing and attempting to protect.")). Here, although the inventions of Walker and Bhadkamkar are different and may address different problems, both inventions can manipulate the rate of presentation of material. *See* Pet. 42 (citing Ex. 1002 ¶ 118.)

Patent Owner argues that combining Bhadkamkar's system to slow the presentation rate would not be compatible with Walker's system that increases the presentation rate "a little faster than the reader's comfortable rate to increase comprehension." PO. Resp. 59 (citing Ex. 1006, 3:45–48) (emphasis omitted). Patent Owner further argues, "Petitioner does not explain why a [person of ordinary skill in the art] would have overlooked *Walker*'s teaching that the opposite approach (presenting material at a *faster* speed) should be used to increase comprehension."

Id.[10] Patent Owner also argues Walker's disclosure of increasing the speed applies to the "specific situation" relied on by Petitioner regarding comprehension. *Id.* Nevertheless, we determine that even if Petitioner relies on a specific teaching of Walker, the motivation to combine may be found in the broader teaching of the reference. *Bosch Auto. Serv. Sols., LLC*, 878 F.3d at 1036 ("That Dixit does not disclose a universal RTMS *activation* tool (which would make Dixit an anticipatory reference) or provide an express motivation to combine different means for *activating* RTMS sensors does not render its teachings irrelevant.").

Consistent with that proposition, Petitioner contends

> A POSITA would have had reason to consider the disclosure of *Bhadkamkar* and would have recognized that *Bhadkamkar*'s disclosure regarding using a slower display rate (and hence a longer display time) for enabling better digestion (*e.g.*, understanding or comprehension) of content would have been relevant to implementing *Walker*'s process, given that *Walker* discloses

[10] Patent Owner does not explicitly argue that this is a teaching away and we determine that this situation would not meet that standard. A teaching away requires a reference to actually criticize, discredit, or otherwise discourage the claimed solution. *See In re Fulton*, 391 F.3d 1195, 1201 (Fed. Cir. 2004) ("The prior art's mere disclosure of more than one alternative does not constitute a teaching away from any of these alternatives because such disclosure does not criticize, discredit, or otherwise discourage the solution claimed."). Merely teaching an alternative or equivalent method does not teach away from the use of a claimed method. *See In re Mouttet*, 686 F.3d 1322, 1334 (Fed. Cir. 2012) (citations omitted); *In re Dunn*, 349 F.2d 433, 438 (CCPA 1965).

> considering "the time needed to read a sentence" (Ex. 1006, 15:30-31; *see also id.*, FIG. 10) and discloses a "presentation interval [that] may be reader controlled or automatically determined" (*id.*, 8:39-40). (Ex. 1002, ¶ 128.)

Pet. 49. In other words, Walker takes into account reader comprehension as it relates to displaying content. In fact, as Petitioner further contends, "*Walker* discloses or at least suggests inferring that a reader has relatively low aptitude (*e.g.*, low fluency or low comprehension) regarding a sentence that requires a relative long time for the reader to read (*e.g.*, as determined by measuring how long the reader caused the sentence to be displayed, which is disclosed in *Walker*, *see* Ex. 1006, 15:25-33). (Ex. 1002, ¶ 117.)" *Id.* at 41. Thus, we agree with Petitioner that Walker does not simply suggest increasing the duration but in the context of the entire discussion in Walker, Walker suggests adjusting the display time up and down based on comprehension. Pet. 38–41; Reply 20–21 ("The foregoing quote from *Walker* merely relates to making the advancement rate close to the reader's comfortable rate, as opposed to much faster than that"). Thus, although Patent Owner presents a quote in which Walker increases the presentation rate, Walker considers the reader's comprehension in determining how long to display a sentence and teaches that display time can be user controlled.

Patent Owner also argues that Petitioner's explicit stated rationale for combining (i.e, "determine presentation rates") is deficient because Walker and Bhadkamkar are changing the rate of different things (*i.e.*, text vs. audio) and, as discussed above, because Walker suggests speeding not slowing the rate spe-

cifically based on comprehension. PO Resp. 60. Based on this argument, Patent Owner suggests Petitioner has shown that the references *could* be combined but not why they *would* be combined. *Id.* We disagree.

The Specification is clear the invention is broad and relates to text and/or audio. Ex. 1001, 8:20–24. As to the differences between text and audio presentations, "[t]he test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference." *Facebook, Inc. v. Windy City Innovations, LLC*, 973 F.3d 1321, 1343 (Fed. Cir. 2020) (citations omitted).

As to Walker's suggestion to speed up the presentation, Walker also has extensive disclosure regarding how comprehension relates to display times. Pet. 39–40. Thus, given the finite choice of slowing the speed of presentation as suggested in Bhadkamkar or increasing the speed of presentation as suggested by the single quote in Walker, it would have been obvious from the extensive discussion of comprehension in Walker to combine the references. *See Procter & Gamble Co. v. Teva Pharm. USA, Inc.*, 566 F.3d 989, 996 (Fed. Cir. 2009) ("When a person of ordinary skill is faced with 'a finite number of identified, predictable solutions' to a problem and pursues 'the known options within his or her technical grasp,' the resulting discovery 'is likely the product not of innovation but of ordinary skill.'"). Thus, we are not persuaded by Patent Owner's argument regarding Petitioner's explicit stated rationale for combining.

Finally, Patent Owner argues Petitioner has not addressed the reasonable expectation of success for the combination because of the "fundamental dif-

ferences" between the two references. PO. Resp. 66. Consistent with the discussion above, we disagree that the references have "fundamental differences" that would frustrate a reasonable expectation of success. We determine Petitioner's statement, supported by its declarant, that the combination would have been a mere combination of known elements and technologies, according to known methods, to achieve predictable results provides a showing of a reasonable expectation of success regarding the combination. *See* Pet., 43, 51; Ex. 1002, ¶¶ 120, 130.

Thus, for the reasons above, on the current record, we are persuaded by Petitioner's arguments regarding the motivation to combine Bhadkamkar with Walker.

4. Analysis of Claim 1

a) "A method for inferring audience affinity or aptitude with regard to content or properties of portions of a media work which comprises"

Patent Owner does not argue that the preamble is limiting. For the purpose of this decision, we do not need to decide whether the preamble is limiting because Petitioner recognizes that the preamble may be limiting by presenting sufficient evidence the cited art teaches the preamble. Pet. 37–44.

b) "presenting the media work to an audience"

Petitioner establishes sufficiently by a preponderance of the evidence that Walker teaches "presenting the media work to an audience," as

recited in claim 1. Pet. 44 (citing Ex. 1002 ¶ 121; Ex. 1006, Abstract, 1:5–7, 2:29–39).

c) "obtaining user input regarding presentation rates for the portions of the media work"

Petitioner establishes sufficiently by a preponderance of the evidence that Walker teaches "obtaining user input regarding presentation rates for the portions of the media work," as recited in claim 1. Pet. 44 (citing Ex. 1002 ¶ 122; Ex. 1006, 3:49–52, 15:23–25).

Petitioner argues the presentation of text sentences is a media work such that Walker teaches slowing down and speeding up of the playback rate. Pet. 37, 44. Specifically, Petitioner contends "*Walker* discloses, for example, that '[t]he reader is able to easily interact with the reading system, holding difficult sentences on the screen longer, and speeding up or slowing down the presentation.'" Pet. 44 (citing Ex. 1006, 3:49–52.).

Petitioner relies on only *Walker* for the limitations in claims 1 and 7 of "obtaining user input regarding presentation rates for the portions of the media work." *Id.* Patent Owner argues, under its construction of presentation rate as preserving pitch and media work as limited to audio works, that Walker cannot meet those limitations. Given our construction, we are not persuaded by these arguments that are not commensurate with the proper scope of the claims.

d) "correlating the content or properties of the portions with the presentation rates"

Petitioner establishes sufficiently by a preponderance of the evidence that the combination of Walker and Bhadkamkar teaches "correlating the content or properties of the portions with the presentation rates," as recited in claim 1. Pet. 37–47 (citing Ex. 1002 ¶¶ 113–120, 123–125; Ex. 1006, Abstract, 1:5–7; 2:29–30, 3:12–13, 3:42–52, 7:40–48, 8:38–39, 8:61–63, 10:25–29, 12:29–39, 15:23–35, Figs. 2, 10; Ex. 1007, 1:7–9, 1:20–23, 10:66–11:01).

e) "associating audience affinity or aptitude with the presentation rates for the correlated content or properties."

Petitioner establishes sufficiently by a preponderance of the evidence that the combination of Walker and Bhadkamkar teaches "associating audience affinity or aptitude with the presentation rates for the correlated content or properties," as recited in claim 1. Pet. 47–51 (citing Ex. 1002 ¶¶ 126–130; Ex. 1006, Abstract, 1:5–7; 2:29–30, 3:12–13, 3:42–52, 7:40–48, 8:38–40, 8:61–63, 10:25–29, 12:29–39, 15:23–38, Figs. 2,10; Ex. 1007, 1:7–9, 1:20–23, 10:66–11:01).

5. Analysis of Claim 7

a) "A method of testing aptitude of an audience for content or properties of portions of a media work which comprises"

Patent Owner does not argue that the preamble is limiting. For the purpose of this decision, we do not need to decide whether the preamble is limiting because Petitioner recognizes that the preamble may be limiting by presenting sufficient evidence the cited art teaches the preamble. Pet. 51–55.

b) "presenting the media to an audience"

Petitioner establishes sufficiently by a preponderance of the evidence that Walker teaches "presenting the media to an audience," as recited in claim 7. Pet. 56; Ex. 1002 ¶ 138; discussion of claim 1.

c) "obtaining user input regarding presentation rates for the portions of the media work"

Petitioner establishes sufficiently by a preponderance of the evidence that Walker teaches "obtaining user input regarding presentation rates for the portions of the media work," as recited in claim 7. Pet. 56 (citing Ex. 1002 ¶ 139; discussion of claim 1).

As explained above, we are not persuaded by Patent Owner's argument that Walker does not teach speeding up or slowing down the playback rate of a

media work. *See* discussion of claim 1; PO Resp. 56–63.

d) "correlating the presentation rates with the aptitude for the content or properties of the portions."

Petitioner establishes sufficiently by a preponderance of the evidence that the combination of Walker and Bhadkamkar teaches "correlating the presentation rates with the aptitude for the content or properties of the portions," as recited in claim 7. Pet. 51–58 (citing Ex. 1002 ¶¶ 131–137, 140–142; Ex. 1006, 1:5–7, 1:15–20, 3:42–52., 7:40–48, 8:61–63, 10:66–11:01, 15:23–35, Fig. 10; Ex. 1007, 1:20–23).

6. Summary for Ground 3

Having reviewed the record, we determine that the information presented establishes by a preponderance of the evidence that claim 1 and 7 are unpatentable under 35 U.S.C. § 103 as obvious over Walker and Bhadkamkar.

G. Obviousness of Claim 2 over Walker, Bhadkamkar, and Iggulden–Ground 4

Petitioner argues that claim 2 is unpatentable under 35 U.S.C. § 103 as obvious over Walker, Bhadkamkar, and Iggulden. Pet. 3. To support its contentions, Petitioner provides explanations as to how the prior art allegedly discloses each claim limitation. *Id.* at 59–64.

Iggulden is summarized below.

1. Iggulden (Ex. 1013)

Iggulden (Ex. 1013) "relates to the field of video recording and playback systems, and particularly to a method and apparatus for selectively omitting certain program content during playback of a recorded video signal." Ex. 1013, 1:14–17. Iggulden discloses skipping over commercials. For example, Iggulden discloses that a user of its process and system "can press [a] SKIP button, which causes device 10/10' to immediately generate a blue video screen, mute the audio, and forward scan to the start of the next program segment, thereby skipping over the current or next commercial group" and that "[t]he skipping process will automatically stop at the end of the next commercial group." Ex. 1013, 11:13–22, Abstract.

2. Motivation to Combine

Petitioner contends that "[t]o the extent *Walker* and *Bhadkamkar* do not explicitly disclose that the presentation rates include a rate which causes a portion to be skipped, it would have been obvious in view of *Iggulden* to configure the combined *Walker-Bhadkamkar* process (discussed above for claim 1) to implement this feature." Pet. 60.

Petitioner relies on the Ottesen reference to show knowledge of one of ordinary skill in the art regarding a motivation to skip content in educational materials. Petitioner contends, however, "Petitioner is citing Ottesen (Ex. 1008) only to demonstrate knowledge of a POSITA, and does not rely on Ottesen as a reference in this ground." Pet. 62, n. 5 (emphasis omitted). Specifically, Petitioner contends:

> *Ottesen* describes presenting program material such as "instructional videos, or other viewing material" to a viewer (person viewing the program material) (Ex. 1008, 3:59-61), similar to *Walker*'s "presentation of text for improved human reading" (Ex. 1006, Abstract). (*See also* Ex. 1006, 1:5-7; Ex. 1002, ¶ 148.)[5]
>
> *Ottesen* discusses "editing in terms of discarding segments containing objectionable material," where "objectionable material can include . . . subject matter too difficult and/or too easy for a student's skill level (*e.g.*, outside of the viewer's skill level); subject matter outside of the student's area of study; completed segments in a course of study; [and] skill levels outside of a user's skill level." (Ex. 1008, 4:1-7, 4:16-17.) *Ottesen*'s "discarding of one or more segments can be accomplished by editing them out, *skipping them during playback, deleting them*, . . . or by using some other technique to ensure that they are not presented to the viewer." (*Id.*, 4:17-22 (emphasis added).) Thus, *Ottesen* demonstrates that skipping content during playback, like in *Iggulden*, was known in the educational context, like in *Walker*, and thus shows that there was motivation to combine the teachings of these references as described above. (Ex. 1002, ¶ 148.)

Pet. 62–63. Petitioner further contends that the combination would be "useful and desirable" because the concept was "known and useful," the combined system would be more "user[]friendly," and straightforward to implement and a mere combination of known elements and technologies, according to known methods, to achieve predictable results. Pet. 63. Peti-

tioner's citation to Ottesen shows that skipping content was known as useful in an educational context such as Walker.

Patent Owner argues that Petitioner has not shown sufficient motivation to combine Walker, Bhadkamkar, and Iggulden. PO Resp. 65–69. We disagree. On the present record, Petitioner articulates sufficient reasons for combining the teachings of Walker, Bhadkamkar, and Iggulden. Pet. 59–64.

Patent Owner argues, regardless of Ottesen, a person of ordinary skill in the art "considering *Walker* would have recognized that skipping, omitting, or otherwise removing text would undermine this stated objective of *Walker*, because it would alter 'the literal meaning of the text' and reduce comprehension." PO Resp. 66. Patent Owner relies on citations to Walker that emphasize "completeness" of a presentation. *Id.* (citing Ex. 1006, 2:59–64; 3:56–6). Patent Owner contrasts this objective (as well as Bhadkamkar's objective explained below) with Iggulden's objective and argues they are incompatible. *Id.* at 67. For example, Patent Owner argues "neither *Walker* or *Bhadkamkar* is applicable to the issues addressed by *Iggulden*, which involved shortcomings of existing VCR commercial-skipping systems, such as misclassification of non-commercial content as commercials, loss of non-commercial content due to technical disadvantages of those systems, and physical wear-and-tear on the videocassettes themselves. *See, e.g.*, EX1013, 1:56-65, 2:8-14, 2:29-36; *see also* EX2016, ¶ 156." *Id.*

The motivation to combine references need not be explicit. *Motorola v. Interdigital Tech. Corp.,* 121 F.3d 1461, 1472 (Fed. Cir. 1997) ("[T]here is no

requirement that the prior art contain an express suggestion to combine known elements to achieve the claimed invention."). It is not correct, as Patent Owner suggests, "that a person of ordinary skill attempting to solve a problem will be led only to those elements of prior art designed to solve the same problem." *KSR*, 550 U.S. at 1742. To the contrary, the Court in *KSR* explained, "familiar items may have obvious uses beyond their primary purposes, and in many cases a person of ordinary skill will be able to fit the teachings of multiple patents together like pieces of a puzzle. . . . A person of ordinary skill is also a person of ordinary creativity, not an automaton." *Id.* An ordinarily skilled artisan may be motivated to pursue the desirable properties taught by one prior art reference even if that means foregoing the benefits taught by another prior art reference. *See In re Urbanski*, 809 F.3d 1237, 1244 (Fed. Cir. 2016); *see also Medichem, S.A. v. Rolabo, S.L.*, 437 F.3d 1157, 1165 (Fed. Cir. 2006) ("[A] given course of action often has simultaneous advantages and disadvantages, and this does not necessarily obviate motivation to combine.").

The suggestion in Ottesen to use skipping in educational materials such as Walker is reasonable even though Walker and Iggulden may have different purposes. Thus, we are not persuaded by Patent Owner's argument.

Patent Owner also argues:

> [N]either *Walker* or *Bhadkamkar* is applicable to the issues addressed by *Iggulden*, which involved shortcomings of existing VCR commercial-skipping systems, such as misclassification of non-commercial content as commercials, loss of non-

> commercial content due to technical disadvantages of those systems, and physical wear-and-tear on the videocassettes themselves. *See, e.g.*, EX1013, 1:56-65, 2:8-14, 2:29-36; *see also* EX2016, ¶ 156.
>
> Further, a POSITA would have recognized that *Iggulden*'s VCR-based commercial skipping could negatively impact the synchronization issues sought to be solved by *Bhadkamkar*. Petitioner does not address these incompatibilities or explain why a POSITA would nonetheless have been motivated to make its alleged combination.

PO Resp. 67. In other words, Patent Owner argues that the technical differences between the implementation of a commercial skipping VCR system and a system for synchronizing audio and video would weigh against finding a motivation to combine. *Id.* We disagree. "The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference." *Facebook, Inc.*, 973 F.3d at 1343 (citations omitted). Additionally, the claims do not recite limitations specific to VCRs or other media that would suggest concepts from various media could not be combined.

For example, Patent Owner argues "a POSITA would have recognized that these skips could result in misalignment or loss of synchronization-exacerbating the problems *Bhadkamkar* was trying to solve." PO Resp. 67. However, Bhadkamkar is used by Petitioner for the limitations of "associating aptitude with [] presentation rates" and "inferring the reader's aptitude" not for a specific showing of how to align or synchronize audio. Pet. 41. Thus, we are not persuaded by this argument.

Patent Owner also argues, despite the Petitioner's reliance on Ottesen, "Petitioner does not address the inconsistencies between the references discussed above, and therefore does not provide the Board with sufficient evidence to demonstrate that a POSITA would have incorporated skipping or omitting content into *Walker*, despite *Walker*'s express teachings to the contrary." PO Resp. 67–68. For the same reasons above, we are not persuaded by this argument.

Thus, for the reasons above, on the current record, we are persuaded by Petitioner's arguments regarding the motivation to combine Walker, Bhadkamkar and Iggulden.

3. Analysis of Claim 2

a) "The method of claim 1 wherein the presentation rates include a rate which causes a portion to be skipped"

Petitioner contends Walker teaches "presenting the media work to an audience," as recited in claim 2. Petitioner contends "*Walker* further discloses taking into account 'phrase difficulty' (Ex. 1006, 12:30) and 'educational level' of sentences (*Id.*, 7:45, 10:28, FIG. 2 []) when presenting text, and thus discloses or at least suggests skipping sentences that are too difficult for the reader or that are not matched to the reader in terms of educational level. (Ex. 1002, ¶ 144.)." Pet. 59.

Petitioner also relies on Iggulden to teach a rate in which content is skipped. Iggulden discloses skipping over commercials when playing back video content. Pet. 61 (citing Ex. 1013, 1:14–17).

Patent Owner argues, under its construction of presentation rate as preserving pitch and media work as limited to audio works, that Walker cannot meet those limitations and Iggulden does not make up for this deficiency. Given our construction, we are not persuaded by these arguments that are not commensurate with the proper scope of the claims.

4. Summary for Ground 4

Having reviewed the record, we determine that the information presented establishes by a preponderance of the evidence that claim 2 is unpatentable under 35 U.S.C. § 103 as obvious over Walker, Bhadkamkar, and Iggulden.

H. Anticipation of Claim 8 by Ottesen–Ground 5

Petitioner contends that claim 8 is unpatentable under 35 U.S.C. § 102(a) as anticipated by *Ottesen*. Pet. 3. To support its contentions, Petitioner provides explanations as to how the prior art allegedly discloses each claim limitation. *Id.* at 64–74. Ottesen is summarized below.

1. Ottesen (Ex. 1008)

Ottesen discloses a method of presenting program material, such as "movies, video programs, video games, instructional videos, or other viewing material," and of editing undesirable segments. Ex. 1008, Abstract, 3:17–19, 3:28–32, 3:59–61; 8:5–6, Fig. 5.

2. Analysis of Claim 8

a) "A method of presenting a media work which comprises"

Patent Owner does not argue that the preamble is limiting. For the purpose of this decision, we do not need to decide whether the preamble is limiting because Petitioner recognizes that the preamble may be limiting by presenting sufficient evidence that Ottesen discloses the preamble. Pet. 64–65.

b) "detecting media work content properties in a portion of the media work"

Petitioner establishes sufficiently by a preponderance of the evidence that Ottesen discloses "detecting media work content properties in a portion of the media work," as recited in claim 8. Pet. 65–70 (citing Ex. 1002 ¶¶ 152–159; Ex. 1008, Abstract, 3:33–36, 3:42–51, 3:62–67, 4:16–22, 5:45–46, 5:23–28; 5:29–46, 5:61–65, 6:6–15, 7:20–22, 7:56–65, Figs. 3, 4, 5).

c) "associating a presentation rate of the portion with the detected media work content properties;"

Petitioner establishes sufficiently by a preponderance of the evidence that Ottesen discloses "associating a presentation rate of the portion with the detected media work content properties," as recited in claim 8. Pet. 70–73 (citing Ex. 1002 ¶¶ 160–163; Ex. 1008, Abstract, 2:25–36, 4:16–19, 6:58–7:4, 8:5–6, 8:8–9, Figs. 3, 5). For example, Petitioner relies on "*Ottesen*'s process us[ing] the detected ratings to

make a binary decision of whether or not to play a given segment." Pet. 72–73 (citing Ex. 1008, Abstract, 2:25–36, 8:8–9, Fig. 5). Thus, Petitioner reads "presentation rate" on a presentation with material skipped that is faster than a presentation without skipping.[11] As explained above, this is consistent with claim 2 and an associated portion of the Specification specifically recites wherein the presentation rates include "a rate which causes a portion to be skipped." Ex. 1001, 33:30–35 ("In this embodiment of the present invention, a PR (TSM rate) of 'infinity' (or some other indicium that will be similarly translated) directs the presentation (playback) system to skip sections of an MW (an audio or audio-visual work) whose concept has a corresponding PR (TSM rate) of infinity"); 70:55–56.

Patent Owner argues, under its construction of presentation rate that requires preserving pitch, Ottesen cannot meet those limitations. PO Resp. 41–42. Given our construction, we are not persuaded by these arguments that are not commensurate with the proper scope of the claims.

Nevertheless, Patent Owner also makes arguments that are relevant under our construction of presentation rate as "the speed at which media is played back." Patent Owner argues that material that is skipped in Ottesen is played at a normal rate thus, the rate remains the same whether or not material is skipped. PO Resp. 44–45. Patent Owner argues that this is

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[11] Petitioner also relies on Patent Owner's statements in a chart in the District Court record. *See* Pet. 73. We do not rely on such statements. Thus, Patent Owner's arguments that such reliance would be improper are moot. PO Resp. 43.

consistent with the limitation in claim 2 of "wherein the presentation rates include a rate which causes a portion to be skipped." *Id.* at 45. According to Patent Owner, the Specification treats skipping and increasing speed as distinct, *i.e.* "This embodiment operates under the assumption that material familiar to the candidate *would preferably be presented at an increased PR, or skipped*." *Id.* at 45–46 (citing Ex. 1001, 61:29–32).

We disagree. This argument rests on excluding a preferred embodiment from the claims, which is disfavored. *On–Line Techs. v. Bodenseewerk Perkin–Elmer GmbH*, 386 F.3d 1133, 1138 (Fed. Cir. 2004) (a construction that "excludes a preferred embodiment . . . 'is rarely, if ever, correct'"). Claim 2 explicitly recites that skipping is a "rate," so any construction that would exclude skipping would necessarily be incorrect. Additionally, as explained above, the Specification also recites that skipping is a "presentation rate," *i.e.* a rate "of infinity." Ex. 1001, 33:30–35. For those reasons, we are not persuaded by Patent Owner's argument.

d) "presenting the portion at the presentation rate"

Petitioner establishes sufficiently by a preponderance of the evidence that Ottesen discloses "presenting the portion at the presentation rate," as recited in claim 8. Pet. 73 (citing Ex. 1002 ¶ 164; Ex. 1008, 2:25–36, 8:8–9, Fig. 5).

e) "wherein the presentation rates provide a substantially uniform rate of content presentation"

Petitioner establishes sufficiently by a preponderance of the evidence that Ottesen discloses "wherein the presentation rates provide a substantially uniform rate of content presentation," as recited in claim 8. Pet. 74 (citing Ex. 1002 ¶ 165; Ex. 1008, 2:25–36, 8:8–9, Fig. 5).

3. Summary for Ground 5

Having reviewed the record, we determine that the information presented establishes by a preponderance of the evidence that claim 8 is unpatentable under 35 U.S.C. § 102(a) as anticipated by Ottesen.

III. Conclusion

For the foregoing reasons, we determine Petitioner has established by a preponderance of the evidence the unpatentability of claims 1–4, and 7–9 of the '433 patent.[12]

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[12] Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this decision, we draw Patent Owner's attention to the April 2019 *Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding*. *See* 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. *See* 37 C.F.R. § 42.8(a)(3), (b)(2).

IV. Order

Accordingly, it is

ORDERED that claims 1–4, 7–9 of U.S. Patent No. 7,043,433 B2 are unpatentable; and

FURTHER ORDERED that parties to the proceeding seeking judicial review of this Final Written Decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

In summary:

Claim(s)	**3, 4, 9**
35 U.S.C. §	103(a)
Reference(s)/Basis	Rochkind
Claim(s) Shown Unpatentable	3, 4, 9
Claim(s) Not Shown Unpatentable	
Claim(s)	**9**
35 U.S.C. §	103(a)
Reference(s)/Basis	Mauldin, Bhadkamkar
Claim(s) Shown Unpatentable	Moot
Claim(s) Not Shown Unpatentable	Moot
Claim(s)	**1, 7**
35 U.S.C. §	103(a)
Reference(s)/Basis	Walker, Bhadkamkar

Claim(s) Shown Unpatentable	1, 7
Claim(s) Not Shown Unpatentable	
Claim(s)	**2**
35 U.S.C. §	103(a)
Reference(s)/Basis	Walker, Bhadkamkar, Iggulden
Claim(s) Shown Unpatentable	2
Claim(s) Not Shown Unpatentable	
Claim(s)	**8**
35 U.S.C. §	103(a)
Reference(s)/Basis	Ottesen
Claim(s) Shown Unpatentable	8
Claim(s) Not Shown Unpatentable	
Overall Outcome	1–4, 7–9

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PROSECUTION HISTORY OF U.S. PATENT NO. 6,598,228

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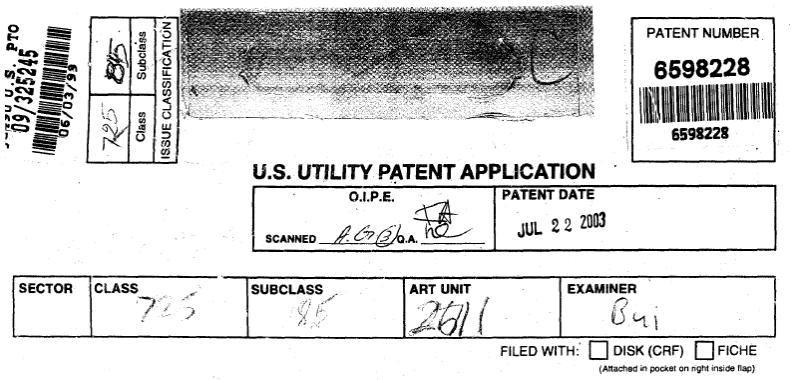

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U.S. Utility Patent Application

O.I.P.E.
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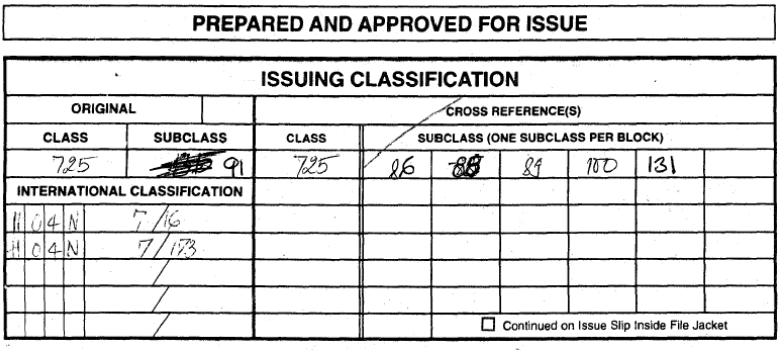
Patent Date: Jul 22 2003

Patent Number: 6598228
Class: 725
Subclass: 85
Art Unit: 2611
Examiner: Bui



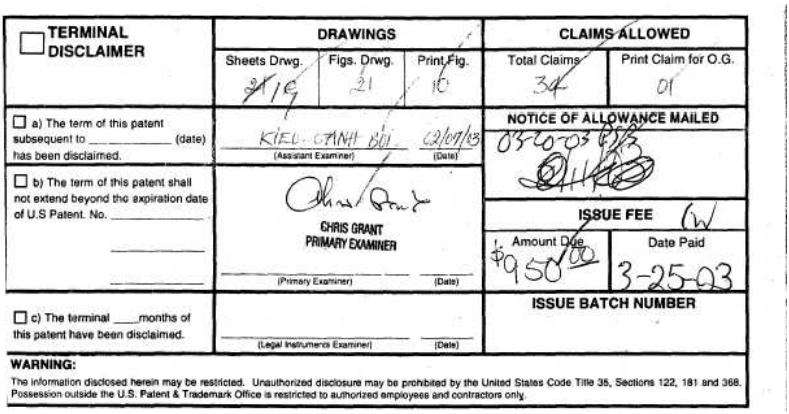
PREPARED AND APPROVED FOR ISSUE

ISSUING CLASSIFICATION

ORIGINAL		CROSS REFERENCE(S)						
CLASS	SUBCLASS	CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)					
725	~~91~~	725	86	~~88~~	89	100	131	
INTERNATIONAL CLASSIFICATION								
H 04N	7/16							
H 04N	7/173							
				☐ Continued on Issue Slip Inside File Jacket				

{Image Transcription}

Prepared and Approved for Issue					
Issuing Classification					
Original					
Class			**Subclass**		
725			91		
International Classification					
#	0	4	N	7/16	
#	0	4	N	7/173	
Cross Reference(s)					
Class	**Subclass (One Subclass Per Block)**				
725	86	88	89	100	131



☐ TERMINAL DISCLAIMER	DRAWINGS			CLAIMS ALLOWED	
	Sheets Drwg.	Figs. Drwg.	Print Fig.	Total Claims	Print Claim for O.G.
	19	21	10	34	01
☐ a) The term of this patent subsequent to _____ (date) has been disclaimed.	KIEU-OANH BUI (Assistant Examiner)		02/07/03 (Date)	NOTICE OF ALLOWANCE MAILED 03-20-03 P.S.B.	
☐ b) The term of this patent shall not extend beyond the expiration date of U.S Patent. No. _____	CHRIS GRANT PRIMARY EXAMINER (Primary Examiner)		(Date)	ISSUE FEE (W)	
				Amount Due $950.00	Date Paid 3-25-03
☐ c) The terminal ____months of this patent have been disclaimed.	(Legal Instruments Examiner)		(Date)	ISSUE BATCH NUMBER	

WARNING:
The information disclosed herein may be restricted. Unauthorized disclosure may be prohibited by the United States Code Title 35, Sections 122, 181 and 368. Possession outside the U.S. Patent & Trademark Office is restricted to authorized employees and contractors only.

{Image Transcription}

Drawings

Sheets Drwg.:	19
Figs. Drwg.:	21
Print Fig.:	10

Claims Allowed

Total Claims:	34
Print Claim for O.G.:	01

Notice of Allowance Mailed: 03-20-03 P.S.B.

Issue Fee

Amount Due	$950.00
Date Paid	3-25-03

/s/ Kieu-Oanh Bui
(Assistant Examiner)
Date 02/07/03

/s/ Chris Grant
Primary Examiner

CLAIMS

{ Markings in Original }

What is claimed is:

1. A method for broadcasting information to a client device which comprises the steps of:

Sub <A1

broadcasting information; and

broadcasting guidance information used to determine presentation rates of the information.

2. The method of claim 1 wherein the guidance information comprises one or more playback rates relating to one or more portions of the broadcast information.

3. A method for presentation of information received from a broadcaster which comprises the steps of:

receiving broadcast information;

receiving guidance information relating to presentation of the broadcast information;

analyzing the guidance information to determine a presentation rate; and presenting the information at the presentation rate.

4. The method of claim 3 which further comprises the step of receiving a user input presentation rate and wherein the step of analyzing includes the step of analyzing the guidance information and the user input presentation rate to determine the presentation rate.

Sub <A3

5. The method of claim 3 wherein the guidance information comprises one or more playback rates relating to one or more portions of the broadcast information.

Sub <A2

6. The method of claim 5 wherein the step of presenting the information comprises Time-Scale Modifying the information in accordance with the one or more playback rate.

OFFICE ACTION
(OCTOBER 25, 2000)

Office Action Summary

Application No. 09/325,245
Applicant(s): Hejna Jr.
Examiner: "Krista" Kieu-Onah Bui
Group Art Unit: 2711

☐ Responsive to communications(s) filed on _____

☐ This action is FINAL.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with practice under Ex Parte Quay 835 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claim

☒ Claim(s) 1-9 is/are pending in this applicate

☒ Claim(s) 1-9 is/are rejected.

Application Papers

☒ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

Attachment(s)

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 2.

☒ Notice of Draftsperson's Patent Drawing Review, PTO-948

–*SEE OFFICE ACTION ON THE FOLLOWING PAGES*–

[. . .]

Serial Number: 09/325,245
Art Unit: 2611

DETAILED ACTION

Claim Rejections – 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> *A person shall be entitled to a patent unless–*
>
> *(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.*

2. Claims 1-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Porter et al. (U.S. Patent No. 5,659,539).

Regarding claim 1, Porter et al (or "Porter" hereinafter) teach a method for broadcasting information, *i.e.*, digital audio/video information, to a client device (Fig. 1B/items 160) which comprises the steps

of broadcasting information (Fig. 1B and col. 5/lines 38-46); and broadcasting guidance information used to determine presentation rates of the information, *i.e.*, the bit rate indicator determining the rate of the presentation is sent to users during the playback (*see* col. 9/ lines 17-25).

As for claim 2, Porter discloses "wherein the guidance information comprises one or more playback rates relating to one or more portions of the broadcast information" as the guidance information shows the length indicator, the play duration indicator and the frame indicator related to the portion of the broadcast information (Fig. 2B and col. 9/lines 17-25) as well as offering the specified-rate playback operations such as fast forward, slow forward, fast rewind or slow rewind to users (col. 16/lines 45-59).

Concerning claim 3, Porter teaches the steps of "receiving broadcast information; receiving guidance information relating to presentation of the broadcast information; analyzing the guidance information to determine a presentation rate; and presenting the information at the presentation rate" as Porter clearly teaches that the system intends to deliver digital audio/video information to clients or end users independently in a variety of data stream forms, *i.e.*, variable playback operations (col. 24/lines 20-58), and with the guidance information (Fig. 2B and col. 9/lines 17-25), the presentation rates can be presented to the end users accordingly (as illustrated in Fig. 1B and col. 9/lines 17-20).

As for claim 4, Porter further teaches "the step of receiving a user input presentation rate and wherein the step of analyzing includes the step of analyzing the guidance information and the user input present-

ation rate to determine the presentation rate" as the user uses the graphical user interfaces, *i.e.*, a television (col. 5/line 43-47), and the remote control (col. 24/lines 25-28) to interacts with the stream server and sends his/her requests as well as the presentation rate (col. 16/lines 52-65); then the system inspects and analyses the request in order to give appropriate responses to the user's requests (col. 16/line 66-col. 17/line 6).

As for claim 5, Porter also reveals "wherein the guidance information comprises one or more playback rates relating to one or more portions of the broadcast information" as the guidance information shows the length indicator, the play duration indicator and the frame indicator related to the portion of the broadcast information (Fig. 2B and col. 9/lines 17-25) as well as offering the specified-rate playback operations such as fast forward, slow forward, fast rewind or slow rewind to users (col. 16/lines 45-59).

Regarding claims 6 and 9, Porter also suggests "wherein the step of presenting the information comprises Time-Scale Modifying the information in accordance with the one or more playback rates" as Porter uses Frame Accurate Positioning based on the time stamps or the last timing information for accurately delivering and presenting the information to users in accordance with the one or more playback rates (see col. 22/fines 10-58).

Regarding claim 7, Porter teaches an apparatus, *i.e.*, a television (col. 5/lines 43-47), which presents information received from a broadcaster (Fig. 1B/item 110) comprises:

> a receiver of the broadcast information and guidance information relating to presentation of the

broadcast information; a rate determiner that analyzes the guidance information to determine a presentation rate, *i.e.*, as Porter clearly teaches that the system intends to deliver digital audio/ video information to clients or end users independently in a variety of data stream forms, *i.e.*, variable playback operations (col. 24/lines 20-58), and with the guidance information (Fig. 2B and col. 9/lines 17-25) then the system inspects and analyses the request as a rate determiner in order to give appropriate responses to the user's requests (col. 16/line 66-col. 17/line 6); and

a presentation apparatus that, in response to the broadcast information and the presentation rate, presents the information (to the user via the television, col. 5/lines 35-47 and col. 9/lines 17-25 for information on the presentation rate).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Porter et al. (U.S. Patent No. 5,659,539).

Regarding claim 8, Porter further teaches to include a user input device that receives a user input guidance information, *i.e.*, a remote control for inputting and sending the request (col. 24 / lines 23-34).

Porter does not specifically discloses that the rate determiner comprises "an analyzer module" that analyzes the guidance information and the user guidance information to provide the presentation rate; however, an "analyzer module" is a much broader term in sense to any one of ordinary skill in the art. Porter goes beyond this broad terminology to further explain and describes in depth how to analyze the guidance information and the user guidance information to provide the presentation rate by using the frame accurate positioning technique based on the time stamps or the last timing information from the user (col. 22/lines 10-58). In fact, the entire process can be gathered and placed in a module called "analyzer module" as well. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made use an "analyzer module", without explaining how to analyze it, as a means to analyze the guidance information and the user guidance information to the user as desired.

CONCLUSION

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Ottesen et al (US Patent 5,721,878) disclose multimedia control system and method for controlling multimedia program presentation.

Henley et al. (US Patent 5,761,4170 disclose video data streamer having scheduler for scheduling read request for individual data buffers associated with output ports of communication node to one storage node.

Laursen et al (US Patent 5,805,8040 disclose method for scalable, high bandwidth storage retrieval and transportation of multimedia on a network.

DeMoney (US Patent 6,065,050) discloses system and method for indexing between trick play and normal play video streams in a video delivery system.

Heina, Jr. et al. (U.S. Patent No.5,175,769) disclose a method for time-scale modification of signal.

Ganek et al. (U.S. Patent No.5,724,646) disclose a system, method and apparatus for fixed video-on-demand.

Echeita et al. (U.S. Patent No.6,078,958) disclose a system for allocating available bandwidth of a concentrated media output.

6. Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(703) 308-6306 or (703) 308-6296, (for formal communications intended for entry)

Or:

(703) 308-5399, (for informal or draft communications, please label "PROPOSED" or "DRAFT"),

Hand-delivered responses should be brought to Crystal Park 11, 2121 Crystal Drive Arlington, VA, Sixth Floor (Receptionist)

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Krista Kieu-Oanh Bui whose telephone number is (703) 305-0095, The examiner can normally be reached on Monday-Thursday (1st week of a bi-week) and Monday-Friday (2nd week of a bi-week) from 9:00 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor Andrew Faile, can be reached on (703) 305-4380.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-3900.

/s/ Andrew Faile
Supervisory Patent Examiner
Group 2600

Krista Bui
Art Unit 2611
October 18, 2000

RESPONSE TO OFFICE ACTION (FEBRUARY 9, 2001)

{ Markings in Original }

AMENDMENT

IN THE CLAIMS:

Amend Claim 1 as follows:

–1. (Amended) A method for broadcasting information to a client device which comprises the steps of: < Sub C

broadcasting information

broadcasting guidance info on used to determine presentation rates for use by the client device in presentation of the information.

[Amend Claim 2 as follows;]

a1 –2. (Amended) The method of claim 1 wherein the guidance information comprises one or more presentation rates relating to one or more portions of the broadcast information.

[Amend Claim 3 as follows]

–3. (Amended) A method for presentation of information received from a broadcaster by a client device which comprises the steps of:

receiving broadcast information; < Sub C2

receiving guidance information relating to presentation of the broadcast information;

analyzing the guidance information to determine a presentation rate; and presenting the information at the presentation rate.–

[Amend Claim 5 as follows]

–5. (Amended) The method of claim 3 wherein the guidance information comprises one or more presentation rates relating to one or more portions of the broadcast information.–

a2

[. . .]

Applicant has amended claims 1-3 and 5-6 to more clearly define the present invention. As such, Applicant respectfully traverses the Examiner's rejection.

Applicant respectfully submits that Porter et al. teaches method and apparatus that are completely different from embodiments of present claims 1-7, and 9. In particular, Porter et al. does not teach, disclose, hint or suggest, in any manner whatsoever, broadcasting guidance information used to determine presentation rates of broadcast information for use by a client device in presentation of the broadcast information, or having a client device receive and use such guidance information. Specifically, Porter teaches a system where information is broadcast to client devices, and client devices receive the information, without receiving any information the client devices use to present the information at any particular presentation rate.

Porter et al. teaches, see col. 1, lines 8-10, "a method and apparatus for providing non-sequential access to audio-visual information stored in a digital

format." In particular, Porter et al. discloses an audio-visual information delivery system 100 that includes a stream server 110 coupled to a control network 120. The audio-visual information delivery system 100 contains a plurality of clients configured to decode audio-visual information contained in a stream of digital audio-visual data. The clients may be set top converter boxes coupled to an output display. See col. 5, lines 38-46 and FIG. lb. As further set forth by Porter et al. at col. 6, lines 30-38:

> The audio-visual information delivery system 100 of the present invention permits a server, such as the video pump 130, to transfer large amounts of data from the mass storage device 140 over the high bandwidth network 150 to the clients (1-n) 160, 170 and 180 with minimal overhead. In addition, the audio-visual information delivery system 100 permits the clients (1-n) 160, 170, and 180 to transmit requests to the stream server 110 using a standard network protocol via the control network 120.

As further set forth by Porter et al. at col. 6, lines 46-52:

> To receive a digital audio-visual data stream from a particular digital audio-visual file, a client (1-n) 160, 170 or 180 transmits a request to the stream server 110. In response to the request, the stream server 110 transmits commands to the video pump 130 to cause video pump 130 to transmit the requested audio-visual data stream to the client that requested the digital audio-visual data stream. (Emphasis added)

Thus, Porter et al. does not teach broadcasting information used to determine a presentation rate for use by a client device in presentation of the information. As set forth by Porter et al. at col. 7, lines 25-61:

> System 100 includes a tag file generator 112. The tag file generator 112 generates a tag file 106 from the MPEG file 104. For stored MPEG content, the tag file generation operation is performed by tag the generator 112 "off-line" (*i.e.* prior to any client request for MPEG data from the MPEG file 104). . . .
>
> The tag file 106 contains control information that is used by stream server 110 to implement fast forward, fast rewind, slow forward, slow rewind and seek operations. . . . The tag file 106 contains general information about the MPEG file 104 and specific information about each of the video frames in the MPEG file 104.

As set forth by Porter et al. at col. 9, lines 8-21: "The contents of an exemplary tag file 106 shall now be described with reference to FIG. 2b. In FIG. 2b, the tag file 106 includes a file type identifier 202, a length indicator 204, a bit rate indicator, a play duration indicator 208, . . . Bit rate indicator 206 indicates the bit rate at which the contents of the MPEG file 104 should be sent to a client during playback." Applicant respectfully submits that the bit rate indicator refers to the number of bits per unit time used to encode the work. As such, the bit rate indicator does not determine a presentation rate.

Porter et al. discusses a <u>fast forward</u> operation at col. 16, line 60-col. 19, line 9:

To initiate a fast forward operation, a client transmits a fast forward request to the stream server 110. In embodiments that support more than one fast forward rate, the fast forward request includes data designating a presentation rate. As used herein, "presentation rate" refers to the rate at which the audio-visual work is presented to a viewer.

Specifically, stream server 110 determines from the information in tag file 106 which frames should be displayed to produce the specified presentation rate. . . .

The simplest method for selecting frames during a fast forward operation would be to select every Nth frame, where N is the specified presentation rate relative to normal presentation rate. . . .

While the stream server 110 is selecting the frames to be displayed during a fast forward operation, the stream server 110 is simultaneously transmitting commands to the video pump 130 to cause the video pump 130 to send an MPEG video stream containing the frames that have already been selected. . . .

Performing a fast forward operation is similar to performing a series of seek operations in which each seek operation causes the video pump 130 to jump to the data for the next selected frame. Specifically, for each selected frame, the stream server 110 must generate prefix data, transmit an insert command to the video pump 130 to cause the video pump 130 to insert the prefix data into the data stream, and transmit a play command

> to the video pump 130 to cause the video pump 130 to transmit data from the appropriate frame.

Applicant respectfully submits that this shows that Porter et al. does not teach, disclose, hint or suggest, in any manner whatsoever, broadcasting guidance information used to determine presentation rates of broadcast information for use by a client device in presentation of the broadcast information, or having the client device receive such guidance information. Specifically, Porter teaches a system where information is broadcast to client devices, and client devices receive the information, without receiving any information the client devices use to present the information at any particular presentation rate. Further, as the Examiner can readily appreciate from the above, Porter et al. does not teach transmitting the bit rate indicator to the clients.

Porter et al. discusses a slow motion operation at col. 20, lines 50-63:

> As explained above, frames are selectively skipped for playback operations that exceed playback speed. For playback operations that are slower than normal playback speed, no frames are skipped. Rather, stream server 110 selects every frame. As in fast forward operations, the video pump 130 transmits segments for each of the selected frames in response to commands generated by stream server 110. The suffix data in the segments include padding packets which delay the arrival of the subsequent segments. Consequently, the frame data arrives and is decoded at a slower rate than during normal playback operations. Alternatively, the time delays may be imposed by causing the stream server

> 110 to insert delayed time stamps into the prefix data that it sends to the video pump 130.

As above, Applicant respectfully submits that this shows that Porter et al. does not teach, disclose, hint or suggest, in any manner whatsoever, broadcasting guidance information used to determine presentation rates of broadcast information for use by a client device in presentation of the broadcast information, or having the client device receive such guidance information. Specifically, Porter teaches a system where information is broadcast to client devices, and client devices receive the information, without receiving any information the client devices use to present the information at any particular presentation rate. Further, as the Examiner can readily appreciate from the above, Porter et al. does not teach transmitting the bit rate indicator to the clients.

Porter et al. discloses the following at col. 24, lines 23-58:

> As mentioned above, a client may change the presentation rate of the audio-visual work by transmitting a rate change request to the stream server 110. . . . For example, a user may press a fast forward button on a remote control. . . . The client then transmits a change rate request to the stream server 110 that specifies some presentation rate greater than 1x. . . . The process described above appears to the user as a variable rate fast forward operation. However, to the stream server 110, the operation actually consists of a series of distinct fast forward operations. This incremental rate adjustment process has been described with reference to fast forward operations. However, it may equally be applied

> to slow forward, slow rewind and fast rewind operations. Further, rate changes may be performed in response to how many times a particular button is pressed rather than or in addition to how long the button is pressed. In addition, a visual indication of the current presentation rate, such as an arrow that has a length that reflects the presentation rate, may be displayed on the screen while the presentation rate does not equal 1x.

As above, Applicant respectfully submits that this shows that Porter et al. does not teach, disclose, hint or suggest, in any manner whatsoever, broadcasting guidance information used to determine presentation rates of broadcast information for use by a client device in presentation of the broadcast information, or having the client device receive such guidance information. Specifically, Porter teaches a system where information is broadcast to client devices, and client devices receive the information, without receiving any information the client devices use to present the information at any particular presentation rate.

Lastly, Porter et al. discusses information that is sent to the client devices at col. 21, line 32–col. 22, line 58 under the heading "RUNTIME COMMUNICATION." As set forth therein, Porter et al. teaches that stream server 110 communicates with client devices ("The stream server 110 conveys the responses to the queries to the client by causing video pump 130 to insert the responses into the MPEG data stream that is being sent to the client."). In addition, time stamps may be inserted into the MPEG data stream transmitted by video pump 130 for use in determining which frame is being displayed by the client at any time–this is used to identify an item

displayed in the frame by the user's client device that the user wishes to order. As the Examiner can readily appreciate, this disclosure of Porter et al. does not teach, disclose, hint, or suggest broadcasting guidance information that is used to determine presentation rates for use by the client device in presentation of the information.

Regarding claim 1: Applicant agrees with the Examiner that Porter et al. discloses an audio-visual information delivery system 100 that includes a stream server 110 coupled to a control network 120, and that a plurality of clients are configured to decode audiovisual information contained in a stream of digital audio-visual data (the clients may be set top converter boxes coupled to an output display). However, Applicant respectfully submits that the Examiner is incorrect when it is asserted that the bit rate indicator determines a presentation rate. Applicant respectfully submits that the bit rate indicator refers to a number of bits per unit time used to encode the media, and, as such, is used to determine the bit rate of the transmitted signal (*i.e.*, the amount of data required per unit time), *see* col. 9, lines 17-20. This does not determine the presentation rate.

Further Applicant respectfully submits that Porter et al. does not teach, disclose, hint, or suggest, in any manner whatsoever, broadcasting guidance information used to determine presentation rates of the information for use by a client device in presentation of the broadcast information as required by present claim 1. Even if the Applicant were to assume, for the sake of argument, that the bit rate indicator did determine the presentation rate, that would still not render present claim unpatentable because the bit rate

indicator is not broadcast. As set forth above, a bit rate indicator is read by the stream server 110 from tag file 106, and is used to transmit information to video pump 130. Then, video pump 130, in turn, transmits MPEG data to the client, *i.e.*, video pump 130 does not broadcast the bit rate indicator. This is completely different from present claim 1 which requires that the guidance information be broadcast. As such, Porter et al. is completely different from present claim 1 which requires "broadcasting guidance information used to determine presentation rates for use by the client device in presentation of the information."

Regarding claim 2: Present claim 2 depends from present claim 1. As such, Applicant submits that present claim 2 is patentable over Porter et al. for the reasons set forth above with respect to present claim 1. Further, Applicant respectfully submits that Porter et al. does not teach, disclose, hint, or suggest, in any manner whatsoever, broadcasting guidance information comprising one or more presentation rates relating to one or more portions of the broadcast information for use by the client device in presentation of the information as required by present claim 2.

Regarding claim 3: Applicant respectfully submits that Porter et al. does not teach, disclose, hint, or suggest, in any manner whatsoever, a client device's "receiving guidance information" and "analyzing the guidance information to determine a presentation rate" as required by present claim 3. However, even if the Applicant could accept (only for the sake of argument) that Porter et al. taught broadcasting guidance information, Applicant respectfully submits that Porter et al. does not teach, disclose, hint, or

suggest, in any manner whatsoever, the client device's analyzing that guidance information, or the client device's presenting the broadcast information at the presentation rate the client device determined such analysis. This is because Porter et al. does not teach, disclose, hint, or suggest, in any manner whatsoever, the client device's presenting the broadcast information at a presentation rate that the client's device obtained by analysis of guidance information as required by present claim 3.

Regarding claim 4: Present claim 4 depends from present claim 3. As such, Applicant respectfully submits that present claim 4 is patentable over Porter et al. for the reasons set forth above with respect to present claim 3. Further, Applicant respectfully submits that Porter et al.: (a) does not teach, disclose, hint, or suggest, in any manner whatsoever, a client device's analyzing (i) guidance information and (ii) a user input presentation rate to determine a presentation rate as required by present claim 4; and (b) does not teach, disclose, hint, or suggest, in any manner whatsoever, the client device's presenting the broadcast information at the presentation rate the client device obtained by analyzing (i) the guidance information and (ii) the user input presentation rate as required by present claim 4.

Regarding claim 5: Present claim 5 depends from present claim 3. As such, Applicant respectfully submits that present claim 5 is patentable over Porter et al. for the reasons set forth above with respect to present claim 3. Further, Porter et al. does not teach, disclose, hint, or suggest, in any manner whatsoever, a client's device receiving broadcasting guidance information that comprises one or more presentation

rates relating to one or more portions of the broadcast information, and the client device's using the one or more presentation rates to present the information as required by present claim 5.

Regarding claims 6 and 9: Present claim 6 depends from present claim 5. As such, Applicant respectfully submits that present claim 6 is patentable over Porter et al. for the reasons set forth above with respect to present claim 5. In addition, Applicant respectfully submits that Porter et al. does not teach, disclose, hint, or suggest, in any manner whatsoever, that a client's device modifies information sent thereto. Further, Applicant respectfully submits that Porter et al. does not teach, disclose, hint, or suggest, in any manner whatsoever, that a client device performs a step of time-scale modifying broadcast information as required by present claim 6.

Present claim 9 depends from present claim 7. As such, Applicant respectfully submits that present claim 9 is patentable over Porter et al. for the reasons set forth below with respect to present claim 7. In addition, Applicant respectfully submits that Porter et al. does not teach, disclose, hint, or suggest, in any manner whatsoever, that a client's device modifies information sent thereto. Further, Applicant respectfully submits that Porter et al. does not teach, disclose, hint, or suggest, in any manner whatsoever, that a client device includes a time-scale modification apparatus that time-scale modifies broadcast information as required by present claim 9.

Regarding claim 7: Applicant respectfully submits that Porter et al. does not teach, disclose, hint or suggest, in any manner whatsoever, an apparatus that includes a receiver of broadcast information and

guidance information and a rate determiner that analyzes the guidance information to determine a presentation rate as required by present claim 7. However, even if the Applicant could accept (only for the sake of argument) that Porter et al. taught broadcasting guidance information, Applicant respectfully submits that Porter et al. does not teach, disclose, hint, or suggest, in any manner whatsoever: (a) a rate determiner that analyzes that guidance information, or (b) a presentation apparatus that presents the broadcast information at the presentation rate determined by the analyzer, as required by present claim 7. This is because Porter et al. does not teach, disclose, hint, or suggest, in any manner whatsoever, a client device's presenting the broadcast information at a presentation rate that the client's device obtained by analysis of guidance information as required by present claim 7.

In light of the above, Applicant respectfully requests that the Examiner withdraw this rejection.

Examiner rejected claim 8 under 35 U.S.C. 103(a). In particular, the Examiner stated:

> Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Porter et al. (U.S. Patent No. 5,659,539).
>
> Regarding claim 8, Porter further teaches to include a user input device that receives a user input guidance information, *i.e.*, a remote control for inputting and sending the request (col, 24/lines 23-34).
>
> Porter does not specifically disclose that the rate determiner comprises "an analyzer module" that analyzes the guidance information and the user

> guidance information to provide the presentation rates, however, an "analyzer module" is a much broader term in sense to any one of ordinary skill in the art. Porter goes beyond this broad terminology to further explain and describes in depth how to analyze the guidance information and the user guidance information to provide the presentation rate by using the frame accurate positioning technique based on the time stamps or the last timing information from the user (col. 22/lines 10-58). In fact, the entire process can be gathered and placed in a module called "analyzer module" as well. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use an "analyzer module", without explaining how to analyze it, as a means to analyze the guidance information and the user guidance information to the user as desired.

Applicant respectfully traverses the Examiner's rejection.

Regarding claim 8: Present claim 8 depends from present claim 7. As such, Applicant respectfully submits that present claim 8 is patentable over Porter et al. for the reasons set forth above with respect to present claim 7. Further, Applicant respectfully submits that Porter et al.: (a) does not teach, disclose, hint, or suggest, in any manner whatsoever, an analyzer module of a rate determiner in a receiver (for example, a client device's) that analyzes (i) guidance information and (ii) user input guidance information to determine a presentation rate as required by present claim 8; and (b) does not teach, disclose, hint, or suggest, in any manner whatsoever, a pre-

sentation apparatus in the receiver (for example, the client device's) that presents the broadcast information at the presentation rate the analyzer module obtained by analyzing (i) the guidance information and (ii) the user input guidance information as required by present claim 8.

Lastly, in light of the above, Applicant respectfully submits that the Examiner has improperly used hindsight in making this rejection. As set forth in *Ruiz v. A.B. Chance Co.*, 57 USPQ2d 1161, 1167 (Fed Cir. 2000):

> In order to prevent a hindsight based obviousness analysis, we have clearly established that the relevant inquiry for determining the scope and content of the prior art is whether there is a reason, suggestion, or motivation in the prior art or elsewhere that would have led one of ordinary skill in the art to combine the references. . . . ("[T]he Board must identify specifically . . . the reasons one of ordinary skill in the art would have been motivated to select the references and to combine them to render the claimed invention obvious.")

Applicant respectfully submits, as set forth above, there is no hint or suggestion or motivation of any kind to provide a rate determiner as required by present claim 8 in any apparatus disclosed in Porter et al.

In light of the above, Applicant respectfully requests that the Examiner withdraw this rejection.

Examiner stated:

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Ottesen et al (US Patent 5,721,878) disclose multimedia control system and method for controlling multimedia program presentation.

Henley et al. (US Patent 5,761,417) disclose video data streamer having scheduler for scheduling read request for individual data buffers associated with output ports of communication node to one storage node.

Laursen et al (US Patent 5,805,804) disclose method for scalable, high bandwidth storage retrieval and transportation of multimedia on a network.

DeMoney (US Patent 6,065,050) discloses system and method for indexing between trick play and normal play video streams in a video delivery system.

Hejna, Jr. et al. (U.S. Patent No. 5,175,769) disclose a method for time-scale modification of signal.

Ganek et al. (U.S. Patent No. 5,724,646) disclose a system, method and apparatus for fixed video-on-demand.

Echeita et al. (U.S. Patent No. 6,078,958) disclose a system for allocating available bandwidth of a concentrated media output.

Applicant respectfully submits that the above-referenced art is no more relevant to the present invention than is Porter et al.

Applicant respectfully submits that new claims 10-33 are patentable over the pending prior art references for the reasons set forth above with respect to present claims 1-9.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned "Version with markings to show changes made."

In light of the above, Applicant respectfully submits that all remaining claims are allowable. Should the Examiner have any questions or wish to discuss any aspect of the application, a telephone call to the undersigned would be welcome.

Respectfully submitted,

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OFFICE ACTION
(APRIL 10, 2001)

Serial Number: 09/325,245
Art Unit: 2611

[. . .]

Porter does not specifically discloses that the rate determiner comprises "an analyzer module" that analyzes the guidance information and the user guidance information to provide the presentation rate; however, an "analyzer module" is a much broader term in sense to any one of ordinary skill in the art. Porter goes beyond this broad terminology to further explain and describes in depth how to analyze the guidance information and the user guidance information to provide the presentation rate by using the frame accurate positioning technique based on the time stamps or the last timing information from the user (col. 22/lines 10-58). In fact, the entire process can be gathered and placed in a module called "analyzer module". Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made use an "analyzer module", without explaining how to analyze it, as a means to analyze the guidance information and the user guidance information to the user as desired.

6. Claims 1-6, 9-14, 17-23, and 29-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Porter et al. (U.S. Patent No. 5,659,539) in view of Bhadkamkar et al. (U.S. Patent No, 5,893,062).

Regarding claim 1, Porter et al (or "Porter" hereinafter) disclose a method for broadcasting information, *i.e.*, digital audio/video information, to a

client device (Fig. 1B/items 160) which comprises the steps of broadcasting information (Fig. 1B and col. 5/lines 38-46); and broadcasting guidance information used to determine presentation rates of the information, *i.e.*, the presentation rate is sent to users during the playback (see col. 16/ lines 60-65).

Porter might not clearly reveal that "the presentation rates for use by the client device in presentation of the information" as amended; however, Bhadkamkar teaches a same technique of controlling the presentation rates of audio/visual data to users for users to use as users uses a display interface to control the presentation rate or display rate of audio and video programs (Bhadkamkar, Fig. 2, col. 1/lines 10-47, col. 2/line 30-col. 3/line 7, and col. 3/lines 25-44 for more detailed information). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Porter's system with Bhadkamkar's disclosed technique of controlling the presentation rates of audio/visual data to users for users to use in order to obtain an enhanced system that offers the users the capability to control the presentation rates at the user's side as preferred.

As for claim 2, Porter further discloses "wherein the guidance information comprises one or more presentation rates relating to one or more portions of the broadcast information" as the guidance information shows the length indicator, the play duration indicator and the frame indicator related to the portion of the broadcast information (Fig. 2B and col. 9/lines 17-25) as well as offering the specified-rate playback operations such as fast forward, slow forward, fast rewind or slow rewind to users (col. 16/lines 45-59).

Concerning claim 3, in further view of claim 1 above, Porter further reveals the steps of "receiving broadcast information; receiving guidance information relating to presentation of the broadcast information; analyzing the guidance information to determine a presentation rate; and presenting the information at the presentation rate" as Porter clearly discloses that the system intends to deliver digital audio/video information to clients or end users independently in a variety of data stream forms, *i.e.*, variable playback operations (col. 24/lines 20-58), and with the guidance information (Fig. 2B and col. 9/lines 17-25), the presentation rates can be presented to the end users accordingly (as illustrated in Fig. 1B and col. 9/lines 17-20).

As for claim 4, Porter further shows "the step of receiving a user input presentation rate and wherein the step of analyzing includes the step of analyzing the guidance information and the user input presentation rate to determine the presentation rate" as the user uses the graphical user interfaces, *i.e.*, a television (col. 5/line 43-47), and the remote control (col. 24/lines 25-28) to interacts with the stream server and sends his/her requests as well as the presentation rate (col. 16/lines 52-65); then the system inspects and analyses the request in order to give appropriate responses to the user's requests (col. 16/line 66-col. 17/line 6).

As for claim 5, Porter also teaches "wherein the guidance information comprises one or more presentation rates relating to one or more portions of the broadcast information" as the guidance information shows the length indicator, the play duration indicator and the frame indicator related to the portion of the broadcast information (Fig. 2B and col. 9/lines 17-25)

as well as offering the specified-rate presentation operations such as fast forward, slow forward, fast rewind or slow rewind to users (col. 16/lines 45-59).

Regarding claims 6 and 9, in further view of claim 1 above, Bhadkamkar further discloses "wherein the step of presenting the information comprises Time-Scale Modifying the information in accordance with the one or more presentation rates" as Bhadkamkar suggests the use of Time Scale Modifying for use in real-time speech for accurately delivering and presenting the information to users in accordance with the one or more presentation rates (Bhadkamkar, col. 23/lines 35-46).

As for claims 10 and 11, Bhadkamkar further suggests the steps of "wherein the guidance information comprises information to provide presentation rates related to information content" and "wherein presentation rates differ depending on one or more of information content and an intended audience for information content" as the display rate of video frames can be based upon any desired criterion, in other words, any desired content of video programs (Bhadkamkar, col. 25/lines 14-40).

With respect to claim 12, Bhadkamkar further reveals "wherein the guidance information specifies that predetermined portions of a media work must be viewed at a predetermined presentation rate or skipped" as the display rate can be faster or slower than a normal rate, or even can be skipped by eliminating some video frames as well as some audio segments (col. 2/line 64-col. 3/line 24; and col. 4/lines 12-62).

As for claims 13 and 14, Bhadkamkar further teaches the steps of "wherein the guidance information

specifies that predetermined portions of the broadcast information may be presented at presentation rates that are specified by one or more of a user interactively, a device programmed by the user, and a device programmed by a broadcaster" and "wherein the client device uses the guidance information to provide presentation rates for portions of the broadcast information in conjunction with one or more of user interactive input; input from a device programmed by the user, and input from a device programmed by a broadcaster", *i.e.*, manually controlled by the user's instruction with user's interface device 204 (col. 6/lines 38-39) or automatically controlled and programmed by the provider (col. 3/line 25 to col. 4/line 12).

As for claims 17 and 18, Porter further discloses "wherein the guidance information comprises a presentation rate along with an indication that the presentation rate should take effect immediately upon receipt" and "wherein the guidance information comprises an increment, decrement, or scale factor that is applied to a current presentation rate to provide an altered presentation rate along with an indication that the altered presentation rate should take effect immediately upon receipt", for example, change rate requests from users are handled promptly with a visual indication of presentation rates on the displaying screen (col. 24/lines 20-58).

Regarding claims 19-23, Porter and Bhadkamkar reveals the steps of "wherein the guidance information comprises a title of the broadcast information and one or more of time values, sample counts, timing-marks, segues, and indicators that identify segments or portions of the broadcast information" as Porter shows information about portions of broadcast infor-

mation (Figs. 2B & 2C); and "wherein the guidance information comprises insistence information that specifies a measure of importance of utilizing presentation rate information contained in the guidance information" as Bhadkamkar suggests the option of using manually or automatically as an indication for users to use the display or presentation rate at their choice (Bhadkamkar, col. 3/lines 25-43).

RESPONSE TO OFFICE ACTION (AUGUST 29, 2001)

[. . .]

REMARKS

Applicant has amended claims 10-11 to more clearly define the present invention to more clearly define the present invention, to correct an inadvertent drafting error, and to put the case in condition for allowance or appeal.

Examiner rejected claim 7 under 35 U.S.C. 102(b).: In particular, the Examiner stated:

> Claim 7 is rejected under 35 U.S.C. 102(b) as being anticipated by Porter et al: (U.S. Patent No. 5,659,539).
>
> Regarding claim 7, Porter teaches an apparatus, *i.e.*, a television (col. 5/lines 43-47), Which presents information received from a broadcaster (Fig. 1B/item 110) comprises a receiver of the broadcast information and guidance information relating to presentation of the broadcast information; a rate determiner that analyzes the guidance information to determine a presentation rate, *i.e.*, as Porter clearly teaches that the system intends to deliver digital audio/video information to clients or end users independently in a variety of data stream forms, *i.e.*, variable playback operations (col, 24/lines 20-58), and with guidance· information (Fig. 2B and col. 9/lines 17-25) then the system inspects and analyses the 'request as a rate determiner in order to give appropriate responses to the user's request (col. 16/line 66-

> col. 17/line 6); and a presentation apparatus that, in response to the broadcast information and the presentation rate, presents the information (to the user via the television, col. 5/Lines 35-47 and col. 9/lines 17-25 for information on the presentation rate).
>
> Applicant respectfully traverses the Examiner's rejection.

Applicant respectfully submits that Porter et al. does not teach, disclose, or suggest, in any manner whatsoever, an apparatus fabricated in accordance with claim 7 that comprises a receiver of broadcast information and guidance information relating to presentation of the broadcast information, a rate determiner that analyzes the guidance information to determine a presentation rate, and a presentation apparatus that presents the broadcast information in response to the presentation rate.

In particular, Porter et al.: discloses an audio-visual information delivery system 100 that contains a plurality of clients configured to decode audio-visual information contained in a stream of digital audio-visual data. The clients may be set top converter boxes coupled to an output display. See col. 5, lines 38-46 and FIG: 1b. As further set forth by Porter et al. at col. 6, lines 30-38:

> The audio-visual information delivery system 100 of the present invention permits a server, such as the video pump 130, to transfer large amounts of data from the mass storage device 140 over the high bandwidth network 150 to the clients (1-n) 160, 170, and 180 with minimal overhead. In addition, the audio-visual information delivery

> system 100 permits the clients (1-n) 160. 170, and 180 to transmit requests to the stream server 110 using a standard network protocol via the control network 120. (Emphasis added)

As further set forth by Porter et al. at col. 6, lines 46-52:

> To receive a digital audio-visual data stream from a particular digital audio-visual file, a client (1-n) 160, 170 or 180 transmits a request to the stream server 110. In response to the request, the stream server 110 transmits commands to the video pump 130 to cause video pump 130 to transmit the requested, audio-visual-data stream to the client that requested the digital audio-visual data stream. (Emphasis added)

As set forth by Porter et al. at col. 7, lines 25-61:

> System 100 includes a tag file generator 112.
> . . .
>
> The tag file 106 contains control information that is used by stream server 110 to implement fast forward, fast rewind; slow forward, slow rewind and seek operations. (Emphasis added)

Porter et al. discusses a fast forward operation at col. 16, line 60 to col. 19, line 9:

> To initiate a fast forward operation, a client transmits a fast forward request to the stream server 110. In embodiments that support more than one fast forward rate, the fast forward request includes data designating a presentation rate. As used herein, "presentation rate" refers to the rate at which the audio-visual work is presented to a viewer.

> Specifically, stream server 110 determines from the information in tag file 106 which frames should be displayed to produce the specified presentation rate. . . .
>
> While the stream server. 110 is selecting the frames to be displayed during a fast forward operation, the stream server 110 is simultaneously transmitting commands to the video pump 130 to cause the video pump 130 to send an MPEG video stream containing the frames that have already been selected. . . .
>
> Performing a fast forward operation is similar to performing a series of seek operations in which each seek operation causes the video pump 130 to jump to the data for the next selected frame. . . .

Porter et al. discusses a slow motion operation at col. 20, lines 50-63:

> For playback operations that are slower than normal playback speed, no frames are 'skipped. Rather, stream server 110 selects every frame. As in fast forward operations, the video pump 130 transmits segments for each of the selected frames in responses to commands generated by stream server 110. The suffix data in the segments include padding Packets which delay the arrival of the subsequent segments . . . Consequently, the frame data arrives and is decoded at a slower rate than during normal playback operations. Alternatively, the time delays may be imposed by causing the stream server 110 to insert delayed time stamps into the prefix data that it sends to the video pump 130. (Emphasis added)

Porter et al. discloses the following at col 24, lines 23-58:

> As mentioned above; a client may change the presentation rate of the audio-visual work by transmitting a rate change request to the stream server 110. For example, a user may press a fast forward button on a remote control. . . . The client then transmits a change rate request to the stream server 110 that specifies, some presentation rate greater than 1x. . . . The process described above appears to the user as a variable rate fast forward operation. However, to the stream server 110, the operation actually consists of a series of distinct fast forward operations. This incremental rate adjustment process has been described with reference to fast forward operations. However, it may equally be applied to slow. forward, slow rewind and fast rewind operations.

Lastly, Porter et al. discusses information that is sent to the client devices at col. 21, line 32–col. 22, line 58 under the heading "RUNTIME COMMUNICATION." As set forth therein, Porter et al. teaches that stream server' 110 communicates with client devices ("The stream server 110 conveys the responses to the queries to the client by causing video pump 130 to insert the responses into the MPEG' data stream that is being sent to the amt."). In addition, time stamps may be inserted into the MPEG data stream transmitted by video pump 130 for use in dean mining which frame is being displayed by the client at any time–this is used to identify an item displayed in the frame by the user's client device that the user wishes to order.

Regarding claim 7: Claim 7 comprises a receiver of broadcast information and guidance information relating to presentation of the broadcast information. Further, claim 7 comprises a rate determiner that analyzes the guidance information to determine a presentation rate. This is different from the teaching of Porter et al. for several reasons. First, Porter et al does not teach providing guidance information, let alone having a receiver capable of receiving or dealing with such guidance information. "Although Porter et al. teaches the use of a tag file (as pointed out by the Examiner, reference to the tag file is found at FIG. 2B and at col. 9, lines 5 et seq.), Porter et al. does not teach, disclose; or suggest sending or broadcasting the tag file to receivers such as clients 1 to N shown in FIG. in, Instead, the tag file is utilized by stream server 110 to control video pump 130 in broadcasting data. Second, Applicant respectfully submits that the Examiner is wrong when the Examiner asserts that server 110 is a broadcaster. Specifically, Porter et al. teaches that stream server 110 interacts with clients to receive requests, and that stream server 110 uses tag file 106 to control broadcasting of information by video pump 150. Third, Porter et al. does not teach, disclose, or suggest any apparatus that receives broadcast information and guidance information, Specifically, as set forth above, Porter et al. teaches that video pump 150 broadcasts audio-visual information. Porter et al. does not teach, disclose, or suggest that the receiver of the broadcast information also receives guidance information. In addition, Porter et al. does not teach, disclose, or suggest that the receiver of the broadcast information analyzes guidance information to determine a presentation rate. Fourth, Porter et al. teaches that, to change a presentation rate, a user

sends a request that is captured by stream server 110. Then, stream server 110, using tag file 106, causes video pump 150 to broadcast a new stream of data which, when presented by the client, will have the new presentation rate. This is completely different from claim 7 wherein the broadcast information does not change and wherein the guidance information causes the apparatus to change the presentation rate of information after it has been broadcast and received.

In light of the above, Applicant respectfully requests that the Examiner withdraw this rejection.

Examiner rejected claim 8 under 35 U.S.C. 103(a). In particular, the Examiner stated:

> Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Porter et al. (U.S. Patent No. 5,659,539).
>
> Regarding claim 8, in further view of claim 7 above, Porter further teaches to include a user input device that receives a user input guidance information, *i.e.*, a remote control for inputting and sending the request (col. 24/lines 23-24).
>
> Porter does not specifically disclose that the rate determiner comprises "an analyzer module" that analyzes the guidance information and the user guidance information to provide the presentation rate; however, an "analyzer module" is a much broader term in sense to any one of ordinary skill in the art. Porter goes beyond this broad terminology to further explain and describes in depth how to analyze the guidance information and the user guidance information to provide the presentation rate by using the frame accurate positioning technique based on the time stamps

or the last timing information from the user (col. 22/lines 10-58). In fact, the entire process can be gathered and placed in a module called "analyzer module". Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made use an "analyzer Module", without explaining how to analyze it, as a means to analyze the guidance information and the User guidance information to the user as desired.

Applicant respectfully traverses the Examiner's rejection.

Regarding claim 8: As set forth above with respect to claim 7 (claim 8 depends from claim 7), Applicant respectfully submits that Porter et al, does not teach, disclose, hint, Or suggest, in any manner whatsoever, an apparatus that comprises (a) a receiver of broadcast information and guidance information relating to presentation Of the broadcast information; (b) a rate determiner that analyzes the guidance information to determine a presentation rate; and (c) a presentation apparatus that presents the broadcast information in response to the presentation rate. In addition, Applicant respectfully Submits that Porter et al. does not teach, disclose, hint, or suggest, in any manner whatsoever, that such rate determiner comprises an analyzer module that analyzes (i) the guidance information and (ii) user input guidance information to determine the presentation rate as required by claim 8. As set forth above, Porter et al. does not teach, disclose, or suggest any apparatus that receives broadcast information and guidance information. Porter et al. does not teach, disclose, or suggest that the receiver of the broadcast information also receives guidance information. In addition, Porter

et al. does not teach, disclose, or suggest that the receiver of the broadcast information analyzes guidance information the determine a presentation rate. Lastly, Porter et al. does not teach, disclose, or suggest that the receiver of the broadcast information analyzes guidance information and user guidance information to determine a presentation rate.

In light of the above, Applicant respectfully requests that the Examiner withdraw this rejection.

Examiner rejected claims 1-6. 9-14. 17-23, and 29-31 under 35 U.S.C. 103(a). In particular, the Examiner stated:

> Claims 1-6, 9-14, 17-23, and 29-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Porter et al. (U.S. Patent No. 5,659,539) in view of Bhadkamkar et al. (U.S. Patent No. 5,893,062).
>
> Regarding claim 1, Porter et al (or "Porter" hereinafter) disclose a method for broadcasting information, *i.e.*, digital audio/video information, to a client device (Fig. 1B/items 160) which comprises the steps of broadcasting information (Fig. 1B and col. 5/lines 38-46); and broadcasting guidance information used to determine presentation rates of the information, *i.e.*, the presentation rate is sent to users· during the playback (*see* col. 16/lines 60-65).
>
> Porter might not clearly reveal that "the presentation rates for use by the client device in presentation of the information" as amended; however, Bhadkamkar teaches a same technique of controlling the presentation rates of audio/visual data to users for users to use as users uses a

display interface to control the presentation rate or display rate of audio and video programs. (Bhadkamkar, Fig. 2, col. 1/lines 10-47, col. 2/line 30-col. 3/line 7; and col. 3/lines 25-44 for more detailed information). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Porter's system with Bhadkamkar's disclosed technique of controlling the presentation rates of audio/visual data to users for users to use in order to obtain an enhanced system that offers the users the capability to control the presentation rates at the user's side as preferred.

As for claim 2, Porter further discloses "wherein the guidance information comprises On or more presentation rates relating to one or more portions of the broadcast information" as the guidance information shows the length indicator, the play. duration indicator and the frame indicator related to the portion of the broadcast information (Fig. 2B and col. 9/lines 17-25) as well as offering the specified-rate playback operations such as fast • forward, slow forward, fast rewind or slow rewind to users (col. 16/lines 45-49).

Concerning claim 3, in further view of claim 1 above, Porter further reveals the steps of "receiving broadcast information; receiving guidance information relating to presentation of the broadcast information; analyzing the guidance information to determine a presentation rate; and presenting the information at the presentation rate" as Porter clearly discloses that the system intends to deliver digital audio/video information to clients or end users independently in a variety

of data stream forms, *i.e.*, variable playback operations (col. 24/lines 20-58), and with the guidance information (Fig. 2B and col. 9/lines 17-25), the presentation rates can be presented to the end users accordingly (as illustrated in Fig. 113 and col. 9/lines 17-20).

As for claim 4, Porter further shows "the step of receiving a user input presentation rate and wherein the step of analyzing includes the step of analyzing the guidance information and the user input presentation rate to determine the presentation rate" as the user uses the graphical user interfaces, *i.e.*, a television (col. 5/line 43-47), and the remote Control (col. 24/lines 25-28) to information is broadcast, and the guidance information comprises one or more presentation rates relating to one or more portions of the broadcast information.

Regarding claim 3: Applicant respectfully submits that claim 3 is patentable over Porter et al, in view of Bhadkamkar et al for the same reasons set forth above with respect to claim I. Specifically, Porter et al. does not teach, disclose, hint, or suggest; in any manner whatsoever, a client device's "receiving guidance information" and "analyzing the guidance information to determine a presentation rate :0 required by claim 3. Further, as set forth above, Porter et al does not teach transmitting the information the Examiner identified at col. 9, lines 17-25 to the client. Further, as set forth above, whenever the fast rewind function is performed in accordance with the teaching of Porter et al., the audio-visual work is broadcast at a higher presentation rate. This teaching is different

froth an embodiment of claims 3 Wherein a change in a presentation rate is applied by the client device.

Regarding claim 4: Applicant respectfully submits that claim 4 depends from claim 3. As such, Applicant respectfully submits that claim 4 is patentable over Porter et al. in view of Bhadkamkar et al. for the reason's set forth above with respect to claim 3. Further, Applicant respectfully submits that Porter et al: (a) does not teach, disclose·, hint, or suggest, in any manner whatsoever, a client device's analyzing (i) guidance information and (ii) a user input presentation rate to determine a presentation rate as required by claim 4; and (b) does not teach, disclose, hint, or suggest, in any manner whatsoever, the client device's presenting the broadcast information at the presentation rate the client device obtained by analyzing (i) the guidance information and (ii) the user input presentation rate as required by claim 4 The Examiner points out that a user inputs a presentation rate to earn server 110; however, this is completely different from claim 4 which requires that user input be received and used. by the client device.

Regarding claim 5: Applicant respectfully submits that claim 5 depends from claim 3. As such, Applicant respectfully submits that claim 5 is patentable over Porter et al. in view of Bhadkamkar et al. for the reasons set forth above with respect to. claim 3. Further, Porter et al., does not teach, disclose, hint, or suggest, in any manner whatsoever, all client's device receiving guidance information that comprises one or more presentation rates relating to one or more portions of the broadcast information, and the client device's using the one or more presentation rates to present the information as required by claim 5.

Regarding claims 6 and 9: Applicant respectfully submits that claim 6 depends from claim 5. As suck Applicant respectfully submits that claim 6 is patentable over Porter et al. in view of Bhadkamkar et al. for the reasons set forth above with respect to claim 5. In addition, Applicant respectfully submits that the Examiner has not provided any evidence for combining Porter et al. and Bhadkamkar et al. except for improper use of hindsight. hi addition, Applicant respectfully submits even that if these references were combined, that combination would not provide an embodiment of claim 6. This is because: (a) Porter et al. does riot teach or suggest providing guidance information to a receiver; and (b) Porter et al. does not teach or suggest that the receiver modify a presentation rate of broadcast information, let alone time-scale modify the broadcast information.

Applicant respectfully submits that claim 7 is patentable over Porter et al. in view of Bhadkamkar et al. for the reasons set forth above with respect to claim 7. In addition, Applicant respectfully submits that the Examiner has not provided any evidence for combining the teaching of Bhadkamkar et al. and Porter et al. except for improper use of hindsight. In addition, Applicant respectfully submits even that if these references were combined, that combination would not provide an embodiment of claim 9. This is because: (a) Porter et al. does not teach or suggest providing guidance information to a receiver; and (b) Porter et al. does not teach or suggest that the receiver modify a presentation rate of broadcast information, let alone time-scale modify the broadcast information.

Regarding claims 10 and 11: Applicant has amended claim 10 and 11 to more clearly define the

present invention, and to correct an inadvertent drafting error. Applicant respectfully submits that claims 10 and 11 depend from claim 3. As such, Applicant respectfully submits that claims 10-11 are patentable over Porter et al. in view of Bhadkamkar et al. for the reasons set forth above with respect to claim 3. In addition, Applicant respectfully submits that the Examiner has not provided any evidence for combining Porter et al: and Bhadkamkar et al., except for improper use of hindsight. Lastly, Applicant respectfully submits that the Examiner is wrong when the Examiner asserts that Bhadkamkar et al. teaches basing presentation on . . .

[. . .]

PRELIMINARY AMENDMENT
(OCTOBER 10, 2001)

[. . .]

Thus, for playback systems such as those disclosed in Porter et al. and DeMoney that cannot modify a work to be displayed (the playback system cannot modify the work), the only way to change a presentation rate is to use the second method (as disclosed by Porter et al.) by modifying the time stamps and transmitting the modified work to the playback system, or the third method (as disclosed by DeMoney) by modifying the work before encoding and transmitting the encoded, modified Work to the playback system. Thus, in accordance with the teaching of Porter et al. and DeMoney, a new modified work must be created and sent to the playback system for each new presentation rate. As the Examiner can readily appreciate, this is different from embodiments of the present invention wherein a client device can obtain a presentation rate, and playback a work at that presentation rate. Thus, in accordance with these embodiments of the present invention, the same work may be sent to the client device for each new presentation rate.

Presentation Rate Cannot Be Determined from DeMoney's Time Stamps

Reference FIG. 2 attached hereto shows a graph 100 of position of a vehicle along a time axis at a normal rate, *i.e.*, a presentation rate =1; a graph 110 of position of the vehicle along the time axis at a presentation rate = 2; and a graph 120 of position of the vehicle along the time axis at a presentation rate = 0.5. The "points" on the graphs indicate frames that

are recorded for each of the presentation rates, *i.e.*, points 100_1-100_n indicate frames recorded for presentation rate = 1; points 110_1-110_n, indicate frames recorded for presentation rate = 2; and points 120_1-120_n, indicate frames recorded for presentation rate = 0.5. Note that the frame rate, as determined by the MPEG encoding process, *i.e.*, the time interval between frames, is the same for each presentation rate. Also note that the timestamps for the frames that comprise the sequence of frames that encode each version of the work, is the same for each of the versions despite their having different presentation rates. As the Examiner can appreciate from this, one cannot determine the presentation rate from the timestamp and frame rate information.

Thus, in response to Examiner Faile's question, one cannot infer the presentation rate from timestamp information or frame-rate information contained in the MPEG encoded stream of DeMoney. As a result, no reference teaches "broadcasting guidance information used to determine presentation rates for use by the client device in presentation of the information."

Examiner rejected claim 7 under 35 U.S.C. 102(b). In particular, the Examiner stated:

> Claim 7 is rejected under 35 U.S.C. 102(b) as being anticipated by Porter et al. (U.S. Patent No. 5,659, 539).
>
> Regarding claim 7, Porter teaches an apparatus, *i.e.*, a television (col. 5/lines 43-47), which presents information received from a broadcaster (Fig. 1B/item 110) comprises a receiver of the broadcast information and guidance information relating to presentation of the broadcast information; a

> rate determiner that analyzes the guidance information to determine a presentation rate, *i.e.*, as Porter clearly teaches that the system intends to deliver digital audio/video information to clients or end users independently in a variety of data stream forms, *i.e.*, variable playback operations (col. 24/lines 20-58), and with guidance information (Fig. 2B and col. 9/lines 17-25) then the system inspects and analyses the request as a rate determiner in order to give appropriate responses to the user's request (col. 16/line 66-col. 17/line 6); and a presentation apparatus that, in response to the broadcast information and the presentation rate, presents the information (to the user via the television, col. 5/lines 35-47 and col. 9/lines 17-25 for information on the presentation rate).

Applicant respectfully traverses the Examiner's rejection.

Applicant respectfully submits that Porter et al. does not teach, disclose, or suggest, in any manner whatsoever, an apparatus fabricated in accordance with claim 7 that comprises a receiver of broadcast information and guidance information relating to presentation of the broadcast information, a rate determiner that analyzes the guidance information to determine a presentation rate, and a presentation apparatus that presents the broadcast information in response to the presentation rate.

In particular, Porter et al. discloses an audio-visual information delivery system 100 that contains a plurality of clients configured to decode audio-visual information contained in a stream of digital audio-visual data. The clients may be set top converter boxes coupled to an . . . .

[. . .]

Lastly, Porter et al. discusses information that is sent to the client devices at col. 21, line 32–col. 22, line 58 under the heading "RUNTIME COMMUNICATION." As set forth therein, Porter et al. teaches that stream server 110 communicates with client devices ("The stream server 110 conveys the responses to the queries to the client by causing video pump 130 to insert the responses into the MPEG data stream that is being sent to the client.").

Regarding claim 7: Claim 7 comprises a receiver of broadcast information and guidance information relating to presentation of the broadcast information. Further, claim 7 comprises a rate determiner that analyzes the guidance information to determine a presentation rate. This is different from the teaching of Porter et al. for several reasons. First, Porter et al. does not teach providing guidance information, let alone having a receiver capable of receiving or dealing with such guidance information. Although Porter et al. teaches the use of a tag file (as pointed out by the Examiner, reference to the tag file is found at FIG. 2B and at col. 9, lines 5 et seq.), Porter et al. does not teach, disclose, or suggest sending or broadcasting the tag file to receivers such as clients 1 to N shown in FIG. 1B. Instead, the tag file is utilized by stream server 110 to control video pump 130 in broadcasting data. Specifically, the tag file is merely a set of index points with timing information. Thus, even if it were broadcast (it is not), there would be no way to determine a presentation rate from it. Second, Applicant respectfully submits that the Examiner is wrong when the Examiner asserts that server 110 is a broadcaster. Specifically, Porter et al. teaches that

stream server 110 interacts with clients to receive requests, and that stream server 110 uses tag file 106 to control broadcasting of information by video pump 150. Third, Porter et al. does not teach, disclose, or suggest any apparatus that receives broadcast information and guidance information. Specifically, as set forth above, Porter et al. teaches that video pump 150 broadcasts audio-visual information. Porter et al. does not teach, disclose, or suggest that the receiver of the broadcast information also receives guidance information. In addition, Porter et al. does not teach, disclose, or suggest that the receiver of the broadcast information analyzes guidance information to determine a presentation rate. In fact, the essence of the teaching of Porter et al. is a method for manipulating data in a modified frame sequence so that a display device with no knowledge of, or capacity to, alter a presentation rate will display a disjoint or replicated sequence of frames. Fourth, Porter et al. teaches that, to change a presentation rate, a user sends a request that is captured by stream server 110. Then, stream server 110, using tag file 106, causes video pump 150 to broadcast a new stream of data which, when presented by the client, will have the new presentation rate. This is completely different from claim 7 wherein the broadcast information does not change and wherein the guidance information causes the apparatus to change the presentation rate of information after it has been broadcast and received.

In light of the above, Applicant respectfully requests that the Examiner withdraw this rejection.

Examiner rejected claim 8 under 35 U.S.C. 103(a). In particular, the Examiner stated:

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Porter et al. (U.S. Patent No. 5,659,539).

Regarding claim 8, in further view of claim 7 above, Porter further teaches to include a user input device that receives a user input guidance information, *i.e.*, a remote control for inputting and sending the request (col. 24/lines 23-24).

Porter does not specifically disclose that the rate determiner comprises "an analyzer module" that analyzes the guidance information and the user guidance information to provide the presentation rate; however, an "analyzer module" is a much broader term in sense to any one of ordinary skill in the art. Porter goes beyond this broad terminology to further explain and describes in depth how to analyze the guidance information and the user guidance information to provide the presentation rate by using the frame accurate positioning technique based on the time stamps or the last timing information from the user (col. 22/lines 10-58). In fact, the entire process can be gathered and placed in a module called "analyzer module". Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made use an "analyzer module", without explaining how to analyze it, as a means to analyze the guidance information and the user guidance information to the user as desired.

Applicant respectfully traverses the Examiner's rejection.

[. . .]

. . . work as received. This is completely different from claim 2 wherein a work is broadcast and guidance information is broadcast, and the guidance information comprises one or more presentation rates relating to one or more portions of the broadcast information.

Regarding claim 3: Applicant respectfully submits that claim 3 is patentable over Porter et al. in view of Bhadkamkar et al. for the same reasons set forth above with respect to claim 1. Specifically, Porter et al. does not teach, disclose, hint, or suggest, in any manner whatsoever, a client device's "receiving guidance information" and "analyzing the guidance information to determine a presentation rate" as required by claim 3. Further, as set forth above, Porter et al. does not teach transmitting the information the Examiner identified at col. 9, lines 17-25 to the client. Further, as set forth above, whenever the fast rewind function is performed in accordance with the teaching of Porter et al., the audio-visual work is broadcast at a higher presentation rate. This teaching is different from an embodiment of claim 3 wherein a change in a presentation rate is applied by the client device.

Regarding claim 4: Applicant respectfully submits that claim 4 depends from claim 3. As such, Applicant respectfully submits that claim 4 is patentable over Porter et al. in view of Bhadkamkar et al. for the reasons set forth above with respect to claim 3. Further, Applicant respectfully submits that Porter et al.: (a) does not teach, disclose, hint, or suggest, in any manner whatsoever, a client device's analyzing (i) guidance information and (ii) a user input presentation rate to determine a presentation rate as required by claim 4; and (b) does not teach, disclose, hint, or suggest, in any manner whatsoever, the

client device's presenting the broadcast information at the presentation rate the client device obtained by analyzing (i) the guidance information and (ii) the user input presentation rate as required by claim 4. The Examiner points out that a user inputs a presentation rate to stream server 110, however, this is completely different from claim 4 which requires that user input be received and used by the client device.

Regarding claim 5: Applicant respectfully submits that claim 5 depends from claim 3. As such, Applicant respectfully submits that claim 5 is patentable over Porter et al. in view of Bhadkamkar et al. for the reasons set forth above with respect to claim 3. Further, Porter et al. does not teach, disclose, hint, or suggest, in any manner whatsoever, a client's device receiving guidance information that comprises one or more presentation rates relating to one or more portions of the broadcast information, and the client device's using the one or . . . .

[. . .]

. . . more presentation rates to present the information as required by claim 5.

Regarding claims 6 and 9: Applicant respectfully submits that claim 6 depends from claim 5. As such, Applicant respectfully submits that claim 6 is patentable over Porter et al. in view of Bhadkamkar et al. for the reasons set forth above with respect to claim 5. In addition, Applicant respectfully submits that the Examiner has not provided any evidence for combining Porter et al. and Bhadkamkar et al. except for improper use of hindsight. In addition, Applicant respectfully submits even that if these references were combined, that combination would not provide

an embodiment of claim 6. This is because: (a) Porter et al. does not teach or suggest providing guidance information to a receiver; and (b) Porter et al. does not teach or suggest that the receiver modify a presentation rate of broadcast information, let alone time-scale modify the broadcast information after receipt.

Applicant respectfully submits that claim 9 is patentable over Porter et al. in view of Bhadkamkar et al. for the reasons set forth above with respect to claim 7. In addition, Applicant respectfully submits that the Examiner has not provided any evidence for combining the teaching of Bhadkamkar et al. and Porter et al. except for improper use of hindsight. In addition, Applicant respectfully submits even that if these references were combined, that combination would not provide an embodiment of claim 9. This is because: (a) Porter et al. does not teach or suggest providing guidance information to a receiver; and (b) Porter et al. does not teach or suggest that the receiver modify a presentation rate of broadcast information, let alone time-scale modify the broadcast information.

Regarding claims 10 and 11: Applicant has amended claim 10 and 11 to more clearly define the present invention, and to correct an inadvertent drafting error. Applicant respectfully submits that claims 10 and 11 depend from claim 3. As such, Applicant respectfully submits that claims 10-11 are patentable over Porter et al. in view of Bhadkamkar et al. for the reasons set forth above with respect to claim 3. In addition, Applicant respectfully submits that the Examiner has not provided any evidence for combining Porter et al. and Bhadkamkar et al. except for improper use of hindsight. Lastly, Applicant

respectfully submits that the Examiner is wrong when the Examiner asserts that Bhadkamkar et al. teaches basing presentation on . . .

[. . .]

RESPONSE TO OFFICE ACTION (JANUARY 21, 2002)

VERSION WITH MARKINGS TO SHOW CHANGES MADE

Claim 1 has been amended as follows:

1. (Amended) A method for broadcasting information to a client device, which device utilizes presentation rates to present information at various presentation rates, and which method comprises [the] steps of:

broadcasting information; and

broadcasting guidance information used to determine presentation rates for use by the client device in presentation of the information.

2. (Not Amended) The method of claim 1 wherein the guidance information comprises one or more presentation rates relating to one or more portions of the broadcast information.

Claim 3 has been amended as follows:

3. (Amended) A method for presentation of information received from a broadcaster by a client device. Which utilizes presentation rates to present information at various presentation rates and which method comprises [the] steps of:

receiving broadcast information;

receiving guidance information relating to presentation of the broadcast information;

analyzing the guidance information to determine a presentation rate; and

presenting the information at the presentation rate.

Claim 4 has been amended as follows:

4. (Amended) The method of claim 3 which further comprises [the] a step of receiving a user input presentation rate and wherein the step of analyzing includes [the] a step of analyzing the guidance information and the user input presentation rate to determine the presentation rate.

5. (Not Amended): The method of claim 3 wherein the guidance information comprises one or more presentation rates relating to one or more portions of the broadcast information.

6. (Not Amended) The method of claim 5 wherein the step of presenting the information comprises Time-Scale Modifying the information in accordance with the one or more presentation rates.

Claim 7 has been amended as follows:

7. (Amended) An apparatus which presents information received from a broadcaster, which apparatus utilizes presentation rates to present information at various presentation rates, and which apparatus comprises:

a receiver of the broadcast information and guidance information relating to presentation of the broadcast information;

a rate determiner that analyzes the guidance information to determine a presentation rate;

and a presentation apparatus that, in response to the broadcast information and the presentation rate, presents the information.

8. (Not Amended) The apparatus of claim 7 which further comprises a user input device that receives a user input guidance information; and wherein the rate determiner comprises an analyzer Module that analyzes the guidance information and the user guidance information to provide the presentation rate.

9. (Not Amended) The apparatus of claim 7 wherein the presentation apparatus comprises Time-Scale Modification apparatus that presents a time-scale modified version of the broadcast information in accordance with the presentation rate.

10. (Not Amended) The method of claim 3 wherein the guidance information comprises information to provide presentation rates related to conceptual information content.

11. (Not Amended) The method of Claim 10 wherein presentation rates differ depending on one or more of conceptual information content and an intended audience for conceptual information content.

12. (Not Amended) The method of claim 10 wherein the guidance information specifies that predetermined portions of a media work must be viewed at a predetermined presentation rate or skipped.

[. . .]

. . . configuration data and to effectuate changes to the client device that are required to load and process new rules.

29. (Not Amended) The method of claim 3 wherein the guidance information comprises future information that is used to process guidance information received at a future time, which future information is utilized to obtain presentation rates for portions of

the broadcast information being received at the future time.

30. (Not Amended) The method of claim 3 wherein the guidance information comprises time-stamp information that is used by the client device in analyzing the guidance information in light of a time of presentation.

31. (Not Amended) The method of claim 30 wherein the step of analyzing comprises one or more of altering and ignoring presentation rates for time sensitive material in the broadcast information.

32. (Not Amended) The method of claim 3 wherein the guidance information comprises multiple presentation rates that are appropriate for Multiple audiences.

33. (Not Amended) The method of claim 32 wherein the multiple presentation rates comprise a presentation rate for children, a presentation rate for teenagers, and a presentation rate for adults.

Claim 34 has been amended as follows:

34. (Amended) A method for broadcasting information to a client device, <u>which device utilizes presentation rates to present information at various presentation rates. and</u> which <u>method</u> comprises [the] steps of:

broadcasting information having .a first presentation rate; and

broadcasting guidance information used to determine a second presentation rate for use by the client device in presentation of the information.

[. . .]

APPEAL BRIEF TO BOARD OF PATENT APPEALS AND INTERFERENCES (DECEMBER 6, 2002)

[. . .]

(1) Real Party in Interest.

The real party in interest is Enounce Incorporated, the assignee of all right, title, and interest in and to the patent application.

(2) Related Appeals and Interferences.

There are no other appeals or interferences known to Appellant, Appellant's legal representative, or assignee which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims.

Claims 1-34 are all the pending claims in the present patent application. Claims 1-34 are finally rejected. Claims 1-34 are appealed.

(4) Status of Amendment.

No amendment was filed subsequent to final rejection.

(5) Summary of the Invention.

In general, the present invention relates to method and apparatus for broadcasting media works such as audio or audio-visual works to "smart" client devices, *i.e.*, client devices that can present the received broadcast media works at presentation rates that are

obtained by the client devices. Thus, for example, such "smart" client devices can receive a broadcast media work encoded at one presentation rate, and present the broadcast media work at another presentation rate, for example, a presentation rate that is broadcast to the client device. It should be appreciated that client devices used in accordance with the present invention are different from so-called "dumb" client devices because the "dumb" client devices can only decode and replay a media work. Such "dumb" client devices have no ability to control or alter a presentation rate, and the presentation rate of the replay they provide is determined by the manner in which the media work was encoded.

The present invention includes aspects wherein a client device receives guidance information; this is referred to in the specification as presentation rate guidance information ("PRGI"). The client device that receives the broadcast media work and PRGI uses the broadcast PRGI, among other things, to determine information ("derived information") that the client device uses to direct presentation, or to alter or restrict playback rates used in presentation, of the broadcast media work. To understand this refer to the specification at p. 48, line 2 to p. 49, line 10 where it describes how PRGI may be used to control presentation of broadcast media works.

In addition, a fuller understanding of the scope of the concept of PRGI may be obtained by referring to the specification at p. 49, line 11 to p. 53, line 18 which describes that: (a) in simplest form, PRGI comprises "presentation rate information" which may comprise a single value representing a playback rate;

(b) PRGI may further comprise "work targeting information" which identifies an entire work, or portions of the work; (c) PRGI may further comprise "presentation rate insistence information" which specifies the importance of utilizing "presentation rate information" contained in the PRGI (for example, the "presentation rate insistence information" may be comprised of codes that indicate distinct levels such as, for example, "mandatory," "strongly-encouraged," "suggested," and "optional"); (d) PRGI may further comprise "media work content information" from which playback rate information can be derived (for example, the "media work content information" may take the form of codes which are processed to obtain a playback rate for a portion of the specified work using look-up tables, rules, algorithms or the like by: (i) the user interactively, (ii) by a device programmed by the user, or (iii) a device programmed by the broadcaster which may exist in the client apparatus or elsewhere); (e) PRGI may further comprise "presentation rate rule information" which is used to process PRGI received in the future to obtain playback rates for portions of the media work being received by the recipient device; and (f) PRGI may comprise multiple playback rates that are appropriate for different audiences, for example, three playback rates may be broadcast; one for children, one for teenagers, and one for adults; and so forth.

In accordance with one aspect of the present invention, the presentation or playback rate of the broadcast media work is altered by time-scale modification ("TSM"). As is understood in the art, time-scale modification ("TSM") refers to a process of compressing or expanding a time-scale of an audio

segment. For example, a signal that is time-scale compressed has a shorter duration, while a signal that is time-scale expanded has a longer duration. However, TSM is completely different from merely speeding up a playback rate of a signal by, for example, sub-sampling. As is well known, merely speeding up a playback rate of a signal causes local pitch periods to be shortened. As is further well known, this shortening of local pitch periods increases frequency, and when the resulting signal is displayed for listening, the resulting signal "sounds like chipmunks." Thus, a signal created by a technique such as sub-sampling has a shorter time-scale, but is largely unintelligible due to side-effects of the technique such as high-pitched shrieks and chirps. In contrast to a simple speed-up/sub-sampling approach, a time-scale modified signal maintains properties of the original signal such as a local pitch period, speaker identity, and intelligibility. TSM does this by preserving prominent features of the signal that are associated with these properties, for example, the local pitch period. Thus, whenever TSM is performed on a voice signal, the resulting signal sounds as though the same person is talking faster or slower in the same voice. Whenever playback rate adjustments pertain to an audio-visual work, visual information is sped up or slowed down to match the TSM audio in the audio-visual work. To do this in a preferred embodiment, a video signal is "Frame-sub-sampled" or "Frame-replicated" to maintain synchronism between the audio and visual portions of the audio-visual work. Thus, TSM enables a listener to throttle the rate of audio-information (in much the same way a reader controls his/her reading rate by moving his/her eyes across a page) while the natural sounding audio allows for full comprehension.

The manner in which PRGI may be processed by the client device in accordance with the present invention may be understood by referring to the specification at p. 53, line 19 to p. 54, line 9. In accordance with one aspect of the present invention, a client device determines a playback rate from information contained in the PRGI for an entire broadcast media work, or for one or more portions of the broadcast media work. For example, the client device may determine a playback rate for an entire broadcast media work, or for one or more portions of the broadcast media work by using look-up tables, rules, algorithms or the like, which may include: (i) interaction with a user of the client device, (ii) use of a device programmed by the user, or (iii) use of a device programmed by the broadcaster which may exist in the client device or elsewhere.

In accordance with one aspect of the present invention, PRGI used to restrict, or direct, playback rates at the client device may be sent to the client device in either of two modes. The PRGI may be sent "in-band" (for example, occurring within the signal being transmitted) or it may be sent "out-of-band" (for example, occurring within a data packet associated with, but not comprising, media data).

The manner in which PRGI may be broadcast in an "out-of-band" mode may be understood by referring to the specification at p. 54, line 10 to p. 67, line 18 and FIG. 14.

Further, the manner in which PRGI may be analyzed by a client device in accordance with the present invention may be understood by referring to the specification at p. 59, line 3 to p. 61, line 12 and FIGs. 16 and 17.

Further, the manner in which PRGI may be broadcast in an "in-band" mode may be understood by referring to the specification at p. 54, line 10 to p. 67, line 18 and FIGs. 14-17.

The following briefly summarizes the invention of the various claims in light of the above.

Claim 1 relates to a method for broadcasting information to a client device which comprises broadcasting information and broadcasting guidance information used to determine presentation rates for use by the client device in presentation of the information. Please refer to the specification at p. 48, lines 3-6; p. 49, lines 11-19; p. 54, line 16 to p. 57, line 8 in conjunction with FIG. 14; and p. 67, line 19 to p. 70, line 13 in conjunction with FIG. 15.

Claim 2 (depends from claim 1) relates to a method for broadcasting information to a client device which comprises broadcasting information and broadcasting guidance information used to determine presentation rates for use by the client device in presentation of the information; wherein the guidance information comprises one or more presentation rates relating to one or more portions of the broadcast information. Please refer to the specification at p. 48, lines 3-6; p. 49, lines 11-19; p. 54, line 16 to p. 57, line 8 in conjunction with FIG. 14; p. 67, line 19 to p. 70, line 13 in conjunction with FIG. 15; and p.48, lines 21-26; p. 49, lines 4-11; and p. 49, line 24 to p. 50, line 12.

Claim 3 relates to a method for presentation of information received from a broadcaster by a client device that device utilizes presentation rates to present information at various presentation rates, which

method comprises: (a) receiving broadcast information; (b) receiving guidance information relating to presentation of the broadcast information; (c) analyzing the guidance information to determine a presentation rate; and (d) presenting the information at the presentation rate. Please refer to . . . .

[. . .]

. . . the specification at p. 49, lines 11-19; p. 57 of frames that encode each version of the work, is the same for each of the versions despite their having different presentation rates. As one can appreciate from this, one cannot determine the presentation rate from the time stamp and frame rate information.

Technical Issue-II

Appellant respectfully submits that, contrary to certain assertions made by the Examiner during prosecution, Porter et al. does not teach transmitting a bit rate indicator contained in tag file 106 to a client device.

As set forth by Porter et al. at col. 9, lines 8-21: "The contents of an exemplary tag file 106 shall now be described with reference to FIG. 2b. In FIG. 2b, the tag file 106 includes a file type identifier 202, a length indicator 204, a bit rate indicator, a play duration indicator 208, . . . Bit rate indicator 206 indicates the bit rate at which the contents of the MPEG file 104 should be sent to a client during playback."

Appellant respectfully submits that the bit rate indicator does not determine a presentation rate. In addition Appellant respectfully submits that Porter et al. does not teach, disclose, or suggest sending or

broadcasting tag file 106 to a client. Specifically, Porter et al. teaches that tag file 106 is a set of index points with timing information that is utilized by stream server 110 to control video pump 130 in broadcasting data. Thus, even if the bit rate indicator were broadcast (it is not), there would be no way to determine a presentation rate from it.

Regarding claim 7. Claim 7 covers an apparatus that presents information received from a broadcaster, which apparatus utilizes presentation rates to present information at various presentation rates. The apparatus comprises a receiver of broadcast information and guidance information relating to presentation of the broadcast information. Further, claim 7 comprises a rate determiner that analyzes the guidance information to determine a presentation rate. Still further, claim 7 comprises a presentation apparatus that, in response to the broadcast information and the presentation rate, presents the information. As set forth above, Porter et al. teaches the use of a "dumb" client device to present broadcast information, *i.e.*, an apparatus that has no ability to utilize or alter a presentation rate to present the broadcast information, and wherein a presentation rate of the replay is determined by the manner in which the broadcast information was encoded. The teaching of Porter et al. to use a "dumb" client device is completely different from claim 7 wherein the rate determiner determines a presentation rate from guidance information, and the presentation apparatus utilizes that presentation rate to present the information at that presentation rate. Thus, claim 7 requires the use of a "smart" device, *i.e.*, one that has the ability to utilize

and alter the presentation rate of broadcast information.

In light of the above, Appellant respectfully submits that claim 7 is not anticipated by Porter et al.

Regarding claim 8. As set forth above with respect to claim 7 (claim 8 depends from claim 7), Appellant respectfully submits that claim 8 is not anticipated by the Porter et al. because the teaching of Porter et al. to use a "dumb" client device is completely different from claim 8 which requires the use of a "smart" client device. In addition, claim 8 is not anticipated by Porter et al. because claim 8 requires that the rate determiner comprises an analyzer module that analyzes (i) the guidance information and (ii) user input guidance information to determine the presentation rate, and Porter et al. does not teach that the receiver of the broadcast information (*i.e.*, the client) analyzes guidance information and user guidance information to determine a presentation rate.

In light of the above, Appellant respectfully submits that claim 8 is not anticipated by Porter et al.

Issue 2: Whether claims 1-6, 9-14, and 17-23 are patentable under 35 U.S.C. 103(a) over Porter et al. (U.S. Patent No. 5,659,539) in view of Bhadkamkar et al. (U.S. Patent No. 5,893,062).

Reasons why claims 1-2; 3, 5 and 19; 4; 6 and 9; 10-11 and 19; 12; 13-14; 17-18; and 20-23 are separately patentable.

Appellant respectfully submits that claims 1-2 are separately patentable because claims 1-2 relate to methods for broadcasting information to a client

device which utilizes presentation rates to present information at various presentation rates, whereas claims 3-6, 10-14, and 17-23 relate to methods for presentation of information received by a client device. In addition, claim 9 is separately patentable because it relates to an apparatus that presents information received from a broadcaster, which apparatus utilizes presentation rates to present information at various presentation rates.

Appellant respectfully submits that claims 3, 5 and 19 are separately patentable from claim 4 because claims 3, 5 and 19 relate to methods for presentation of broadcast information received by a client device utilizing guidance information to determine a presentation rate, whereas claim 4 includes a step of receiving a user input presentation rate as well as guidance information, and a step of analyzing the guidance information and the user input presentation rate to determine the presentation rate.

Appellant respectfully submits that claims 6 and 9 are separately patentable from claim 4 because claim 6 includes a limitation of Time-Scale Modifying the information received from a broadcaster in accordance with the one or more presentation rates, and claim 9 is an apparatus that comprises a Time-Scale Modification apparatus to present a time-scale modified version of broadcast information.

Appellant respectfully submits that claims 10-11 are separately patentable because claim 10 includes a limitation that the guidance information comprises information to provide presentation rates related to conceptual information content; and claim 11 includes a limitation that the guidance information comprises information to provide presentation rates related to

conceptual information content, and a limitation that presentation rates differ depending on one or more of conceptual information content and an intended audience for conceptual information content.

Appellant respectfully submits that claim 12 is separately patentable because claim 12 includes a limitation that the guidance information specifies that predetermined portions of a media work must be viewed at a predetermined presentation rate or skipped.

Appellant respectfully submits that claims 13-14 are separately patentable because claim 13 includes a limitation that the guidance information specifies that predetermined portions of a media work may be presented at presentation rates that are specified by one or more of a user interactively, a device programmed by the user, and a device programmed by a broadcaster and claim 14 includes a limitation that the client device uses the guidance information to provide presentation rates for portions of the broadcast information in conjunction with one or more of user interactive input, input from a device programmed by the user, and input from a device programmed by a broadcaster.

Appellant respectfully submits that claims 17-18 are separately patentable because claims 17 and 18 include a limitation that the guidance information comprises a presentation rate along with an indication that the presentation rate should take effect immediately upon receipt, and claim 18 includes a limitation that wherein the guidance information comprises an increment, decrement, or scale factor that is applied to a current presentation rate to provide an altered presentation rate.

Appellant respectfully submits that claims 20-23 are separately patentable because claim 20 includes a limitation that the guidance information comprises insistence information that specifies a measure of importance of utilizing presentation rate information contained in the guidance information; claim 21 includes a limitation that the measure of importance comprises one or more of an indication that it is mandatory to utilize presentation rate information, an indication that it is strongly-encouraged to utilize the presentation rate information, an indication that it is suggested to utilize the presentation rate information, and an indication that it is optional to utilize the presentation rate information; claim 22 includes a limitation that the measure of importance further comprises a multiplicity of values; and claim 23 includes a limitation that the measure of importance comprises an increment, decrement, or scale factor that is applied to a current insistence level to provide an altered insistence value along with an indication that the altered insistence value should take effect immediately upon receipt.

Porter et al.

Porter et al. has been discussed above in responding to issue 1.

Bhadkamkar et al.

Bhadkamkar et al. teaches method and apparatus for receiving a target display rate from a user or automatically by analyzing the audio-visual data. (see for example, Bhadkamkar et al. at col. 3, lines 25-36, col. 7, lines 24-64, and see box 102 of FIG. 1) As described, "a single target display rate can be

specified for the entire audiovisual display, or a series of target display rates, each corresponding to a portion of the audio-visual display, can be specified." After that, a modified set of audio and video data, based upon the target display rate, is created. (see for example, Bhadkamkar et al. at col. 7, line 65 to col. 8, line 34, and boxes 103 and 104 of FIG. 1) At col. 8, lines 48-56, Bhadkamkar et al. teaches displaying the modified audio visual data, or storing the modified audio and video data "on a conventional data storage device, such as a conventional computer hard disk, and displayed as desired at a later time." Finally, as set forth at col. 9, lines 60-67 and col. 10, lines 1-65, Bhadkamkar et al. teaches various analyses of a signal (for example, an audio signal) that are based solely on measured properties of the signal. Note that Bhadkamkar et al. does not teach, hint or suggest in any manner whatsoever examining conceptual content of a signal.

Combination of Porter et al. and Bhadkamkar et al.

Appellant respectfully submits that there is no reason, suggestion, or motivation in Porter et al. or Bhadkamkar et al. or anywhere else that would have led one of ordinary skill in the art to combine Porter et al. and Bhadkamkar et al. In particular, as discussed above, Porter et al. relates to a broadcast server system for streaming data to "dumb" client devices whereas Bhadkamkar et al. relates to an apparatus that presents an audio-visual work at different presentation rates. Thus, since the broadcast server system taught by Porter et al. obviates the need for the method or apparatus of Bhadkamkar et al., there

is no reason why one of ordinary skill in the art would combine their teachings.

Regarding claims 1-2: Appellant respectfully submits that neither Porter et al. nor Bhadkamkar et al. teaches, discloses, hints, or suggests broadcasting guidance information that can be utilized to determine presentation rates for use by a client device to present broadcast information as required by claims 1-2. In particular, as has been set forth above in discussing Porter et al. with respect to issue 1, Porter et al. does not teach broadcasting presentation rates for fast rewind etc. Instead, Porter et al. teaches that whenever a user requests a broadcast digital video having a different presentation rate, stream server 110 causes video pump 130 to create a new MPEG file having the different presentation rate and to broadcast the new MPEG file to a "dumb" client device. In addition, as set forth above, Bhadkamkar et al. does not teach broadcasting information and guidance information. Thus, even if one were to combine Porter et al. and Bhadkamkar et al. (as set forth above, one would not), one would not arrive at the invention of claims 1-2 because there is no teaching or hint or suggestion in Porter et al. or Bhadkamkar et al. for broadcasting guidance information. As such, Appellant respectfully submits that claims 1-2 are patentable over Porter et al. in view of Bhadkamkar et al.

Regarding claims 3 and 5: Appellant respectfully submits that claims 3 and 5 are patentable over Porter et al. in view of Bhadkamkar et al. because neither Porter et al. nor Bhadkamkar et al. teaches, discloses, hints, or suggests a "smart" client device that receives broadcast information and utilizes a presentation rate obtained by analyzing guidance

information to present the broadcast information at the presentation rate (as set forth above, Porter et al. teaches a "dumb" client device receiving broadcast digital video, *i.e.*, a device that cannot utilize presentation rate to present information). Further, neither Porter et al. nor Bhadkamkar et al. teaches, discloses, hints, or suggests a method wherein a client device receives broadcast information and guidance information, analyzes the guidance information to determine a presentation rate, and presents the broadcast information at the presentation rate as required by claims 3 and 5. In fact, Porter et al. teaches away from this by teaching that a new digital video (MPEG file) is broadcast if the presentation rate is to change. Still further, as set forth above, one of ordinary skill in the art would not combine the teaching of Porter et al. and Bhadkamkar et al. to provide the method of claims 3 and 5 because the broadcast server system taught by Porter et al. obviates the need for the method or apparatus of Bhadkamkar et al. As such, Appellant respectfully submits that claims 3 and 5 are patentable over Porter et al. in view of Bhadkamkar et al.

Regarding claim 4: Appellant respectfully submits that claim 4 is patentable over Porter et al. in view of Bhadkamkar et al. because of the reasons set forth above with respect to claim 3, and because neither Porter et al. nor Bhadkamkar et al. teaches, discloses, hints, or suggests a method wherein a client device analyzes guidance information and a user input presentation rate to determine a presentation rate, and wherein the client device presents broadcast information at the presentation rate. As such, Appellant

respectfully submits that claim 4 is patentable Over Porter et al. in view of Bhadkamkar et al.

Regarding claims 6 and 9: Appellant respectfully submits that claims 6 and 9 are patentable over Porter et al. in view of Bhadkamkar et al. because neither Porter et al. nor Bhadkamkar et al. teaches, discloses, hints, or suggests receiving broadcast information by a "smart" client device that utilizes a presentation rate obtained by analyzing guidance information to present broadcast information at the presentation rate (as set forth above, Porter et al. teaches broadcasting digital video to a "dumb" client device, *i.e.*, a device that cannot utilize presentation rate to present information). Further, neither Porter et al. nor Bhadkamkar et al. teaches, discloses, hints, or suggests a method wherein a client device receives broadcast information and guidance information, analyzes the guidance information to determine a presentation rate, and presents the broadcast information at the presentation rate as required by claims 6 and 9. In fact, Porter et al. teaches away from this by teaching that a new digital video (MPEG file) is broadcast if a presentation rate is to change. Still further, as set forth above, one of ordinary skill in the art would not combine the teaching of Porter et al. and Bhadkamkar et al. to provide the method of claims 6 and 9 because the broadcast server system taught by Porter et al. obviates the need for the method or apparatus of Bhadkamkar et al.

Thus, even though Bhadkamkar et al. teaches the use of time-scale modification, Appellant respectfully submits that if one were to combine the teaching of Porter et al. and Bhadkamkar et al., one would include the time-scale modification capability in the

broadcaster (and not in a client device as required by claims 6 and 9) since Porter et al. teaches that a broadcaster broadcasts a new digital video signal to enable a presentation or play back at a new presentation rate by a "dumb" client device. As such, Appellant respectfully submits that claims 6 and 9 are patentable over Porter et al. in view of Bhadkamkar et al.

Regarding claims 10-11: Appellant respectfully submits that claims 10-11 are patentable over Porter et al. in view of Bhadkamkar et al. because neither Porter et al. nor Bhadkamkar et al. teaches, discloses, hints, or suggests a method wherein a "smart" client device receives broadcast information and utilizes a presentation rate obtained by analyzing guidance information to present the broadcast information at the presentation rate. In addition, Appellant respectfully submits that neither Porter et al. nor Bhadkamkar et al. teaches providing presentation rate related to conceptual information content as required by claims 10-11. Although Bhadkamkar et al. does teach developing presentation rates as a function of signal characteristics (*see* col. 9, lines 60-67 and col. 10, lines 1-65), Appellant respectfully submits that . . . .

[. . .]

NOTICE OF ALLOWABILITY (FEBRUARY 7, 2003)

Notice of Allowability

Application No. 09/325,245
Applicant(s): HEJNA, DONALD J.
Examiner: KIEU-ONAH T BUI
Group Art Unit: 2711

–The MAILING DATE of this communication appears on the cover sheet with the correspondence address–

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS. This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Appeal Brief filed on 12/06/2002.

2. ☒ The allowed claim(s) is/are 1-34.

[. . .]

8. ☒ CORRECTED DRAWINGS must be submitted.

(a) ☒ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached

2) ☒ to Paper No. 3.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the top margin (not the back) of each sheet. The drawings should be filed as a separate paper with a transmittal letter addressed to the Official Draftsperson.

/s/ Chris Grant
Primary Examiner

DETAILED ACTION

Application/Control Number: 09/325,245
Art Unit: 2611

Response to Arguments on the Appeal Brief dated 12/06/2002

1. After carefully reviewing, Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

Allowable Subject Matter

2. Claims 1-34 are allowed.

Drawing

3. The application having been allowed, formal drawings are required in response to this Office Action.

Reasons for Allowance

3. The following is an examiner's statement of reasons for allowance:

The prior art fails of record issued to US Patents No. 5,659,539 fail to either alone or combine to teach or suggest a method for broadcasting information to a client device, which device utilizes presentation rates to present information at various presentation rates, and which method comprises the step of *broadcasting guidance information used to determine presentation rates for use by the client device in presentation of the information.*

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should

preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

CONCLUSION

4. Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(703) 872-9314, (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park 11, 2121 Crystal Drive Arlington, VA, Sixth Floor (Receptionist)

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Krista Kieu-Oanh Bui whose telephone number is (703) 305-0095. The examiner can normally be reached on Monday-Friday from 9:00 AM to 6:00 PM, with alternate Fridays off

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Faile, can be reached on (703) 305-4380.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

/s Chris Grant
Primary Examiner

Krista Bui
Art Unit 2611
Feb 07, 2003

NOTICE OF ALLOWANCE
(MARCH 20, 2003)

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
UNITED STATES PATENT AND TRADEMARK OFFICE
Address: Commissioner of Patents and Trademarks
Washington, D.C. 20231
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

Michael B Einschlag
25680 Fernhill Drive
Los Altos Hills, CA 94024

Examiner: Bui, Kieu Oanh T
Art Unit: 2611
Class-Subclass: 725-085000
Date Mailed: 03/20/2003

Application No.: 09/325,245

Filing Date: 06/03/1999

First Named Inventor: Donald J. Hejna Jr.

Attorney Docket No.: CONTROLTSM

Confirmation No.: 2593

TITLE OF INVENTION:

METHOD AND APPARATUS FOR CONTROLLING TIME-SCALE MODIFICATION DURING MULTI-MEDIA BROADCASTS

Application Type.: nonprovisional

Small Entity: YES

Issue Fee: $650

Publication Fee: $300

Total Fee(s) Due: $950

Date Due: 05/12/2003

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED, THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE REFLECTS A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE APPLIED IN THIS APPLICATION. THE PTOL-85B (OR AN EQUIVALENT) MUST BE RETURNED WITHIN THIS PERIOD EVEN IF NO FEE IS DUE OR THE APPLICATION WILL BE REGARDED AS ABANDONED.

PART B – FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to:

Mail: Box ISSUE FEE
Commissioner for Patents
Washington, D.C. 20231
Fax: (703) 746-4000

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 4 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS
(Legibly mark-up with any correction or use Block 1)

Michael B Einschlag
25680 Fernhill Drive
Los Altos Hills, CA 94024.

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal-drawing, must have its own certificate of mailing or transmission.

Application No.: 09/325,245

Filing Date: 06/03/1999

First Named Inventor: DONALD J. HEJNA JR.

Attorney Docket No.: CONTROLTSM

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Total Fee(s) Due: $950

Date Due: 05/12/2003

Examiner: BUI, KIEU OANH T

Art Unit: 2611

Class-Subclass: 725-085000

[. . .]

**VIRENTEM VENTURES, LLC
D/B/A ENOUNCE'S
MOTION FOR RECONSIDERATION
(DECEMBER 27, 2019)**

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

VIRENTEM VENTURES, LLC d/b/a ENOUNCE,

Plaintiff,

v.

YOUTUBE, LLC and GOOGLE LLC,

Defendants.

C.A. No. 18-917-MN

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Dated: December 27, 2019

{ Table of Contents and
Table of Authorities Omitted}

I. Introduction

Plaintiff Virentem Ventures LLC ("Virentem") respectfully seeks reconsideration of the Court's construction of the phrase "time-scale modification."

Virentem appreciates that the Court recently invested significant resources in the claim construction proceedings, including consideration of the proper construction of the phrase "time-scale modification." However, because the claim construction the Court adopted conflicts with the undisputed understanding of a person of ordinary skill in the art, as Defendant Google has confirmed in this case, and because motions for re-argument must be filed in this district within fourteen days of the Court's opinion pursuant to Delaware Local Rule 7.1.5, Virentem files this request for reconsideration to preserve this issue for later proceedings. Virentem believes that it will become clearer to the Court as this case proceeds

through summary judgment proceedings and trial that the Court's construction of "time-scale modification" should be modified to reflect the understanding of one of ordinary skill in the art and to breathe life and meaning into the asserted patents. Accordingly, Virentem files the instant motion to avoid any arguments that it waived its right to seek reconsideration of the Court's construction.

Setting aside the particular words that are ultimately adopted, one of ordinary skill in the art at the time of the patents-in-suit would have understood time-scale modification to mean techniques for speeding up, by time compression, or slowing down, by time expansion, audio in a manner that preserves the perceived pitch and intelligibility. This concept is expressed in any number of different phrases ("reduced artifacts and distortion," "preserves pitch," "maintaining intelligibility," "preserving the periodicity," etc.), but as Google's own invalidity contentions confirm, the entire purpose of the art of time-scale modification, regardless of the specific algorithm used, is to speed up or slow down audio in a manner that remains understandable. D.I. 162, J.A. 000614-615. Given that preserving intelligibility is the focus of this area of the art, it is therefore not surprising that the intrinsic record confirms this and only this meaning. Nor it is surprising that even after being asked three times at the claim construction hearing, Google could not identify any time-scale modification art that did not involve the goal of preserving pitch.

Virentem urges this Court to reconsider its construction of "time-scale modification," which is overly broad and thus incorrect as a matter of law.[1]

II. Courts in This District Entertain Motions for Reargument Regarding Claim Construction

Local Rule 7.1.5 authorizes parties to seek reargument (or reconsideration) of a court order within 14 days of issuance of that order. And while the rule states that such motions "shall be granted sparingly," courts in this district have consistently interpreted the rule to permit such motions when the Court misunderstands a party's position. *See, e.g., Pegasus Dev. Corp. v. DirecYV, Inc.*, No. CV 00-1020 (GMS), 2013 WL 12334591, at *1 n.1, (D. Del. May 15, 2013); *Brambles USA, Inc. v. Blocker*, 735 F.Supp. 1239, 1241 (D. Del. 1990).

Once a court agrees to reconsider a prior ruling, it may modify that ruling to the extent it includes a clear error of law. *Lifeport Scis. LLC v. Cook Inc.*, No. CV 13-362- GMS, 2015 WL 11237044, at *1, (D. Del. Aug. 20, 2015). This includes errors in claim construction. *See, e.g.*, *ABB Automation, Inc. v. Schumberger Res. Mgmt. Servs., Inc.*, No. Civ. A 01-077-SLR, 2003 WL 21034979, at *1, (D. Del. May 6, 2003).

As one court in the District of Connecticut has noted, motions for reconsideration are particularly

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[1] An apt analogy would be to a construction of the term "water" as only "a liquid." While that is true, it is incomplete and wrong as a scientific matter where the properties of water are important – namely, that water is "a liquid consisting of hydrogen and oxygen." Similarly, it would be improper to "construe" water as a "liquid" but exclude "hydrogen."

valuable in the context of claim construction because "any mistake is likely to affect the outcome of the infringement determination to be made in the future." *Tyco Healthcare Grp. LP v. Ethicon Endo-Surgery, Inc.*, 440 F.Supp.2d 120, 124 (D. Conn. 2006) (granting reconsideration and modifying claim construction order).

III. The Court Erred as Matter of Law in Construing the Term "Time Scale Modification."

A. The Intrinsic Record Supports Only a Construction in Which Perceived Pitch and Intelligibility are Preserved.

The intrinsic record in this case supports only a definition of "time-scale modification" in accord with the conceptual understanding of the phrase to one of ordinary skill in the art. As discussed at length during the claim construction hearing, most of the patents-in-suit incorporate by reference U.S. Patent 5,175,769 (the "'769 Patent"). The '769 Patent and the references cited therein confirm that the focus of time-scale modification research and technology is and remains to speed up or slow down audio (with or without accompanying video) in a manner that preserves understandability.

Virentem respectfully submits that the Court misapprehended the focus of the '769 patent as being directed to only a special type of time-scale modification–one that preserves pitch, and in doing so believed that there are other types of time-scale modification that are not focused on preserving pitch and understandability. But as set forth in the '769

Patent, in contrast to just speeding up (*i.e.*, fast-forwarding) and slowing down, TSM research and study has always been directed to changing playback rate while preserving the understandability of audio. The '769 Patent identifies various prior art references that utilize different techniques and algorithms for time-scale modification, but regardless of the algorithm disclosed, the focus of the art is preserving understandability while changing the playback rate.

The study of TSM dates back to at least the 1940's. D.I. 162, J.A. 427 at 2:38-46. "One of the original time-domain methods of TSM was proposed in the 1940s and entailed splicing, *i.e.*, abutting, different regions of a signal at a fixed rate to compress or expand tape recordings. This method results in discontinuities in transitions between inserted or deleted segments and such discontinuities lead to bothersome clicks and pops in the resulting time-scale modified signal." D.I. 162, J.A. 427 at 2:39-46.

In more modern digital signal processing as described in the '769 Patent, TSM methods operate by inserting or deleting segments of a digitally sampled speech signal in a manner that preserves the local pitch and intelligibility. Put another way, TSM refers to changing the rate of reproduction of a signal to provide reproduction of the signal at a wide variety of playback rates without an accompanying change in local periodicity.[2] *See* D.I. 162, J.A. 427 at 1:5-10.

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[2] Preserving periodicity is preserving the local period or pitch. Indeed, the background of '769 Patent describes many techniques for expanding or compressing an audio signal in a manner that preserves periodicity. For example, the SOLA method described in the specification comprises a technique for reducing dissimilarities when superimposing signals after time-

The TSM prior art described in the '769 confirms this meaning of TSM to one of ordinary skill in the art. For example, a 1986 article entitled "Time-Scale Modification in Medium to Low rate Speech Coding," defined TSM as "[c]hanging the speed of the speech signal without changing the voice quality[.]" D.I. 162, J.A. 00583 (1986). Similarly, a 1985 article entitled "High Quality Time-Scale Modification for Speech," confirms the goal of all time-scale modification research: "In time-scale modification, we wish to modify the perceived rate of speech while preserving the formant structure (for intelligibility) and the perceived pitch (for naturalness)." D.I. 162, J.A. 000578 (1985).

The 1986 article cited in the '769 Patent identifies at least seven other articles that describe different algorithms for accomplishing time-scale modification. The 1986 article discusses various advantages and drawbacks of the prior techniques in terms of computation, none of which relate to an inability to preserve pitch:

> While there have existed a number of techniques for TSM of speech (see, for example, [1-7]), the only time-domain harmonic scaling (TDHS) method of Malah [3] has been used in any significant way in medium rate coding [8]. Although generally good results have been reported, TDH has certain drawbacks: it requires pitch estimation and pitch-synchronous analysis, and the length of the analysis window is a multiple of the pitch period; hence, only certain speed

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expanding or compressing a signal. *See, e.g*, D.I. 162, J.A. 428 at 3:48-4:35.

> compression/expansion ratios can be accommodated. More recently, several TSM methods have been developed which do not have the limitations mentioned above. For example, the methods of Portnoff [4], Griffin and Lim [5], Roucos and Wilgus [6], and Quatieri and McAulay [7], all have a fixed-length analysis window, do not require pitch estimation, can operate at arbitrary speed-change ratios, and can be used with multiple speakers and other audio sounds. All these methods produce high-quality time-modified speech but differ significantly in the amount of computation needed.

D.I. 162, J.A. 00583 (1986).

The '769 patent is not directed to a special kind of time-scale modification that preserves pitch. Instead, the '769 improved on a pre-existing technique for performing time-scale modification that preserved pitch in a manner that minimized computational requirements and was of a higher quality:

> The SOLA method has a drawback in that the amount of overlap for the mth window, Wmov, between the output and the mth analysis window varies with kn and this complicates the work required to compute the similarity measure and to fade across the overlap region. Also, depending on the shifts kn, more than two windows may overlap in certain regions and this further complicates the fading computation.
>
> As a result, there is a need in the art for a method for modifying the time-scale of speech,

> music, or other acoustic material without modifying the pitch, which is robust, and which does not require excessive amounts of computation.

D.I. 162, J.A. 000428, '769 Patent at 4:36-48 (emphasis added).[3]

The file history of the '228 Patent confirms the meaning of the phrase "time scale modification." In the appeal brief that ultimately led to the issuance of the '228 Patent (which shares a specification with the '885 and '188 Patents), the patentee stated: "a time-scale modified signal maintains properties of the original signal such as a local pitch period, speaker identity, and intelligibility." D.I. 162, J.A. 522.

And the specification of the '433 Patent family explains that TSM allows for preserving intelligibility: "As is well known to those of ordinary skill in the art, the use of the TSM method in the above-described LD-TSM application enables the sped-up or slowed-down speech or audio to be presented intelligibly at the increased or decreased playback rates. Thus, for example, a listener can readily comprehend material through which he/she is fast-forwarding." D.I. 162, J.A. 000190, '433 Patent, 1:36-42.

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[3] As set forth in Virentem's opposition to Defendants' Motion to Dismiss, the '769 was an extension of inventor Don Hejna master's thesis work at MIT. *See* D.I. 145 at 7; D.I. 146-1 at 32. The introductory paragraphs of Mr. Hejna's thesis confirm the understanding of one of ordinary skill in the art that "[t]ime-scale modification of speech refers to processing performed on speech signals that changes the perceived rate of articulation without affecting the pitch or intelligibility of the speech." Dkt. 146-1 at 32.

Put simply, the intrinsic evidence supports the only understanding of one of ordinary skill in the art–that time-scale modification is more complex than simply speeding up or slowing down, and that the goal of TSM is to do so in a way which preserves pitch and intelligibility.

B. Google Agrees that One of Ordinary Skill in the Art at the Time of the Patents-in-Suit Would Have Understood TSM to Include Preserving Pitch and Intelligibility

Google's invalidity contentions confirm that there is no dispute as to the meaning of TSM to a person of ordinary skill in the art.[4] The following except is not responsive to any Virentem contention, but instead sets forth Google's independent understanding of TSM to one of ordinary skill in the art:

> Certain claims in the '903 family require "Time-Scale Modification" ("TSM") that modifies the playback rate of audio, while also modifying the audio to avoid changing the pitch (for example, reducing the "chipmunk" effect typical from speeding up audio). To the extent that Virentem argues this requirement is not met by any reference, it would have been obvious to use TSM technology with any of the identified references.

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[4] The result here does not turn on the level of ordinary skill in the art as all of the intrinsic evidence as well as Google's own contentions confirm a single understanding of one of ordinary skill in the art.

TSM technology was well-known at the time of the alleged invention. Bhadkamkar, for example, teaches time-scale modification techniques that modify audio or audio-visual data to change their display rate, *e.g.*, speeding up or speeding down, to a target display rate, with reduced artifacts or distortion. (*Id.*, 2:31-3:7, 10:5-39, 12:17-24.) Covell discloses a time-scale modification technique for "facilitate[ing] high rates of compression and/or expansion while maintaining the intelligibility of the resulting sounds" using an improved SOLA technique, which applies the time scale modification non-uniformly to individual audio frames, by accounting for the "overall pattern of a speech signal," to "provide a more intelligible signal upon playback, even at high modification rates." (*Id.*, *Id.*, 1:6-11, 3:5-7, 9:41-48.) The Bhadkamkar and Covell patents were assigned to Interval Research Corporation. Additional Interval Research patents and publications provide further details regarding the development of advanced TSM techniques for both audio and video data, including synchronizing video and audio playback when applying variable speed playback. *See, e.g.* U.S. Patent No. 6,259,441 to Ahmad; Mach1: Nonuniform Time-Scale Modification of Speech, by Covell; FastMPEG: Time-Scale Modification of Bit-Compressed Audio Information, by Covell (collectively with Bhadkamkar and Covell, the "Interval TSM Technology" references).

References like Beard, Ware, and the Omoigui

> references also each explicitly disclose TSM and describe known methods for accomplishing TSM. Other references also generally disclose modifying a playback rate, which a person of ordinary skill in the art at the time would have known to use TSM for. Indeed, Virentem's patents themselves describe TSM as well-known. (*See, e.g.*, '885 Patent at 5:16-21 ("As is well known to those of ordinary skill in the art, presently known methods for Time-Scale Modification ('TSM') enable digitally recorded audio to be modified so that a perceived articulation rate of spoken passages, *i.e.*, a speaking rate, can be modified dynamically during playback."); '903 Patent at 2:10-12 (describing TSM in the Background as existing functionality.) TSM allowed for, among other things, greater intelligibility of audio when it is sped up for quick listening, as described in Virentem's patents. Accordingly, it would have been obvious to incorporate TSM into any of the identified media playback references.

D.I. 162, J.A. 00614-615. In this passage, Google contends that "Virentem's patents" describe TSM as Virentem defines it: "TSM allowed for, among other things, greater intelligibility of audio when it is sped up for quick listening, as described in Virentem's patents." *Id.*

At the claim construction hearing, the Court asked Google three different times, with increasing directness after long non-responsive arguments, whether Google was aware of any TSM art where pitch was not preserved. D.I. 169 at 25:3-12; 31:23-

32:1; 32:21-22. In view of the straightforward statements about this area of art made in its invalidity contentions, it is not surprising that Google was unable to identify any such art.[5]

C. Statements By Prior Counsel in the EPL Litigation are Conflicting, at Best, and Should Not Be Determinative Here as a Matter of Law

During the claim construction proceedings in the EPL litigation, EPL and its counsel described TSM in the '769 Patent in a manner that is ultimately consistent with the construction that Virentem contends is correct as a matter of law:

> U.S. Patent 5,175,769 (the "'769 Patent), relates to a method for altering the playback speed of a signal (such as an audio signal) in a way that will not alter its pitch. Using the analogy of a record player with multiple speeds, it is generally understood that if a user played a 45 RPM record on the 78 RPM setting, the audio would speed up, and the pitch would also go up (resulting in the recording sounding like Alvin and the Chipmunks characters). If one played the same 45 RPM on the 33 RPM setting, the audio would slow down and the pitch would also be lower. The '769 patent discloses a

[5] After being unable to identify any TSM art where pitch is not preserved, counsel made the circular argument that the patents-in-suit were examples of art where pitch was not preserved. D.I. 169 at 32:23-33:18.

> method for manipulating a signal by changing its duration to effectively alter its playback speed by overlapping portions of the audio, so that the resulting pitch is not changed.

D.I. 162-1, J.A. 679 at 12-21 (emphasis added).

Furthermore, the EPL court confirmed that the improvements of the '769 method over prior art TSM techniques related to improved efficiency and reduced computation. The court described that the patent improved over the SOLA technique, "which achieves TSM without noticeable pitch distortion . . . " D.I. 162-1, J.A. 707 at 4-22. The claimed improvement in the '769 "reduce[d] the number of computations required to produce the desired modification relative to the SOLA method." J.A. 707 at 20-22. Indeed, the Court ultimately only rejected the phrase "without modifying pitch" in its claim construction because "there is no intrinsic evidence showing that the claims at issue must be limited to time-scale modifications that result in absolutely no pitch distortions, which is what the phrase 'without modifying its pitch' requires." D.I. 162-1, J.A. 716 at 16-21.

In this case, the Court appeared to place great weight on statements EPL made in the prior litigation. Without question, some of the arguments made by EPL's counsel are not helpful to Virentem here. They appear to have been based on a misguided concern about a potential noninfringement argument, as that claim construction order ultimately reflects. But even if the statements are hard to reconcile and may even have been wrong as a matter of law, it is improper to base the claim construction of time-scale modification in this case on a few select statements made in support of legal arguments by prior counsel in prior

litigation. *Glick v. White Motor Co.*, 458 F.2d 1287, 1291 (3d. Cir. 1972). In order for a statement of counsel (during trial) to rise to the level of a binding judicial admission, the statement must be made in the same proceeding, it must be unequivocal, and be a statement of fact that would ordinarily require evidentiary proof (which was not offered in view of the statement of counsel). *Id.*

Another district court has considered the issue of whether positions on claim construction can ever amount to a judicial admission and found that they cannot:

> [T]he Court questions whether such statements are properly considered statements of fact as opposed to statements of law or legal argument (which fall outside the concept of judicial admissions). *See, e.g., McNamara v. Picken*, 950 F.Supp.2d 125 (D.D.C.2013) ("[I]t is well established that judicial admissions on questions of law have no legal effect." (citation omitted)). As discussed more below, the scope and meaning of claim terms in a patent is a question of law. *See Interpols Network Inc. v. Aura Interactive, Inc.,* No. SACV 12–832 JVS (JPRx), 2014 WL 1246081 (C.D.Cal. Jan. 6, 2014) ("[T]he court must determine the scope and meaning of the patent claims asserted–a question of law."); *see also Lighting Ballast Control LLC v. Philips Electronics N. Am. Corp.,* 744 F.3d 1272, 1284 (Fed.Cir. 2014) (en banc) ("Claim construction is a legal statement of the scope of the patent right. . . . "). As such, "construction of a

> patent, including terms of art within its claim, is exclusively within the province of the court." *Markman v. Westview Instruments, Inc.,* 517 U.S. 370, 372, 116 S.Ct. 1384, 134 L.Ed.2d 577 (1996).

Lam Research Corp. v. Schunk Semiconductor, 65 F. Supp. 3d 863, 870 (N.D. Cal. 2014). Consistent with this conclusion, the Federal Circuit has held that a district court has "an independent obligation to determine the meaning of the claims, *notwithstanding the views asserted by the adversary parties*." *Exxon Chemical Patents, Inc. v. Lubrizol Corp.,* 64 F.3d 1553, 1555 (Fed.Cir.1995) (emphasis added).

IV. Conclusion

For the foregoing reasons, as well as others that may become apparent as this case progresses, Virentem respectfully respects that the Court reconsider its claim construction of the phrase "time scale modification."

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ARTICLE
HIGH QUALITY TIME-SCALE MODIFICATION FOR SPEECH

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ABSTRACT

We present a new and simple method for speech rate modification that yields high quality ratemodified speech. Earlier algorithms either required a significant amount of computation for good quality output speech or resulted in poor quality rate-modified speech. The algorithm we describe allows arbitrary linear or non-linear scaling of the time axis. The algorithm operates in the time domain using a modified overlap-and-add (OLA) procedure on the waveform. It requires moderate computation and could be easily implemented in real time on currently available hardware. The algorithm works equally well on single voice speech, multiple-voice speech, and speech in noise. In this paper, we discuss an earlier algorithm for time-scale modification (TSM), and present both objective and informal subjective results for the new and previous TSM methods.

1. Introduction

The ability to modify the apparent rate of speech is desirable in a number of applications. For example, one can reduce the bit rate required for mediumband speech coding by time-scale compression of the input speech, followed by coding and transmission, followed by time-scale expansion to the original time scale at

the receiver. Also, in voice mail systems, speech rate speedup is useful for quicker playback of received voice messages.

In time-scale modification, we wish to modify the perceived rate of speech while preserving the formant structure (for intelligibility) and the perceived pitch (for naturalness). A mathematical model for such a process is to measure the spectral envelope and the pitch of speech at a set of discrete time points $\{t_i; i=l, n\}$ and then to synthesize speech which will have approximately the same spectral envelope and pitch when measured at the warped set of time points $\{f(t_i); i=l, n\}$.

Systems for speech rate modification [l, 2, 3] differ in the representation of the spectral envelope and pitch information, the distance measure used to determine what approximate equality is, and the corresponding analysis/synthesis methods used either to extract the parameters of the representation from speech or to synthesize speech from these parameters. In this paper, we will describe the work of Griffin and Lim [4] since their algorithm, the least-squares error estimation from the modified short-time Fourier transform magnitude (LSEE-MSTFTM), is expected to have the best quality of earlier systems and because it was a basis for our research.

The LSEE-MSTFTM TSM algorithm is designed to enforce equality of the short-time Fourier transform magnitudes (STFTM) of the original and rate-modified signal, provided that those magnitudes are calculated at the corresponding time points. The STFTM contains both the spectral envelope and pitch information. Through an iterative process, the LSEE-MSTFTM algorithm produces successive signal estimates whose

STFTMs are monotonically closer (using a Euclidean distance on the STFTM) to the required STFTMs [4]. The LSEE-MSTFTM algorithm, described in more detail in Section 2, produces high quality speech, but requires large computational resources.

We also report on a study of the convergence behavior of the LSEE-MSTFTM algorithm for various initial signal estimates. In an attempt to reduce the computational load by choosing good initial estimates that would require few iterations, we derived the synchronized overlap-and-add (SOLA) algorithm. The SOLA algorithm yields high quality rate-modified speech without any iterative application of the LSEE-MSTFTM algorithm. Our new algorithm will be described in Section 3. We present our conclusions in Section 4.

2. The LSEE-MSTFTM Algorithm

In this section, we describe the LSEE-MSTFTM algorithm and show some results on the convergence behavior of the algorithm for various initial estimates. For convenience, we will use a notation similar to that of Griffin and Lim [4]. We will define the short-time Fourier transform (STFT) of a signal y(n) to be:

$$Y_w(mS_a,\omega)=\sum_{n=-\infty}^{\infty} w(mS_a-n)\ y(n)e^{-j\omega n} \qquad (1)$$

where w(.) is a window function and Sa is the sample shift between successive STFT computations. Suppose that the speech rate of the signal y(n) is to be changed by a rational factor $\alpha = S_s/S_a$ to yield the rate-modified speech signal x(n) ($\alpha > 1$ corresponds to

slowing the speech rate and $\alpha < 1$ to increasing the speech rate). The LSEE-MSTFTM . . .

ARTICLE
TIME-SCALE MODIFICATION IN MEDIUM TO LOW RATE SPEECH CODING

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ABSTRACT

Time-scale modification (TSM) of speech is one potential method for speech data reduction at medium to low bit rates, In this application, the speech waveform is compressed in time prior to coding, then expanded to its original speed at the receiver. In this paper, we apply the synchronized-overlap-add (SOLA) method of TSM, developed at BBN, to speech coding at 9.6 and 4.8 kbits/s. These systems were obtained by combining TSM with other established speech coding methods.

1. Introduction

One method for reducing the bit rate in speech waveform coding is to compress the speech in time prior to coding, then expand the speech to its original speed at the receiver. Changing the speed of the speech signal without changing the voice quality is known as time-scale modification, or TSM, While there have existed a number of techniques for TSM of speech (see, for example, [1-7]), only the time-domain harmonic scaling (TDHS) method of Malah [3] has been used in any significant way in medium-

rate coding [8]. Although generally good results have been reported, MIS has certain drawbacks: it requires pitch estimation and pitch-synchronous analysis, and the length of the analysis window is a multiple of the pitch period; hence, only certain speed compression /expansion ratios can be accommodated. More recently, several TSM methods have been developed which do not have the limitations mentioned above. For example, the methods of Portnoff [4], Griffin and Lim [5], Roucos and Wilgus [6], and Quatieri and McAuley [7], all have a fixed-length analysis window, do not require pitch estimation, can operate at arbitrary speed-change ratios, and can be used with multiple speakers and other audio sounds. All these methods produce high-quality time-modified speech but differ significantly in the amount of computation needed. The synchronized-overlap-add (SOLA) method of Roucos and Wilgus [6], developed at BBN, requires the smallest amount of computation. The method takes place completely in the time domain (there are no frequency-domain computations and no phase unwrapping), and is not iterative.

We view the use of TSM in waveform coding as simply another technique that should be explored when coding at medium to low rates. The SOLA method, for example, can be used in conjunction with any other waveform coding technique. In particular, we shall demonstrate the use of the SOLA method with adaptive predictive coding (APC) at 9.6 kbits/s and with baseband coding for speech compression at data rates approaching 4.8 kbits/s. We shall see that because in the coding application the time compression has to be followed by time expansion, a certain amount of ‘reverberant quality” can result. Such

effects are not noticeable with either time compression or time expansion alone. Therefore, one needs to exercise greater care in tuning the TSM algorithm to minimize the reverberant quality.

Below we first describe the SOLA method and then describe its use in medium and low rate coding.

2. TSM of Speech Using SOLA

The synchronized overlap add (SOLA) method of TSM consists of shifting and averaging overlapping frames of a signal at points of highest cross-correlation. Simple shifting and adding frames would achieve the goal of modifying the time scale but it would not conserve pitch periods, spectral magnitude or phase. Therefore it would be expected to produce poor quality speech. However, adding frames in a synchronized fashion at points of highest cross-correlation serves to preserve the time-dependent pitch and' the spectral magnitude and phase to a large degree.

ARTICLE

REAL–TIME TIME–SCALE MODIFICATION OF SPEECH VIA THE SYNCHRONIZED OVERLAP–ADD ALGORITHM

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by

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Submitted to the Department of Electrical Engineering and Computer Science in Partial Fulfillment of the Requirements for the degrees of

Master of Science

and

Bachelor of Science

at the Massachusetts Institute of Technology

February 1990

/s/_____

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Chairman, Departmental Committee on Graduate Students

CHAPTER 1–INTRODUCTION

1.1 Time-Scale Modification of Speech

Time-scale modification of speech refers to processing performed on speech signals that changes the perceived rate of articulation without affecting the pitch or intelligibility of the speech. Such modification can be categorized into two classes: time-scale compression (or speed-up) which increases the rate of articulation; and time-scale expansion (or slow-down) which decreases the rate of articulation. Speed-up is generally desired when a segment of speech contains little pertinent information and the goal is to extract the informational content in as little time as possible (i.e. a verbose speech) or when searching for a specific utterance quickly. Alternatively, the goal of slow-down in most cases is to decrease the rate of articulation to aid in comprehension or dictation of rapidly spoken speech segments with important information, such as an address or phone number.

A good time-scale modification (TSM) algorithm is one that produces “natural-sounding” speech over the range of playback rates that is of interest to the end user (possibly from three times slow down to two or three times speed up). Intelligibility, tonal quality,

and speaker recognition should be preserved, and processing artifacts (pops, clicks, burbles, reverberation, etc.) should be kept to a minimum. A convenient method for modifying the time-scale of speech has many useful applications.

ARTICLE
THE SOLAFS TIME-SCALE MODIFICATION ALGORITHM[1]

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July 31, 1991

ABSTRACT

We present a new algorithm for time-scale modification of acoustic signals, which is similar to the Synchronized Overlap-Add Algorithm (SOLA) of [RW85, MEJ86], but with substantially reduced computational requirements. The method allows playing back pre-recorded signals at a wide variety of rates without an accompanying change in pitch. The input is segmented at a dynamic analysis rate into frames we call windows, which are shifted in time to maintain the desired average time-compression or expansion, and then overlap-added together at a fixed synthesis rate to form the output. The algorithm differs from SOLA in that it is the starting position of the windows during analysis which are shifted about their target positions in order to maximize the similarity of the windows in the overlap regions. The

[1] This research has been partly funded by ROLM, and in part by the Advanced Research Project Agency monitored by ONR under Contract No. N00014-85-K-0272.

overlap regions in the output occur at a perfectly periodic rate. Shift prediction is used to further reduce computation.

Permission granted to publish this abstract separately.

Index Terms: Time-Scale Modification

1. Introduction

There are a large number of applications in which it is desirable to modify the time-scale of speech, music, or other acoustic material, without modifying the pitch. Radio stations can use the technique to speed up dance music, the blind can speed up recorded lectures, instructional material for foreign languages can be slowed down, dubbed sound tracks can be synchronized to a video signal and compressed into convenient time slots, dictation tapes can be slowed down for transcription, voice mail systems can allow listening to messages at a faster or slower rate, and so forth. The key issues in designing time-scale modification (TSM) systems are that the local pitch period remains unchanged (no Donald Duck or Minnie Mouse effects), and that no audible splicing, reverberation, or other artifacts are introduced.

One of the original attempts at TSM was by Fairbanks [?], who used a fixed rate mechanical splicing scheme to compress or expand tape recordings. Malah suggested a Time Domain Harmonic Scaling algorithm (TDHS) [Ma179], which improves on this by synchronizing the splice points to the local pitch period, and using overlap-add techniques to fade smoothly between the splices. Griffin and Lim [GL84] introduced a frequency-domain approach which

iteratively synthesizes a signal whose spectrogram is a compressed or expanded version of the original signal's spectrogram. Though this technique works well on almost any acoustic material, an enormous amount of computation is required. Roucos and Wilgus [RW85] originally introduced the Synchronized Overlap-Add (SOLA) method as a quick initial guess for the Griffin and Lim algorithm. In practice, however, this method worked so well that further processing was unnecessary.

SOLA starts by cutting the input signal *x[n]* into possibly overlapping windows $x_m[n]$ with a fixed length W, and separated by a fixed analysis distance S_A.

$$x_m[n] = \begin{cases} x[mS_A + n] & \text{for } n = 0, \ldots, W-1 \\ 0 & \text{otherwise} \end{cases}$$

The windows are then overlapped and recombined, with the separation between them com . . .

CONFERENCE PAPER:
TIME AND PITCH SCALE MODIFICATION: A REAL-TIME FRAMEWORK AND TUTORIAL

2008-01-01

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TIME AND PITCH SCALE MODIFICATION: A REAL-TIME FRAMEWORK AND TUTORIAL

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ABSTRACT

A framework is presented which is designed to address the issues related to the real-time implementation of time-scale and pitch-scale modification algorithms. This framework can be used as the basis for the developments of applications which allow for a seamless real-time transition between continually varying time-scale and pitch-scale parameters which arise as a result of manual or automatic intervention.

1. Introduction

Time-scale modification algorithms enable the playback rate of audio content to be arbitrarily slowed down or speeded up without affecting the local pitch content of the audio signal. Time-scale modification (TSM) is typically used to change the tempo of musical audio content, and the playback rate of speech. Conversely, pitch-scale modification (PSM) algorithms enable pitch shifting without affecting the playback rate of the audio content. Typical uses include key transposition or harmonisation

for musical audio content, and voice modification in speech based audio. A significant amount of research has been dedicated to both TSM and PSM yielding a variety of time and frequency domain algorithms. Additionally, several methods have been proposed and successfully implemented to deal with the known artefacts and shortcomings of the fundamental approaches to TSM. Despite this abundance of literature and commercial applications readily available, there is still a lack of information, understanding and consideration for real-time implementations of TSM and PSM algorithms. The purpose of this paper is to illuminate some of the problems which arise in a real-time context as well as to provide novel solutions to these issues. Here, a real-time software based framework is presented, which allows independent pitch and time stretching with almost unperceivable latency. The approach is based on a modified phase vocoder with optional phase locking and an integrated transient detector which enables high quality transient preservation in real-time. The paper is structured as follows: section 2 outlines basic TSM and phase vocoder theory; section 3 looks briefly at peak locking in the phase vocoder; section 4 introduces a tiered buffer scheme to allow real-time audio processing using a 75% overlap; section 5 deals with transitional artefacts associated with changing parameters in real-time; section 6 introduces a computationally efficient novel pitch shifting method; section 7 describes a novel method for real-time inline transient preservation. A brief evaluation and conclusions follow.

2. Phase Vocoder Fundamentals

The phase vocoder was first introduced in [1] and a comprehensive tutorial outlining the theory is

presented in [2]. The phase vocoder is a frequency domain technique which can be used to carry out time scale modification of audio. The Fourier transform interpretation of the phase vocoder is mathematically equivalent to a short time Fourier transform (STFT) [3] which segments the analysed signal into overlapping frames which are separated by a certain 'hop size'. Within phase vocoder implementations, TSM is achieved by varying the analysis hop size (*Ra*) with respect to the resynthesis hopsize (*Rs*) such that the time scaling factor is calculated as: $\alpha = Rs/Ra$.

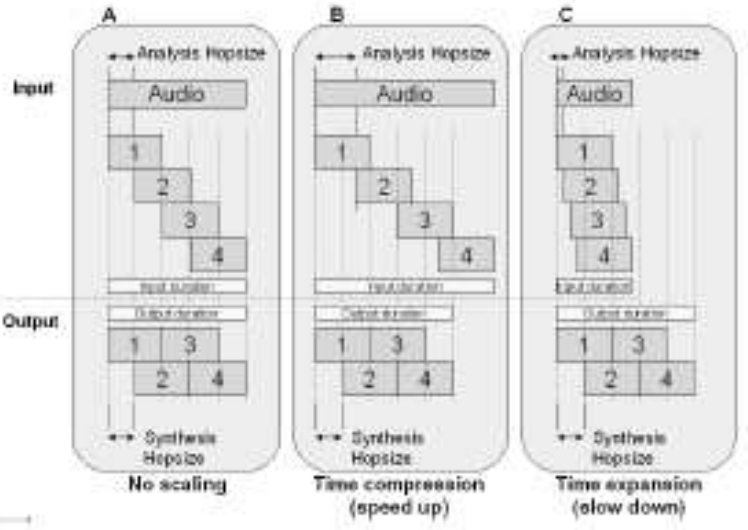

Figure 1: *Three audio segments of various lengths are time scaled to the same output duration. 'A' depicts no time scaling. 'B' illustrates time scale compression and 'C' illustrates time scale expansion*

From Figure 1 it can be seen that if *Ra* is set equal to *Rs*, no time scaling is achieved, whilst $Ra < Rs$ will result in timescale expansion (slow down), and $Ra > Rs$ will result in timescale compression

(speed up). Although, keeping either *Ra* or *Rs* fixed is feasible, it is recommended that *Rs* is fixed and *Ra* is varied in order to avoid amplitude modulation at the output.

In the context of the phase vocoder, a Fast Fourier Transform (FFT) is used to obtain a complex frequency domain. . .

ARTICLE
TSM TOOLBOX: MATLAB IMPLEMENTATIONS OF TIME-SCALE MODIFICATION ALGORITHMS

Proc. of the 17th Int. Conference on Digital Audio Effects (DAFx-14), Erlangen, Germany, September 1-5, 2014

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ABSTRACT

Time-scale modification (TSM) algorithms have the purpose of stretching or compressing the time-scale of an input audio signal without altering its pitch. Such tools are frequently used in scenarios like music production or music remixing. There exists a large variety of different algorithmic approaches to TSM, all of them having their very own advantages and drawbacks. In this paper, we present the TSM toolbox, which contains MATLAB implementations of several conceptually different TSM algorithms. In particular, our toolbox provides the code for a recently proposed TSM approach, which integrates different classical TSM algorithms in combination with harmonic-percussive source separation (HPSS). Furthermore, our toolbox contains several demo applications and

* The International Audio Laboratories Erlangen are a joint institution of the Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU) and Fraunhofer Institut für Integrierte Schaltungen IIS.

additional code examples. Providing MATLAB code on a well-documented website under a GNU-GPL license and including illustrative examples, our aim is to foster research and education in the field of audio processing.

1. Introduction

Time-scale modification (TSM) is the task of manipulating an audio signal such that it sounds as if its content was performed at a different tempo. TSM finds application for example in music remixing where it is used to adjust the playback speed of existing recordings such that they can be played simultaneously at the same tempo [1, 2]. Another field of application is the adjustment of the audio streams in video clips. For example, when generating a slow motion video, TSM can be used to synchronize the audio material with the visual content [3].

There exists a large variety of different TSM algorithms which all have their respective advantages and drawbacks. Some of the TSM procedures yield results of high perceptual quality only when applied to a certain class of audio signals. For example, 'classical' well-known TSM algorithms like WSOLA [4] or the phase vocoder [5, 6] are capable of

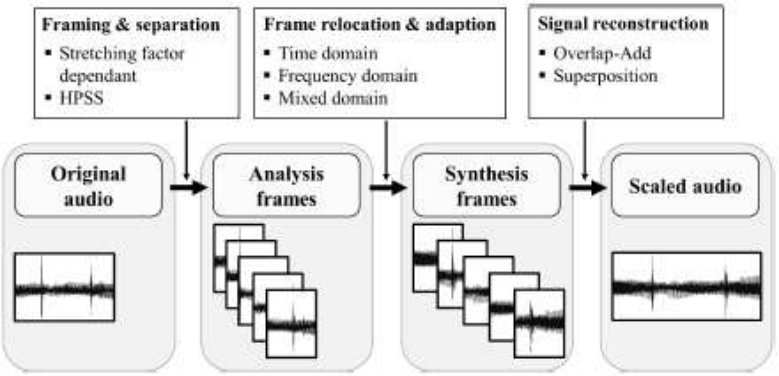

Figure 1: General processing pipeline of TSM procedures.

preserving the perceptual quality of harmonic signals to a high degree, but introduce noticeable artifacts when modifying percussive signals. However, it has been shown that it is possible to substantially reduce artifacts by combining different TSM procedures. For example, in [7], a given audio signal is first decomposed into a harmonic and a percussive component. Afterwards, the two components are processed with different classical TSM algorithms, and final output signal is obtained by superimposing the two TSM results.

To foster research and to obtain a better understanding of TSM algorithms, we present in this paper the TSM toolbox. Published under a GNU-GPL license at [8], this self-contained toolbox serves various purposes. First, it delivers basic tools to work in the field of TSM. The toolbox includes well-documented reference implementations of the most important classical TSM algorithms within a unified framework. This not only allows users and researchers to get a better feeling for TSM results by experimenting with the algorithms, but also gives insights into implemen-

tation details and potential pitfalls. Second, to give an example of how those classical algorithms can be combined to improve TSM results, the toolbox also supplies the code of a recently proposed TSM approach based on harmonic-percussive source separation (HPSS), also including the code of the HPSS procedure itself. Third, the toolbox provides a MATLAB wrapper function for a commercial, proprietary, and widely used TSM algorithm. Because of its . . .

ARTICLE:
A REVIEW OF TIME-SCALE MODIFICATION OF MUSIC SIGNALS†

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† This paper is an extended version of our paper published in [44].

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Abstract: Time-scale modification (TSM) is the task of speeding up or slowing down an audio signal's playback speed without changing its pitch. In digital music production, TSM has become an indispensable tool, which is nowadays integrated in a wide range of music production software. Music signals are diverse– they comprise harmonic, percussive, and transient components, among others. Because of this wide range of acoustic and musical characteristics, there is no single TSM method that can cope with all kinds of audio signals equally well. Our main objective is to foster a better understanding of the capabilities and limitations of TSM procedures. To this end, we review fundamental TSM methods, discuss typical

challenges, and indicate potential solutions that combine different strategies. In particular, we discuss a fusion approach that involves recent techniques for harmonic-percussive separation along with time-domain and frequency-domain TSM procedures.

Keywords: digital signal processing; overlap-add; WSOLA; phase vocoder; harmonic-percussive separation; transient preservation; pitch-shifting; music synchronization

1. Introduction

Time-scale modification (TSM) procedures are digital signal processing methods for stretching or compressing the duration of a given audio signal. Ideally, the time-scale modified signal should sound as if the original signal's content was performed at a different tempo while preserving properties like pitch and timbre. TSM procedures are applied in a wide range of scenarios. For example, they simplify the process of creating music remixes. Music producers or DJs apply TSM to adjust the durations of music recordings, enabling synchronous playback [1,2]. Nowadays TSM is built into music production software as well as hardware devices. A second application scenario is adjusting an audio stream's duration to that of a given video clip. For example, when generating a slow motion video, it is often desirable to also slow down the tempo of the associated audio stream. Here, TSM can be used to synchronize the audio material with the video's visual content [3].

A main challenge for TSM procedures is that music signals are complex sound mixtures, consisting of a wide range of different sounds. As an example, imagine a music recording consisting of a violin playing

together with castanets. When modifying this music signal with a TSM procedure, both the harmonic sound of the violin as well as the percussive sound of the castanets should be preserved in the output signal. To keep the violin's sound intact, it is essential to maintain its pitch as well as its timbre. On the other hand, the clicking sound of the castanets does not have a pitch–it is much more important to maintain the crisp sound of the single clicks, as well as their exact relative time positions, in order to preserve the original rhythm. Retaining these contrasting characteristics usually requires conceptually different TSM approaches. For example, classical TSM procedures based on waveform similarity overlap-add (WSOLA) [4] or on the phase vocoder (PV-TSM) [5–7] are capable of preserving the perceptual quality of harmonic signals to a high degree, but introduce noticeable artifacts when modifying percussive signals. However, it is possible to substantially reduce artifacts by combining different TSM approaches. For example, in [8], a given audio signal is first separated into a harmonic and a percussive component. Afterwards, each component is processed with a different TSM procedure that preserves its respective characteristics. The final output signal is then obtained by superimposing the two intermediate output signals.

Our goals in this article are two-fold. First, we aim to foster an understanding of fundamental challenges and algorithmic approaches in the field of TSM by reviewing well-known TSM methods and discussing their respective advantages and drawbacks in detail. Second, having identified the core issues of these classical procedures, we show–through an example–how to improve on them by combining different

algorithmic ideas. We begin the article by introducing a fundamental TSM strategy as used in many TSM procedures (Section 2) and discussing a simple TSM approach based on overlap-add (Section 3). Afterwards, we review two conceptually different TSM methods: the time-domain WSOLA (Section 4) as well as the frequency-domain PV-TSM (Section 5). We then review the state-of-the-art TSM procedure from [8] that improves on the quality of both WSOLA as well as PV-TSM by incorporating harmonic-percussive separation (Section 6). Finally, we point out different application scenarios for TSM (such as music synchronization and pitch-shifting), as well as various freely available TSM implementations (Section 7).

2. Fundamentals of Time-Scale Modification (TSM)

As mentioned above, a key requirement for time-scale modification procedures is that they change the time-scale of a given audio signal without altering its pitch content. To achieve this goal, many TSM procedures follow a common fundamental strategy which is sketched in Figure 1. The core idea is to decompose the input signal into short *frames*. Having a fixed length, usually in the range of 50 to 100 milliseconds of audio material, each frame captures the local pitch content of the signal. The frames are then relocated on the time axis to achieve the actual time-scale modification, while, at the same time, preserving the signal's pitch.

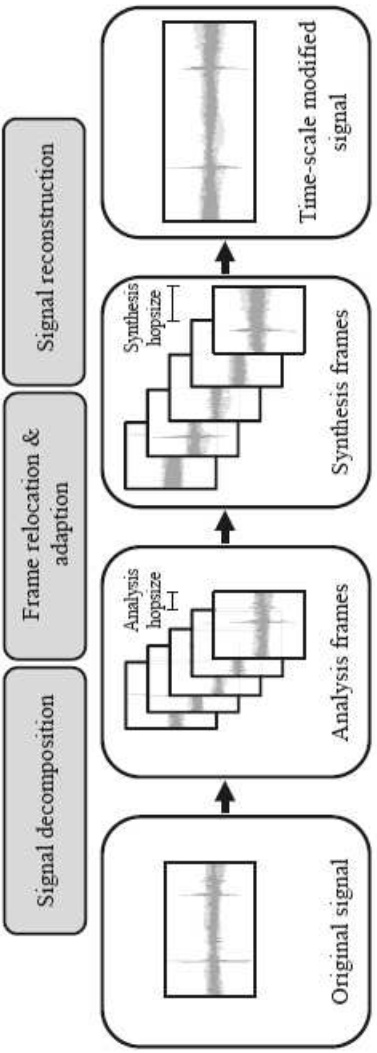

Figure 1. Generalized processing pipeline of Time-scale modification (TSM) procedures.

More precisely, this process can be described as follows. The input of a TSM procedure is a discrete-

time audio signal $x : \mathbb{Z} \dashrightarrow \mathbb{R}$, equidistantly sampled at a sampling rate of F_s. Note that although audio signals typically have a finite length of $L \in \mathbb{N}$ samples $x(r)$ for $r \in [0 : L - 1] := \{0, 1, \ldots, L - 1\}$, for the sake of simplicity, we model them to have an infinite support by defining $x(r) = 0$ for $r \in \mathbb{Z} \setminus [0 : L - 1]$. The first step of the TSM procedure is to split x into short analysis frames x_m, $m \in \mathbb{Z}$,

PRECEDENTIAL OPINIONS WHERE APPELLANT SOUGHT NARROWER CONSTRUCTION FROM JANUARY 1, 2019 TO PRESENT

KEY

Bold: Accused infringer sought narrower construction

Not bold: Patent owner sought narrower construction

***:** Narrowing request was granted

No *: Narrowing request was denied

^: One narrowing request was granted, one narrowing request was denied

CUPP Computing AS v. Trend Micro Inc.,
53 F.4th 1376 (Fed. Cir. 2022)

^*VLSI Tech. LLC v.* Intel *Corp.*,
53 F.4th 646 (Fed. Cir. 2022)

Polaris Innovations Ltd. v. Brent,
48 F.3d 1365 (Fed. Cir. 2022)

Best Medical Int'l Inc. v. Elekta Inc.,
46 F.4th 1346 (Fed. Cir. 2022)

Kamstrup A/S v. Axioma Metering UAB,
43 F.4th 1374 (Fed. Cir. 2022)

***Kaufman v. Microsoft Corp.*,**
34 F.4th 1360 (Fed. Cir. 2022)

***Sunoco Partners Mktg. & Terminals L.P. v. U.S. Venture, Inc.*,**
32 F.4th 1161 (Fed. Cir. 2022)

***Apple Inc. v. Wi-LAN Inc.*,**
25 F.4th 960 (Fed. Cir. 2022)

****AstraZeneca AB v. Mylan Pharm. Inc.*, 19 F.4th**
1325 (Fed. Cir. 2021)

Valve Corp. v. Ironburg Inventions Ltd.,
8 F.4th 1364 (Fed. Cir. 2021)

Uniloc 2017 LLC v. Apple Inc.,
996 F.3d 1368 (Fed. Cir. 2021)

Uniloc 2017 LLC v. Facebook Inc.,
989 F.3d 1018 (Fed. Cir. 2021)

***Bayer Healthcare LLC v. Baxalta Inc.*,**
989 F.3d 964 (Fed. Cir. 2021)

****SIMO Holdings Inc. v. Hong Kong***
***uCloudlink Network Tech. Ltd.*,**
983 F.3d 1367 (Fed. Cir. 2021)

***Vectura Ltd. v. Glaxosmithkline LLC*,**
981 F.3d 1030 (Fed. Cir. 2020)

SIPCO, LLC v. Emerson Elec. Co.,
980 F.3d 865 (Fed. Cir. 2020)

**St. Jude Medical, LLC v. Snyders Heart Valve LLC*,
977 F.3d 1232 (Fed. Cir. 2020)

Immunex Corp. v. Sanofi-Aventis U.S. LLC,
977 F.3d 1212 (Fed. Cir. 2020)

Egenera, Inc. v. Cisco Sys., Inc.,
972 F.3d 1367 (Fed. Cir. 2020)

****Bio-Rad Lab., Inc. v. 10X Genomics Inc.*,**
967 F.3d 1353 (Fed. Cir. 2020)

Shoes by Firebug LLC v. Stride Rite Children's Group, LLC, 962 F.3d 1362 (Fed. Cir. 2020)

Cochlear Bone Anchored Solutions AB v. Oticon Medical AB, 958 F.3d 1348 (Fed. Cir. 2020)

***Hologic, Inc. v. Minerva Surgical, Inc.*,**
957 F.3d 1256 (Fed. Cir. 2020)

**Personalized Media Communications, LLC v. Apple Inc.*, 952 F.3d 1336 (Fed. Cir. 2020)

**Kaken Pharm. Co., Ltd. v. Iancu*, 952 F.3d 1346 (Fed. Cir. 2020)

Eko Brands, LLC v. Adrian Rivera Maynez Enterprises, Inc., 946 F.3d 1367 (Fed. Cir. 2020)

Eko Brands, LLC v.
***Adrian Rivera Maynez Enterprises, Inc.*,**
946 F.3d 1367 (Fed. Cir. 2020)

***Amgen Inc. v. Hospira, Inc.*,**
944 F.3d 1327 (Fed. Cir. 2019)

TQ Delta, LLC v. CISCO Sys., Inc., 942 F.3d 1352 (Fed. Cir. 2019)

Game and Tech. Co., Ltd. v. Wargaming Group Ltd., 942 F.3d 1343 (Fed. Cir. 2019)

**In re Fought*, 941 F.3d 1175 (Fed. Cir. 2019)

**SIPCO, LLC v. Emerson Electric Co.*, 939 F.3d 1301 (Fed. Cir. 2019)

Arthrex, Inc. v. Smith & Nephew, Inc., 935 F.3d 1319 (Fed. Cir. 2019)

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930 F.3d 1295 (Fed. Cir. 2019)

TQ Delta, LLC v. DISH Network LLC, 929 F.3d 1350 (Fed. Cir. 2019)

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Papst Licensing GMBH & Co. KG v. Samsung Electronics America, Inc., 924 F.3d 1243 (Fed. Cir. 2019)

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BTG Int'l Limited v. Amneal Pharmaceuticals LLC, 923 F.3d 1063 (Fed. Cir. 2019)

Bradium Technologies LLC v. Iancu, 923 F.3d 1032 (Fed. Cir. 2019)

***E.I. du Pont De Nemours & Company v. Unifrax I LLC*, 921 F.3d 1060 (Fed. Cir. 2019)**

Arctic Cat Inc. v. GEP Power Products, Inc., 919 F.3d 1320 (Fed. Cir. 2019)

***SRI Int'l, Inc. v. Cisco Sys., Inc.*, 918 F.3d 1368 (Fed. Cir. 2019)**

Realtime Data, LLC v. Iancu, 912 F.3d 1368 (Fed. Cir. 2019)

AC Technologies S.A. v. Amazon.com, Inc., 912 F.3d 1358 (Fed. Cir. 2019)

RULE 36 AFFIRMANCES IN CASES WHERE PATENT OWNER OR ACCUSED INFRINGER SOUGHT A NARROWER CONSTRUCTION FROM JANUARY 1, 2019 TO PRESENT

KEY

Bold: Accused infringer sought narrower construction

Not bold: Patent owner sought narrower construction

***:** Narrowing request was granted

No *: Narrowing request was denied

Vilox Technologies, LLC v. Unified Patents LLC, No. 19-2057 (Fed. Cir. Feb. 14, 2023)

Guardant Health, Inc. v. Vidal, No. 21-1103 (Fed. Cir. Feb. 9, 2023)

LeftsnRights, Inc. v. 33Across, Inc., No. 20-2348 (Fed. Cir. Jan. 30, 2023)

KEYnetik, Inc. v. Samsung Electronics Co. Ltd., No. 22-1128 (Fed. Cir. Jan. 18, 2023)

Autronic Plastics, Inc. v. Apogee Lighting Holdings, LLC, No. 22-1379 (Fed. Cir. Jan. 18, 2023)

Ultravision Technologies, LLC v. Glux Visual Effects Tech (Shenzhen) Co., No. 22-1342 (Fed. Cir. Jan. 13, 2023)

Ultravision Technologies, LLC v. Glux Visual Effects Tech (Shenzhen) Co., No. 22-1344 (Fed. Cir. Jan. 13, 2023)

Polaris Innovations Ltd. v. US,
No. 18-1831 (Fed. Cir. Dec. 7, 2022)

Virentem Ventures, LLC v. Google LLC,
No. 21-1764 (Fed. Cir. Nov. 21, 2022)

Virentem Ventures, LLC v. Google LLC,
No. 21-1934 (Fed. Cir. Nov. 21, 2022)

Virentem Ventures, LLC v. Google LLC,
No. 21-1805 (Fed. Cir. Nov. 21, 2022)

Cellspin Soft, Inc. v. Canon U.S.A., Inc.
No. 20-1947 (Fed. Cir. Oct. 14, 2022)

Cellspin Soft, Inc. v. Panasonic Corp.
No. 20-1948 (Fed. Cir. Oct. 14, 2022)

CUPP Computing AS v. Trend Micro Inc.
No. 20-2059 (Fed. Cir. Oct. 6, 2022)

Novozymes N. America, Inc. v. Danisco US Inc.
No. 21-2184 (Fed. Cir. Oct. 5, 2022)

Provisur Technologies, Inc. v. Weber, Inc.
No. 21-1883 (Fed. Cir. Aug. 5, 2022)

Trusted Knight Corp. v. IBM
No. 21-2274 (Fed. Cir. Jul. 7, 2022)

C.A. Casyso GmbH v. HemoSonics LLC
No. 20-1444 (Fed. Cir. Jun. 13, 2022)

Hanwha Solutions Corp. v. LONGi Green Energy Tech. Co., Ltd.
No. 21-1629 (Fed. Cir. Jun. 10, 2022)

Townsend v. Brooks Sports, Inc.
No. 21-2143 (Fed. Cir. Jun. 9, 2022)

Omni MedSci, Inc. v. Apple Inc.
No. 21-1229 (Fed. Cir. Jun. 8, 2022)

Cellwitch Inc. v. Tile, Inc.
No. 21-1982 (Fed. Cir. May. 13, 2022)

SIPCO, LLC v. Emerson Elec. Co.
No. 21-1039 (Fed. Cir. May. 3, 2022)

Aquila Innovations Inc. v. Advanced Micro Devices, Inc., No. 21-1946 (Fed. Cir. Apr. 12, 2022)

Contemporary Display LLC v. DISH Network L.L.C., No. 21-1663 (Fed. Cir. Apr. 11, 2022)

Advanced Voice Recognition v. Apple Inc.
No. 21-1745 (Fed. Cir. Mar. 15, 2022)

Semiconductor Connections LLC v. Taiwan Semiconductor Mfg. Company Ltd.,
No. 21-2074 (Fed. Cir. Mar. 11, 2022)

Boston Scientific v. Nevro Corp.
No. 21-1775 (Fed. Cir. Mar. 10, 2022)

Willis Electric Co., Ltd. v. Everstar Merchandise Co., Ltd., No. 21-1870 (Fed. Cir. Mar. 10, 2022)

Raytheon Technologies v. Gen. Electric Co.,
No. 21-1166 (Fed. Cir. Jan. 18, 2022)

Shockwave Medical, Inc. v. Cardiovascular Sys., Inc.,
No. 20-2314 (Fed. Cir. Jan. 18, 2022)

Shockwave Medical, Inc. v. Cardiovascular Sys., Inc.,
No. 20-2251 (Fed. Cir. Jan. 18, 2022)

Wright Medical Tech., Inc v. Paragon 28, Inc.,
No. 21-1340 (Fed. Cir. Jan. 4, 2022)

In re: Hera Wireless S.A.
No. 20-1894 (Fed. Cir. Dec. 17, 2021)

SecureWave Storage Solutions v. Unified Patents, LLC
No. 20-2244 (Fed. Cir. Nov. 16, 2021)

DDR Holdings, LLC v. Shopify, Inc.
No. 21-1297 (Fed. Cir. Nov. 10, 2021)

BOS GmbH & Co. KG v. Macauto USA, Inc.
No. 21-1793 (Fed. Cir. Nov. 10, 2021)

FlexStent, LLC v. Abbott Vascular, Inc.
No. 21-1246 (Fed. Cir. Nov. 8, 2021)

BlackBerry Ltd. v. Hirshfeld
No. 21-1124 (Fed. Cir. Nov. 8, 2021)

Mati Therapeutics, Inc. v. Ocular Therapeutix, Inc.,
No. 20-2176 (Fed. Cir. Nov. 8, 2021)

Figurefun LLC v. Lego Sys., Inc.
No. 21-1259 (Fed. Cir. Oct. 7, 2021)

Lego Sys., Inc. v. FigureFun LLC
No. 21-1278 (Fed. Cir. Oct. 7, 2021)

Neurelis, Inc. v. Aquestive Therapeutics, Inc.
No. 21-1038 (Fed. Cir. Oct. 7, 2021)

Bestway (USA), Inc. v. Intex Recreation Corp.
No. 20-2200 (Fed. Cir. Sep. 7, 2021)

Inergetic AB v. Murata Mfg. Co., Ltd.
No. 20-2185 (Fed. Cir. Sep. 2, 2021)

Uniloc 2017 LLC v. Google LLC
No. 19-2137 (Fed. Cir. Aug. 31, 2021)

Louisville Ladder, Inc. v. Werner Co.
No. 21-1114 (Fed. Cir. Aug. 31, 2021)

Ortiz & Associates Consulting v. Unified Patents, LLC, No. 21-1085 (Fed. Cir. Aug. 31, 2021)

Uniloc 2017 LLC v. Google LLC
No. 19-2277 (Fed. Cir. Aug. 31, 2021)

***f'real Foods LLC v. Hamilton Beach Brands, Inc.*,**
No. 20-1996 (Fed. Cir. Jul. 21, 2021)

Sunoco Partners Mktg. v. Magellan Midstream Partners, No. 20-1719 (Fed. Cir. Jul. 12, 2021)

Barbaro Technologies, LLC v. Niantic, Inc.
No. 21-1249 (Fed. Cir. Jul. 09, 2021)

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No. 20-1916 (Fed. Cir. Jun. 14, 2021)

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No. 20-1383 (Fed. Cir. May. 14, 2021)

Centripetal Networks, Inc. v. Cisco Sys., Inc.
No. 20-1713 (Fed. Cir. May. 11, 2021)

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No. 20-1634 (Fed. Cir. May. 11, 2021)

FG SRC, LLC v. Microsoft Corp.
No. 20-1925 (Fed. Cir. May. 6, 2021)

FG SRC, LLC v. Microsoft Corp.
No. 20-1993 (Fed. Cir. May. 6, 2021)

Zomm, LLC v. Apple Inc.
No. 20-2000 (Fed. Cir. Apr. 9, 2021)

Publ'g Technologies, LLC v. RPX Corp.
No. 20-1420 (Fed. Cir. Apr. 9, 2021)

Singapore Asahi Chemical v. Apple Inc.
No. 20-2051 (Fed. Cir. Apr. 8, 2021)

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No. 20-1699 (Fed. Cir. Mar. 11, 2021)

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Becton, Dickinson and Co.
No. 20-1806 (Fed. Cir. Mar. 8, 2021)

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No. 20-1453 (Fed. Cir. Mar. 5, 2021)

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No. 20-1448 (Fed. Cir. Mar. 4, 2021)

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No. 20-1442 (Fed. Cir. Mar. 2, 2021)

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No. 20-1574 (Fed. Cir. Mar. 2, 2021)

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No. 20-1665 (Fed. Cir. Feb. 24, 2021)

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No. 20-1560 (Fed. Cir. Feb. 09, 2021)

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No. 20-1401 (Fed. Cir. Feb. 04, 2021)

Ultratec, Inc. v. CaptionCall, LLC
No. 19-1998 (Fed. Cir. Oct. 14, 2020)

Ultratec, Inc. v. CaptionCall, LLC
No. 19-2000 (Fed. Cir. Oct. 14, 2020)

Ultratec, Inc. v. CaptionCall, LLC
No. 19-2003 (Fed. Cir. Oct. 14, 2020)

Wi-LAN Inc. v. Iancu
No. 19-2284 (Fed. Cir. Oct. 09, 2020)

M2M Solutions LLC v. Amazon.com, Inc.
No. 19-2246 (Fed. Cir. Sep. 11, 2020)

Greatbatch Ltd. v. AVX Corp.
No. 19-2314 (Fed. Cir. Jul. 14, 2020)

SecurityProfiling, LLC v. Trend Micro, Inc.
No. 19-1881 (Fed. Cir. Jul. 10, 2020)

ATI Technologies ULC v. ARM Ltd.
No. 19-2091 (Fed. Cir. Jun. 3, 2020)

General Access Solutions, Ltd. v. Unified Patents, LLC, No. 19-1565 (Fed. Cir. May. 15, 2020)

Huawei Technologies Co., Ltd. v. Iancu
No. 19-1494 (Fed. Cir. May. 07, 2020)

Intellectual Ventures II LLC v. Aisin Seiki Co., Ltd.,
No. 19-1800 (Fed. Cir. Mar. 23, 2020)

Intellectual Ventures II LLC v.
Toyota Motor Corp.
No. 19-1801 (Fed. Cir. Mar. 23, 2020)

ProMOS Technologies, Inc. v. Samsung Electronics Co., Ltd., No. 19-1437 (Fed. Cir. Mar. 16, 2020)

ProMOS Technologies, Inc. v. Samsung Electronics Co., Ltd., No. 19-1441 (Fed. Cir. Mar. 10, 2020)

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Mira Advanced Tech. v. Microsoft Corp., No. 19-1456 (Fed. Cir. Feb. 11, 2020)

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Blackberry Ltd. v. Google LLC No. 19-1146 (Fed. Cir. Jan. 13, 2020)

Blackberry Ltd. v. Google LLC No. 19-1145 (Fed. Cir. Jan. 13, 2020)

Iridescent Networks, Inc. v. RPX Corp. No. 19-1386 (Fed. Cir. Jan. 9, 2020)

Coastal Industries, Inc. v. Shower Enclosures America, Inc, No. 19-1431 (Fed. Cir. Jan. 9, 2020)

KneeBinding, Inc. v. Marker Volkl USA, Inc. No. 19-1341 (Fed. Cir. Dec. 11, 2019)

***ProStrakan, Inc. v. Actavis Laboratories UT, Inc.*, No. 19-1125 (Fed. Cir. Dec. 11, 2019)**

CCS Tech., Inc. v. Panduit Corp. No. 19-1286 (Fed. Cir. Dec. 11, 2019)

Smart Meter Technologies, Inc. v. Itron, Inc. No. 19-1291 (Fed. Cir. Dec. 5, 2019)

Rapid Completions LLC v. Baker Hughes Inc., No. 19-1240 (Fed. Cir. Nov. 13, 2019)

Eagle Industries, Inc. v. Miniature Precision Components, No. 19-1242 (Fed. Cir. Nov. 6, 2019)

Bedgear, LLC v. Fredman Bros. Furniture Co. No. 18-2170 (Fed. Cir. Oct. 11, 2019)

Rovi Guides, Inc. v. Comcast Cable Communications, No. 19-1188 (Fed. Cir. Oct. 9, 2019)

Rovi Guides, Inc. v. Comcast Cable Communications, No. 19-1129 (Fed. Cir. Jan. 13, 2020)

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ProMOS Technologies, Inc. v. Samsung Electronics Co., Ltd., No. 18-2067 (Fed. Cir. Sept. 6, 2109)

The Chamberlain Group, Inc. v. One World Technologies, Inc. No. 18-2111 (Fed. Cir. Sept. 6, 2019)

Makor Issues & Rights Ltd. v. Google LLC No. 19-1082 (Fed. Cir. Aug. 9, 2019)

ChanBond, LLC v. Cisco Sys., Inc. No. 18-1886 (Fed. Cir. Aug. 9, 2019)

United Technologies Corp. v. General Electric Co. No. 18-2340 (Fed. Cir. Aug. 8, 2019)

Corning Optical Communications v. Panduit Corp. No. 18-1903 (Fed. Cir. Aug. 8, 2019)

Collabo Innovations, Inc. v. Sony Corp. No. 18-1368 (Fed. Cir. Aug. 5, 2019)

Genentech, Inc. v. Hospira, Inc. No. 18-1959 (Fed. Cir. July 31, 2019)

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TQ Delta, LLC v. DISH Network LLC No. 18-1798 (Fed. Cir. July 15, 2019)

Incept LLC v. HyperBranch Medical Tech. No. 18-2041 (Fed. Cir. July 15, 2019)

Green Mountain Glass, LLC v. Saint-Gobain Containers, Inc.
No. 18-1725 (Fed. Cir. July 12, 2019)

Focal IP, LLC v. Cisco Sys., Inc.
No. 18-1627 (Fed. Cir. June 20, 2019)

SIPCO, LLC v. Emerson Electric Co.
No. 18-1986 (Fed. Cir. June 10, 2019)

OneSubsea IP UK Ltd. v. FMC Technologies, Inc.,
17-2437 (Fed. Cir. June 7, 2019)

Rapid Completions LLC v. Weatherford Int'l LLC,
No. 18-1859 (Fed. Cir. June 6, 2019)

Surf Waves, Ltd. v. Pacific Surf Designs, Inc.
No. 18-1680 (Fed. Cir. May 17, 2019)

Baker Hughes Oilfield v. Packers Plus Energy Services,
No. 18-1501 (Fed. Cir. May 15, 2019)

IP Co., LLC. v. Emerson Electric Co.
No. 18-1636 (Fed. Cir. Aug. 29, 2018)

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No. 17-2425 (Fed. Cir. Apr. 4, 2019)

Innovative Memory Sys. v. Micron Tech., Inc.,
No. 17-2398 (Fed. Cir. Apr. 4, 2019)

Purdue Pharma L.P. v. Iancu
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Purdue Pharma L.P. v. Iancu
No. 18-1286 (Fed. Cir. Apr. 4, 2019)

QFO Labs, Inc. v. Parrot S.A.
No. 18-1663 (Fed. Cir. Apr. 03, 2019)

Arctic Cat Inc. v. Polaris Indus., Inc.
No. 18-1850 (Fed. Cir. Mar. 15, 2019)

Vedanti Licensing Ltd. v. Google LLC, 17-2169 (Fed. Cir. Mar. 12, 2019)

InVue Security Products Inc. v. Mobile Tech, Inc.
No. 18-1889 (Fed. Cir. Mar. 8, 2019)

InVue Security Products Inc. v. Mobile Tech, Inc.
No. 18-1236 (Fed. Cir. Mar. 8, 2019)

Ignite USA, LLC v. Pacific Market Int'l.
No. 18-1793 (Fed. Cir. Mar. 7, 2019)

MTD Products Inc. v. Iancu
No. 17-2294 (Fed. Cir. Feb. 12, 2019)

Sony Corp. v. FujiFilm Corp.
No. 18-1421 (Fed. Cir. Feb. 8, 2019)

Acceleration Bay, LLC v. Activision Blizzard Inc.
No. 18-1123 (Fed. Cir. Jan. 14, 2019)

Transport Technologies, LLC v. LA County Metro,
No. 18-1412 (Fed. Cir. Jan. 9, 2019)

LETTER FROM CAFC CHIEF JUDGE MAYER REGARDING PROPOSED CHANGES TO THE FEDERAL RULES OF APPELLATE PROCEDURE (JANUARY 6, 2004)

United States Court of Appeals
for the Federal Circuit
Washington, DC 20439

Chambers of
Haldane Robert Mayer,
Chief Judge

January 6, 2004

Dear Mr. McCabe:

Re: Proposed Changes to the Federal Rules of Appellate Procedure

This letter represents the unanimous opposition of the judges of the United States Court of Appeals for the Federal Circuit to three of the proposed amendments to the Federal Rules of Appellate Procedure.

Rule 32.1 – Citation of Non precedential Dispositions

The Federal Circuit strongly opposes adoption of proposed Rule 32.1 and believes that the decision whether nonprecedential opinions may be cited should be entrusted to the discretion of each circuit as provided by local rule. The proposed rule provides that a court may not prohibit the citation of nonprecedential opinions or orders. In contrast, Federal Circuit Rule 47.6(b), with exceptions not relevant here, provides that nonprecedential opinions and orders "must not be employed or cited as precedent." In the view of the judges of the Federal Circuit, the adoption

of Rule 32.1, which will override our local rule, may adversely affect the administration of justice by skewing the allocation of judicial resources, delaying issuance of precedential opinions, increasing the issuance of judgments without an accompanying opinion, and harming litigants.

The proposed rule may skew the allocation of judicial resources. As the Committee is aware, the decision to designate certain opinions as nonprecedential stemmed from the ever-increasing appellate caseload of the last few decades and the impossibility of providing a precedential opinion in every case. The adoption of the practice allows the judges to concentrate their efforts on opinion writing in cases involving important and precedent-setting issues. Opinions issued as nonprecedential do not require the same amount of time or effort. The Advisory Committee opines that this allocation of judicial resources will not be affected by the proposed rule because a court, although barred from prohibiting the citation of nonprecedential dispositions, may nonetheless decide by local rule that it will not treat its nonprecedential opinions as binding precedent. We fear that this finely-drawn distinction will not forestall the need to allocate judicial resources differently. Judges will certainly feel compelled to devote more time and resources to nonprecedential opinions if counsel cite and rely on them.

Indeed, having a rule that allows a party to cite a nonprecedential opinion and a second rule that would mandate that a court ignore such citation does not seem workable. Further, if a circuit maintains a rule barring the court from treating a nonprecedential opinion as binding, there seems little point in

allowing a litigant to cite such nonprecedential opinions.

It is also likely that the issuance of nonprecedential opinions in any number of routine cases will be delayed as judges devote more time to writing them. That, in turn, will either delay issuance of precedential opinions or result in less time being devoted to Preparing them. On the other end of the spectrum, it is likely that there will be an increase in Federal Circuit Rule 36 judgments without opinion. In our view, both of these developments would be detrimental to the administration of justice.

Finally, although the proposed rule is intended to benefit litigants, the effect may be the opposite. First, many litigants may feel compelled to significantly expand the breadth and depth of their legal research because of the existence of the rule. However, this expanded time, effort, and cast will yield commensurately little in return. Nonprecedential opinions with abbreviated fact patterns and without new legal principles will in nearly all instances lend little clarity to the law.

Rule 35(a) – Determination of a Majority in En Banc Cases.

The Federal Circuit opposes the adoption of proposed Rule 35(a) and believes that the determination of what constitutes a majority in en banc cases should be entrusted to the discretion of each circuit court as provided by local rule. The proposed amendment adopts the case majority approach, where disqualified judges do not count in the base in considering whether a majority of judges have voted for hearing or rehearing en banc. Federal Circuit

Rule 35(a)(1) embodies the absolute majority approach, where disqualified judges do count in the base. The Advisory Committee Comments indicate that a majority of circuit courts of appeal have adopted the absolute majority approach. Nonetheless, out of a concern for uniformity, the proposed rule imposes the approach presently used by a "substantial minority" of circuit courts of appeal, rather than the approach adopted by a majority of the circuits. This decision, made by a majority of the participant committee members imposes the case majority approach on all circuits, the majority of whom have not adopted that approach.

Presently, the Federal Circuit has twelve judges in active service. Thus, under our local rule a majority of seven judges is needed to grant a petition for hearing or rehearing en banc. Under the proposed rule, if five judges were disqualified, as recently occurred in our court, only Four judges would be needed to grant en banc review and decide the case en banc. In our view, four of twelve is not a majority and four judges should not be permitted to decide the law of the circuit on an en banc basis.

Pursuant to Fed. R. App. P. 35(a)(1), (a)(2), en banc review is reserved for cases in which such review is "necessary to secure or maintain uniformity of the court's decisions" or if "the proceeding involves a question of exceptional importance." We submit that, in either circumstance, for our circuit only an absolute majority of the court should determine such important questions.

The committee states that national uniformity is the desired goal, but it does not give reasons why that goal should override the desires of the individual and diverse circuits to determine this important issue

for themselves. National uniformity would seem to be a more important consideration for rules governing the submission of documents or the conduct of parties that appear before the circuits. However, this en banc matter involves the internal procedures of each court.

Rule 28.1– Cross-Appeals.

The Federal Circuit opposes the adoption of proposed Rule 28.1 and believes that each circuit should be allowed to establish procedures governing cross-appeals by local rule or, at a minimum, suggests that the proposed rule be modified.

The Federal Circuit's local rules provide that the word limitations for each of the four briefs filed in a case involving a cross-appeal are not to exceed 14,000, 14,000, 7,000, and 7,000 words, respectively. The rules governing monospaced type, line counting, and page counting are correspondingly limited. Our comments here, directed to word count, also apply to the corresponding monospaced, line count, and page count rules. The proposed rule allows the briefs in a case involving a cross-appeal not to exceed 14,000, 16,500, 14,000, and 7,000 words. This proposal represents an 18 percent increase in the size of the second brief and a 100 percent increase in the size of the third brief. Our court finds that cross-appeals are often filed improperly in order to secure an additional brief and the last word. The proposed increase in word count for cross appeals will, in our view, greatly exacerbate this problem by encouraging even more improper cross-appeals where the cross-appellant is merely arguing additional grounds for affirmance. it is the measured judgment of the judges of this court that in most cases, whether or not cross-appeals are

involved, counsel can adequately address the issues within the current word limitations, if not in fewer words.

A variant of Parkinson's Law-work expands to fit the time available-will come into play. We have observed that counsel frequently file briefs that reach the word limitations regardless of the number or complexity of issues involved. The second brief filed by a party is often repetitious. In many of our appeals, patent and otherwise, multiple issues are presented. A cross-appeal may involve only one or two issues more than those involved in the main appeal. In those rare cases in which further words may be warranted due to the nature of the cross-appeal, counsel may, under our present rules, request an enlargement of the word limitation. For these reasons, circuits should be permitted to maintain their local rules and the proposed rule should not be adopted.

In, the alternative, if a new rule governing cross-appeals is adopted, the Federal Circuit recommends that the increased word count be limited to the subject matter of the cross-appeal, not the response to the main appeal. Many cross-appeals are comparatively insubstantial, involve only a peripheral issue, or are filed as a "conditional" cross-appeal. Under the proposed rule, a cross-appellant could expend nearly 16,500 words regarding the appellant's issues on appeal and devote little if any words to its own appeal. Similarly, an appellant could in the third brief include nearly 14,000 words on its appeal issues and include few words regarding the cross-appeal. Thus, we recommend that the second brief contain no more than 14,000 words regarding the issues raised

by the first-filed appeal and that the third brief contain no more than 7,000 words regarding those issues.

We appreciate the opportunity to respond to the proposed rules.

Sincerely,

/s/ Haldane Robert Mayer

cc: Judges of the Court

Peter G. McCabe, Secretary
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