EXHIBIT A

2025 WL 687040
Only the Westlaw citation is currently available.
United States Court of Appeals, Federal Circuit.

GESTURE TECHNOLOGY PARTNERS, LLC,
Appellant
v.
UNIFIED PATENTS, LLC, Appellee

2023-1444
|
Decided: March 4, 2025

Appeal from the United States Patent and Trademark Office, Patent Trial and Appeal Board in No. IPR2021-00917.

Attorneys and Law Firms

John Wittenzellner, Williams, Simons, and Landis PLLC, Philadelphia, PA, argued for appellant. Also repre-sented by Eric Carr, Mark John Edward McCarthy, Fred Williams, Austin, TX.

Debra Janece McComas, Haynes and Boone, LLP, Dallas, TX, argued for appellee. Also represented by David L. McCombs; Angela M. Oliver, Washington, DC; Alyssa J. Holtslander, Roshan Mansinghani, Unified Patents, LLC, Chevy Chase, MD.

Before Moore, Chief Judge, Prost and Stoll, Circuit Judges.

Opinion

Prost, Circuit Judge.

***1** Gesture Technology Partners, LLC ("Gesture") appeals the final written decision of an inter partes review ("IPR") of U.S. Patent No. 7,933,431 ("the '431 patent"), holding that claims 7–9 and 12 are unpatentable and that claims 10, 11, and 13 were not shown unpatentable. *Unified Patents, LLC v. Gesture Tech. Partners, LLC*, No. IPR2021-00917, 2022 WL 17096296, at *20 (P.T.A.B. Nov. 21, 2022) ("*Final Written Decision*"). We affirm.

Gesture makes three arguments on appeal: (1) The Board erred in determining that claim 7 is unpatentable and by extension claims 8, 9, and 12 which depend from claim 7 are also unpatentable; (2) the Board does not have jurisdiction over IPRs involving expired patents, including the '431 patent; and (3) the Board erred by denying Gesture's request for discovery. In *Apple, Inc. v. Gesture Technology Partners, LLC* issued the same day as this opinion, we affirmed the Board's holding that, among others, claims 7–9 and 12 of the '431 patent are unpatentable. *See Apple Inc. v. Gesture Tech. Partners, LLC*, No. 23-1475 (Fed. Cir. Mar. 4, 2025). Therefore, Gesture's appeal with respect to those same claims here is moot. And in a different *Apple Inc. v. Gesture Technology Partners, LLC* proceeding, we "confirm[ed] ... that the Board has jurisdiction over IPRs concerning expired patents." 127 F.4th 364, 368–69 (Fed. Cir. 2025). Thus, the only issue that remains here is whether the Board erred by denying Gesture's request for additional discovery. We conclude that the Board did not abuse its discretion by denying this request.

BACKGROUND

In May 2021, Unified Patents, LLC ("Unified Patents") filed a petition for IPR on claims 7–13 of the '431 patent. In August 2021, Gesture filed its Preliminary Patent Owner Response to Unified Patent's petition. As part of Gesture's argument to deny institution of the IPR, Gesture noted that Unified Patents' CEO did not "deny that one or more of its Members is a party to one of the 'Parallel Litigations' identified in the Petition." J.A. 197; *see also* J.A. 198 (listing Samsung Electronics Co., Ltd. ("Samsung"), among others, as a possible member of Unified Patents). Gesture sought no discovery on the relationship of these entities at that time. In January 2022, the Board issued an order granting ex parte reexamination of the '431 patent. *See Ex Parte Gesture Tech. Partners, LLC*, Reexamination No. 90/014,901. The request for reexamination was filed by Samsung.

In February 2022, Gesture filed its Patent Owner Response. Again, Gesture sought no discovery on the relationship between Unified Patents and Samsung. On August 30, 2022, oral argument was heard in the Unified Patents IPR, and according to the Board, "[t]he record was effectively closed after the hearing." J.A. 557.

On October 6, 2022, Gesture sent an email to the Board requesting authorization to take discovery regarding the relationship between Samsung and Unified Patents and requesting termination of the ex parte reexamination. *See* J.A. 557. The Board denied these requests as premature "based on [Gesture's] statement that its request only applied after the Final Decision issued." J.A. 557.

***2** On November 21, 2022, the Board issued its final written decision. And on December 6, 2022, Gesture renewed its requests for discovery and termination of the ex parte reexamination. In response, the Board "authorized [Gesture] to file any motions or petitions concerning ex parte reexamination No. 90/014,901 in ex parte reexamination matter No. 90/014,901, rather than in this AIA proceeding, and in accordance with the rules governing ex parte reexamination." J.A. 557–58.

Gesture requested reconsideration of its request for discovery and its motion to terminate the ex parte examination. J.A. 558. The Board denied both requests. As to the discovery request, the Board concluded that "Patent Owner's request [had] come[ ] too late." J.A. 558. The Board reasoned that Gesture "was aware that real party-in-interest and privity were issues that could be raised in this proceeding," but "[Gesture] chose not to pursue any arguments related to these issues in the Patent Owner Response." J.A. 559. Thus, the Board concluded that Gesture had waived the question of whether Samsung was a real party in interest or privy of Unified Patents. J.A. 559. As to the motion to terminate, the Board concluded that the IPR proceeding was not the "proper place to address" termination of the ex parte reexamination and again directed Gesture to file concerns regarding the ex parte reexamination in that proceeding. J.A. 560.

Gesture appeals the Board's denial of its request for additional discovery. We have jurisdiction under 28 U.S.C. § 1295(a)(4)(A).

DISCUSSION

We review a Board's decision whether to grant or deny additional discovery for abuse of discretion. *Wi-Fi One, LLC v. Broadcom Corp.*, 887 F.3d 1329, 1338–40 (Fed. Cir. 2018). "An abuse of discretion is found if the decision: (1) is clearly unreasonable, arbitrary, or fanciful; (2) is based on an erroneous conclusion of law; (3) rests on clearly erroneous fact finding; or (4) involves a record that contains no evidence on which the Board could rationally base its decision." *Axonics, Inc. v. Medtronic, Inc.*, 75 F.4th 1374, 1380 (Fed. Cir. 2023) (quoting *Ericsson Inc. v. Intellectual Ventures I LLC*, 901 F.3d 1374, 1379 (Fed. Cir. 2018)).

Gesture sought discovery on the relationship between Unified Patents and Samsung "to determine whether Samsung is estopped from maintaining," under 35 U.S.C. § 315(e)(1), Samsung's reexamination proceeding. Appellant's Br. 26. 35 U.S.C. § 315(e)(1) recites:

> The petitioner in an inter partes review of a claim in a patent ... that results in a final written decision ..., or *the real party in interest or privy of the petitioner, may not ... maintain a proceeding before the [Patent] Office* ....

Id. (emphasis added). If, for example, Samsung is a real party in interest or privy of Unified Patents, then under this statutory provision, Gesture alleges that Samsung may not maintain its ex parte reexamination.

The Board did not abuse its discretion in denying Gesture's request for additional discovery. The Board denied Gesture's discovery request based on a failure to raise the fact question of whether Samsung was a real party in interest or privy to Unified Patent's IPR in its Patent Owner Response (or at any time before oral argument concluded) despite Gesture's awareness of the potential relationship between Unified and Samsung at least as early as August 2021. *See* J.A. 197–98. Yet Gesture did not make its discovery request until more than a year later in October 2022. Gesture provides no explanation for waiting to request the additional discovery or indeed why the Board's denial was an abuse of discretion.

***3** Instead, Gesture argues that "[t]he Board *may* grant discovery related to the real party in interest ...." Appellant's Reply Br. 12 (emphasis added). Gesture relies on *Applications in Internet Time, LLC v. RPX Corp.* for support. 897 F.3d 1336 (Fed. Cir. 2018). There, the patent owner appealed the Board's decision that found a nonparty was not a real party in interest or in privity with the petitioner. We vacated and remanded that decision because "the Board applied an unduly restrictive test for determining whether a person or entity is a 'real party in interest.' " *Id.* at 1339. On remand, we stated that "*[i]n its discretion*, the Board *may* authorize additional discovery relevant to whether [the nonparty] is either a real party in interest or a privy ...." *Id.* at 1358 (emphasis added). Gesture's reliance on *Applications in Internet Time* is misplaced. Not only did that case not involve the denial of a discovery motion reviewed for abuse of discretion, but there, the question of whether the nonparty was a real party in interest or privy was raised before the Board. Not so here. Moreover, whether the Board *may* grant

discovery is not determinative of whether the Board abused its discretion by not granting discovery.

For the reasons above, we conclude that the Board did not abuse its discretion in denying Gesture's request for additional discovery.

CONCLUSION

We have considered Gesture's remaining arguments and find them unpersuasive. For the foregoing reasons, we affirm.

AFFIRMED

All Citations

Not Reported in Fed. Rptr., 2025 WL 687040

End of Document

EXHIBIT B

2022 WL 17096296 (Patent Tr. & App. Bd.)
Only the Westlaw citation is currently available.

UNIFIED PATENTS, LLC, Petitioner,
v.
GESTURE TECHNOLOGY PARTNERS, LLC, Patent Owner.

Patent Trial and Appeal Board.
IPR2021-00917
Patent 7,933,431 B2
Entered: November 21, 2022

West Headnotes (2)

[1] **Patents** In general; utility

US Patent 7,933,431. Construed and Unpatentable.

[2] **Patents** In general; utility

US Patent 5,666,159, US Patent 6,144,366, US Patent 6,266,061, US Patent 6,417,797. Cited as Prior Art.

Go to PTAB Construed Terms

Attorneys and Law Firms

FOR PETITIONER: Raghav Bajaj, David McCombs, Angela Oliver, HAYNES AND BOONE, LLP, Raghav.bajaj.ipr@haynesboone.com, David.mccombs.ipr@haynesboone.com, Angela.oliver.ipr@haynesboone.com, Ashraf Fawzy, Alyssa Holtslander, UNIFIED PATENTS, LLC, afawzy@unifiedpatents.com, alyssa@unifiedpatents.com.

FOR PATENT OWNER: Todd Landis, John Wittensellner, WILLIAMS SIMONS & LANDIS PLLC, tlandis@wsltrial.com, johnw@wsltrial.com.

Before KEVIN F. TURNER, BRENT M. DOUGAL, and SCOTT RAEVSKY, Administrative Patent Judges.

JUDGMENT

Final Written Decision

Determining Some Challenged Claims Unpatentable

Denying Petitioner's Motion to Strike

35 U.S.C. § 318(a)

DOUGAL, Administrative Patent Judge.

I. INTRODUCTION

A. Background

***1** Applying the standard set forth in 35 U.S.C. § 314(a), we instituted an *inter partes* review challenging the patentability of claims 7–13 (the "challenged claims") of U.S. Patent No. 7,933,431 B2 (Ex. 1001, "the '431 patent"). Paper 11 ("Dec."). Petitioner, Unified Patents, LLC, filed the request for an *inter partes* review (Paper 1, "Petition" or "Pet."), which Patent Owner, Gesture Technology Partners, LLC, opposed (Papers 6, 8).[1]

After institution, Patent Owner filed a Response (Paper 13, "PO Resp."), Petitioner filed a Reply (Paper 17, "Reply"), and Patent Owner filed a Sur-reply (Paper 18, "Sur-reply"). Petitioner also filed a Motion to Strike (Paper 19) and Patent Owner filed an Opposition to the Motion to Strike (Paper 23). An oral hearing was held on August 30, 2022, and a copy of the transcript was entered into the record. Paper 30 ("Tr.").

We have jurisdiction under 35 U.S.C. § 6. This Decision is a Final Written Decision under 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73 as to the patentability of the claims on which we instituted trial. Having reviewed the arguments of the parties and the supporting evidence, we determine that Petitioner has shown by a preponderance of the evidence, that claims 7–9, and 12 are unpatentable. We also determine that Petitioner has *not* shown that claims 10, 11, and 13 are unpatentable.

B. Related Matters

The parties identify the following as related matters involving the '431 patent: *Gesture Technology Partners, LLC v. Huawei Device Co., Ltd.*, No. 2:21-cv-00040 (E.D. Tex.); *Gesture Technology Partners, LLC v. Samsung Electronics Co.*, No. 2:21-cv-00041 (E.D. Tex.); *Gesture Technology Partners, LLC v. Apple Inc.*, No. 6:21-cv-00121 (W.D. Tex.); *Gesture Technology Partners, LLC v. Lenovo Group Ltd.*, No. 6:21-cv-00122 (W.D. Tex.); *Gesture Technology Partners, LLC v. LG Electronics, Inc.*, No. 6:21-cv-00123 (W.D. Tex.); *Gesture Technology Partners, LLC v. Motorola Mobility LLC*, No. 1:22-cv03535 (ND Ill.); and *Gesture Technology Partners, LLC v. Katherine K. Vidal*, No. 1:22-cv-622 (E.D. VA). Pet. 1; Paper 24, 1–3. Patent Owner identifies the following Board proceedings as related matters: IPR2021-00920; IPR2021-00922; and IPR2021-00923. Paper 24, 2–3. Patent Owner also identifies the following related *Ex Parte* Reexaminations: No. 90/014,900; No. 90/014,901; No. 90/014,902; and No. 90/014,903. *Id.* at 3–4.

C. The '431 Patent

The '431 patent "relates to simple input devices for computers, particularly, but not necessarily, intended for use with 3-D graphically intensive activities, and operating by optically sensing a human input to a display screen or other object and/or the sensing of human positions or orientations." Ex. 1001, 2:7–11. The '431 patent further states that it relates to "applications in a variety of fields such as computing, gaming, medicine, and education." *Id.* at 2:15–17. For instance, the '431 patent describes "a combination of one or more TV cameras (or other suitable electro-optical sensors) and a computer to provide various position and orientation related functions of use." *Id.* at 11:54–58.

***2** Figure 8A, reproduced below, illustrates the control of functions via a handheld device.

Tabular or graphic material set at this point is not displayable.
Figure 8A shows a perspective view of a cellular phone (800) using a laser spot projector (801) to project a laser spot on a detector (802) in a dashboard (803). *Id.* at 12:17–20. The '431 patent discloses that, alternatively or in conjunction, round dot targets (805, 806, 807) can be sensed on the cellular phone (800), such as by a TV camera (815). *Id.* at 12:20–25.
In another example, the cellular phone (800) can be used to signal a fax unit (824) to print data from the phone by pointing the cellular phone toward the fax unit. *Id.* at 12:42–45. TV camera (815) scans images of the dot targets (805, 806, 807) and a computer (830) analyzes the target images to determine the position and/or orientation or motion of the cellular phone to thereby determine if a command is being issued with movement of the cellular phone. *Id.* at 12:45–51. The computer then commands the fax unit to print if this action is signaled by the position, orientation, or motion of the cellular phone. *Id.* at 12:51–52.

D. Illustrative Claim

Petitioner challenges claims 7–13 of the '413 patent. Claim 7 is the sole independent claim and is illustrative:

> 7. Handheld computer apparatus comprising:
>
> a housing;
>
> a camera means associated with said housing for obtaining an image using reflected light of at least one object positioned by a user operating said object;
>
> computer means within said housing for analyzing said image to determine information concerning a position or movement of said object; and
>
> means for controlling a function of said apparatus using said information.

Ex. 1001, 25:61–26:5.

II. ANALYSIS

A. Summary of Issues

In the below analysis, we first address the grounds of unpatentability. We then address jurisdiction over expired patents and end with the Motion to Strike.

B. Instituted Grounds

Petitioner asserts the following grounds of unpatentability (Pet. 5), supported by the declaration of Christopher M. Schmandt (Ex. 1003):

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
7–9, 11, 12	102(e)[2]	Numazaki[3]
7, 9, 11	103(a)	Rhoads[4]

7–12	103(a)	Doi,[5] Cousins[6]
13	103(a)	Doi, Cousins, Parulski[7]

C. Legal Standards

Petitioner bears the burden to demonstrate unpatentability. *Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015).

"A claim is anticipated [under 35 U.S.C. § 102] only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. Inc. v. Union Oil Co.*, 814 F.2d 628, 631 (Fed. Cir. 1987). Moreover, "[b]ecause the hallmark of anticipation is prior invention, the prior art reference—in order to anticipate under 35 U.S.C. § 102—must not only disclose all elements of the claim within the four corners of the document, but must also disclose those elements 'arranged as in the claim.' " *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1369 (Fed. Cir. 2008). Whether a reference anticipates is assessed from the perspective of an ordinarily skilled artisan. *See Dayco Prods., Inc. v. Total Containment, Inc.*, 329 F.3d 1358, 1368 (Fed. Cir. 2003) (" '[T]he dispositive question regarding anticipation [i]s whether one skilled in the art would reasonably understand or infer from the [prior art reference's] teaching' that every claim element was disclosed in that single reference.").

***3** A claim is unpatentable as obvious under 35 U.S.C. § 103(a) 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." *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007) (quoting 35 U.S.C. § 103(a)). We resolve the question of obviousness based on underlying factual determinations, including (1) the scope and content of the prior art; (2) any differences between the prior art and the claims; (3) the level of skill in the art; and (4) when in evidence, objective indicia of obviousness or nonobviousness. *See Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

We apply these principles to the Petition's challenges.

D. Level of Ordinary Skill

Petitioner asserts that "[a] person of ordinary skill in the art at and before the priority date for the '431 Patent ('POSITA') would have had a bachelor's degree in computer science, computer engineering, electrical engineering, or a related subject, and one to two years of work experience with human-computer interaction" and that less experience may be necessary with additional education and vice versa. Pet. 9 (citing Ex. 1003 ¶¶ 36–40). Patent Owner does not dispute Petitioner's level of ordinary skill in the art. PO Resp. 6.

We are persuaded, on the present record, that Petitioner's declarant's statement is consistent with the problems and solutions in the '431 patent and prior art of record. We adopt this definition for the purposes of this Decision.

E. Claim Construction

In *inter partes* review, we construe claims 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. 37 C.F.R. § 42.100(b) (2021).

Petitioner provides a number of claim constructions. Pet. 13–17. Patent Owner addresses some of Petitioner's claim

constructions, and further argues that the preamble of claim 7 should be limiting. PO Resp. 6–11.

We only address some of the constructions relevant to the current controversy. *See* Realtime Data, LLC v. Iancu, 912 F.3d 1368 (Fed. Cir. 2019) ("The Board is required to construe 'only those terms ... that are in controversy, and only 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. Claim 7's Preamble

The preamble of claim 7 states: "Handheld computer apparatus comprising ...." Ex. 1001, 25:61. The Petition does not address whether the preamble of claim 7 is limiting, but rather attempts to show that, independent of whether it is limiting, the preamble is taught by the prior art. *See, e.g.,* Pet. 21 ("To the extent the preamble is limiting, the combined teachings of Doi and Cousins render it obvious").

Patent Owner argues that the preamble should be limiting because it recites essential structure or steps and is "necessary to give life, meaning, and vitality" to claim 7. PO Resp. 6 (quoting *Acceleration Bay, LLC v. Activision Blizzard, Inc.*, 908 F.3d 765, 770 (Fed. Cir. 2018)). Specifically, Patent Owner asserts that claim 7's final limitation refers back to the preamble's "handheld computer apparatus" for antecedent basis. *Id.* at 7. Patent Owner further argues that the '413 patent discloses different embodiments, with some embodiments being in the form of a computer and some embodiments being in the form of a handheld device. *Id.* at 7 (citing Ex. 1001, 12:59–13:7, Fig. 1A). Patent Owner contends that claim 7 claims the latter embodiments because claim 7 recites a handheld device and, therefore, "the preamble is necessary to give life, meaning, and vitality to claim 7, consistent with the embodiments that the inventor chose to claim." *Id.* at 7–8.

***4** Petitioner implicitly agrees that the preamble is limiting, but argues that "The Entirety of the Preamble is Not Necessarily a Limitation." Reply 1 (emphasis omitted). Petitioner would have us dissect the single limitation "handheld computer apparatus" and have us only impart weight to the word "apparatus." *Id.* Petitioner provides no support for the idea that a term can be dissected, but rather points to case law where only certain limitations of multiple separate limitations in a preamble were given weight. *Id.* (citing *TomTom, Inc. v. Adolph*, 790 F.3d 1315, 1323–24 (Fed. Cir. 2015).

We agree that the preamble of claim 7 is limiting. The last clause of claim 7 refers back to the preamble and is understood with reference thereto. The last clause states: "means for controlling a function of *said apparatus* using said information." Ex. 1001, 26:4–5 (emphasis added). "Said apparatus" derives antecedent basis from the "[h]andheld computer apparatus" recited in the preamble. "Said apparatus" does not refer to "apparatus" in the abstract, dissected from the rest of the term. Moreover, the "means for controlling a function of said apparatus" can be understood because of this reference to the handheld computer apparatus.

We disagree with Petitioner that the "handheld computer" portion of the term "[h]andheld computer apparatus" can be ignored. The claim defines the "apparatus" as a "[h]andheld computer apparatus," and we determine that there is no legal basis for us to dissect this phrase. Petitioner argues that the body of claim 7 only refers to the "apparatus" and not to "handheld computer," thus "handheld computer" is not essential. But the term is "[h]andheld computer apparatus" not merely "apparatus," and the body of the claim refers back to "*said* apparatus" which is the "[h]andheld computer apparatus."

Thus, we determine that the single term in the preamble, "[h]andheld computer apparatus," is limiting because it recites essential structure and is "necessary to give life, meaning, and vitality" to claim 7.

2. Camera Means

Petitioner asserts that claim 7's limitation of "camera means associated with said housing for obtaining an image using reflected light of at least one object positioned by a user operating said object" is a means-plus-function limitation under § 112 ¶ 6. Pet. 14. Petitioner argues that the limitation's function "is obtaining an image using reflected light of at least one object positioned by a user operating said object" and the corresponding structure "is one or more TV cameras (e.g., TV camera 815) or other suitable electro-optical sensors, and equivalents thereof." *Id.* (citing Ex. 1001, 3:15–29; Ex. 1003 ¶¶ 50–51).

Patent Owner disagrees and argues that:

> This term does not require construction under 35 U.S.C. § 112, ¶ 6 because "camera" is a well-known term that connotes specific structure to a POSITA. *See* Ex. 2007, ¶¶ 46-47. The claimed function is "obtaining an image ... of at least one object." This is what cameras do. *See id.* They obtain images of objects. *See id*.

PO Resp. 8.

Though the parties disagree as to whether the term should be construed as a means-plus-function limitation under § 112 ¶ 6, both constructions essentially encompass cameras, and therefore it is unnecessary for us to construe as resolution of the dispute does not turn on whichever construction we pick.

3. Computer Means

Petitioner contends that claim 7's limitation of "computer means within said housing for analyzing said image to determine information concerning a position or movement of said object" is a means-plus-function limitation under § 112 ¶ 6. Pet. 15. Petitioner argues that the limitation's function "is analyzing an image to determine information concerning a position or movement of an object" and the corresponding structure "is a general purpose computer programmed with an algorithm to cause the general purpose computer to: (1) analyze target image(s) of an object captured by the camera means; and (2) determine position(s) of the object." *Id.* (citing Ex. 1001, 6:9–18, 7:22–29, 12:1–9, 12:46–52, 17:34–50; Ex. 1003 ¶¶ 53–56).

***5** Patent Owner does not address this term in its claim construction section (PO Resp. 6–11), but later argues that a "more accurate function is 'analyzing the image obtained by the camera means to determine information concerning a position or movement of an object' " (*id.* at 33). Thus, Patent Owner implicitly agrees that this term is subject to § 112 ¶ 6. Patent Owner does not further explain its position; however, this slight change in function from Petitioner's position seems to merely reflect the fact that "said image" is referring to "obtaining an image" in the prior camera means limitation.

Neither party argues that either description of the function would be dispositive to any issue herein. For example, Petitioner does not address or contest Patent Owner's supplement to the construction. Reply 1–8, 20–22.

We accept and apply Petitioner's construction with Patent Owner's slight modification because it more accurately states the claimed function. We further note that the corresponding structure identified by Petitioner further encompasses equivalents thereof. *See* 35 U.S.C. § 112 ¶ 6.

4. Means for Controlling a Function

Petitioner argues that claim 7's limitation of "means for controlling a function of said apparatus using said information" is a means-plus-function limitation under § 112 ¶ 6. Pet. 15. According to Petitioner, the limitation's function "is controlling a function of said apparatus using said information" and the corresponding structure "is a general purpose computer programmed with an algorithm to cause the general purpose computer to" (1) receive position information, (2) correlate the position information with a function of the apparatus, and (3) cause the apparatus to perform the function, wherein the function includes one or more of: (a) a display function, (b) a command to print, (c) an image transmission function, or (d) an e-mail transmission function. *Id.* at 15–16 (citing Ex. 1001, 12:46–52, 12:65–66, 13:36–40, 13:63–67, 26:8–9; Ex. 1003 ¶¶ 58–59).

Patent Owner does not address Petitioner's construction. PO Resp. 6–11. However, as discussed above, we determine that "said apparatus" refers to the handheld computer apparatus in the preamble. Thus, we accept Petitioner's construction with the added requirement that the general purpose computer be a handheld computer apparatus and that the corresponding structure further encompasses equivalents thereof.

5. Means for Transmitting Information

Petitioner asserts that claim 11's limitation of "means for transmitting information" is a means-plus-function limitation under § 112 ¶ 6. Pet. 17. Petitioner argues that the limitation's function "is transmitting information" and the corresponding structure "is a mobile phone link and equivalents thereof." *Id.* (citing Ex. 1001, 12:65–13:3; Ex. 1003 ¶¶ 61–62).

Patent Owner disagrees only with the identified structure, which it argues should be "a cell phone, and equivalents thereof." PO Resp. 9 (citing Ex. 2007 ¶¶ 49–50).

The District Court for the Eastern District of Texas also addressed this issue. Ex. 2004, 29–32. There the parties argued that the structure should be either "a transmitter" or a "cellular transceiver." *Id.* at 29. However, the District Court found that the only structure identified in the '431 patent for performing the function of "transmitting information" is a cell phone. *Id.* at 30–31. It pointed to the discussion around Figure 8A that states that the handheld device can be a cell phone, and then the discussion around Figure 8B, which we address below. *Id.* Important to the District Court's analysis (*see id.* at 31), the Specification discloses:

***6** One function is just to acquire an image for transmission via for

> example the cell phone[']s own connection. This is illustrated in FIG. 8B, where an image of object 849 acquired by camera 850 of cell phone 851 held by user 852 is transmitted over mobile phone link 853 to a remote location and displayed, for example. While this image can be of the user, or someone or something of interest, for example a house, if a real estate agent is making the call, it is also possible to acquire features of an object and use it to determine something.

Ex. 1001, 12:65–13:7. Figure 8B is reproduced below.

Tabular or graphic material set at this point is not displayable.

As discussed above, Figure 8B shows cell phone 851 that acquires an image and transmits the image over mobile phone link 853. *Id.* Patent Owner argues, consistent with the finding of the District Court that the cell phone is the disclosed structure that transmits information. PO Resp. 9–11.

Petitioner argues that the "cell phones own connection" and "mobile phone link 853" are the relevant disclosed structure, which Petitioner further defines as "e.g., transmitter hardware–not a complete cellular phone." Reply 6. Petitioner further argues that a transmitter is all that is required to perform the defined function. *Id.* at 6–7.

In Figure 8B, mobile phone link 853 is identified by an arrow as opposed to any internal structure within a cell phone. This is consistent with the context of a "link" or "connection" between the cell phone and some other device. Thus, we determine that neither the "cell phones own connection" nor the "mobile phone link 853" refers to a structure internal to the cell phone. Thus, the only disclosed structure in the '431 patent for performing the function of "transmitting information" is a cell phone.

We decline Petitioner's invitation to define the structure as merely a transmitter. Pet. 17; Reply 6–8. Petitioner does not identify structure in the '431 patent that would support such a finding. Further, Petitioner's position includes transmitters alone and is not limited to transmitters in cell phones even though Petitioner admits that the base disclosure identified in the '431 patent is a cell phone.

Thus, we determine that claim 11's limitation of "means for transmitting information" is a means-plus-function limitation under § 112 ¶ 6; that the limitation's function "is transmitting information;" and that the corresponding structure is "a cell phone and equivalents thereof."

F. 35 U.S.C. § 102 – Numazaki

Petitioner argues that Numazaki anticipates claims 7–9, 11, and 12. Pet. 35–42. Patent Owner contends that Numazaki does not disclose all the limitations of independent claim 7, or dependent claim 11. PO Resp. 28–38.

We first give a short overview of the asserted prior art, Numazaki. This is followed by a discussion of Petitioner's position and Patent Owner's arguments in response where we conclude that Petitioner has shown by a preponderance of the evidence that claims 7–9 and 12 are unpatentable, but has not shown that claim 11 is unpatentable.

1. Numazaki

***7** Numazaki "relates to a method and an apparatus for generating information input in which input information is extracted by obtaining a reflected light image of a target object." Ex. 1007, 1:8–11. Figure 1, reproduced below, depicts a block diagram for an information input generation apparatus.

Tabular or graphic material set at this point is not displayable.

Figure 1 shows an information input generation apparatus including a lighting unit (101), a reflected light extraction unit (102), a feature data generation unit (103), and a timing signal generation unit (104). *Id.* at 10:23–28. Numazaki describes emitting light from the light emitting unit (101) and that the intensity of the light varies in time according to a timing signal from the timing signal generation unit (104). *Id.* at 10:29–31. The light is directed onto a target object and light reflected from the target object is extracted by the reflected light extraction unit (102). *Id.* at 10:31–35. Numazaki teaches that the feature data generation unit (103) extracts feature data from the reflected light image. *Id.* at 10:57–61. Numazaki further teaches operating a computer based on information obtained from the feature data. *Id.* at 10:61–66.

Figure 78, reproduced below, illustrates an information input generation apparatus.

Tabular or graphic material set at this point is not displayable.

Figure 78 shows "a compact portable information device" having "a size that can be held by one hand." *Id.* at 52:5–8. The device includes a window (712) for a lighting unit and a photo-detection sensor unit. *Id.* at 52:12–14. Numazaki describes controlling the position of a cursor (714) on a screen by moving a finger (713) in front of the window (712). *Id.* at 52:14–16.

2. Independent Claim 7

Petitioner relies on Numazaki for teaching all of the elements of claim 7. Pet. 36–41. For example, Petitioner relies on Numazaki's compact portable information device in Figure 78 for teaching the handheld computer apparatus of claim 7. *Id.* at 36 (citing Ex. 1007, 52:5–8; Ex. 1003 ¶¶ 139–141); *see also* Ex. 1007, Fig. 78. Petitioner argues that Numazaki teaches a photo-detection sensor unit inside the housing of the compact portable information device which reads on the camera means associated with a housing of the claim. Pet. 36–38 (citing Ex. 1007, 52:8–14, Fig. 78; Ex. 1003 ¶¶ 142–143, 151). Petitioner argues that the feature data generation unit 103 in Numazaki would be understood to be the claimed computer means. *Id.* at 38–39 (citing Ex. 1007, 10:57–61, 16:27–28, 17:19–23, 17:51–56; Ex. 1003 ¶¶ 156–160). Petitioner also argues that Numazaki's teaching of a computer process to use a fingertip to control a cursor reads on the claimed "means for controlling a function of said apparatus using said information." *Id.* at 39–41 (citing Ex. 1007, 26:8–18, 26:23–25, 52:14–16; Ex. 1003 ¶¶ 161–165).

Patent Owner argues that Numazaki does not teach aspects of the camera means and computer means claim elements. PO Resp. 28–36. We address each argument in turn below and then address the claim as a whole.

(a) Camera Means

Claim 7 requires "a camera means associated with said housing for obtaining an image using reflected light of at least one object positioned by a user operating said object." Ex. 1001, 25:63–65. Petitioner argues that this limitation is subject to 35

U.S.C. § 112 ¶ 6, and that the relevant structure "is one or more TV cameras (e.g., TV camera 815) or other suitable electro-optical sensors, and equivalents thereof." Pet. 14 (citing Ex. 1001, 3:15–19). As noted above, Patent Owner disagrees that 35 U.S.C. § 112 ¶ 6 is implicated, and argues that the camera means merely requires a camera. PO Resp. 8–9. Thus, both parties agree that "camera means" can be satisfied if the prior art teaches a camera (subject to the other limitations of the claim, "associated with said housing," etc.).

***8** Petitioner argues that Numazaki teaches a photo-detection sensor unit inside the housing of the compact portable information device, which reads on the camera means associated with a housing as claimed. Pet. 36–38 (citing Ex. 1007, 52:8–14, Fig. 78; Ex. 1003 ¶¶ 142–143, 151).

Numazaki only provides some details about the photo-detection sensor unit. *See generally* Ex. 1007, 50:25–54:6. However, Petitioner relies on Numazaki's statement that "the disclosure of the first through seventh embodiments applies to the eighth embodiment" for more details about the photo-detection sensor unit. Pet. 37 (quoting Ex. 1007, 50:21–24); *see also* Ex. 1007, 53:22–36 (discussing "the photo-detection section" and then pointing to the prior discussion "as already described in detail above"). In particular, Petitioner equates the photo-detection sensor unit with the reflected light extraction unit (102) and photo-detection optics (107) of the first embodiment. Pet. 37. Petitioner argues that the ' "reflected light extraction unit 102' ... 'extracts the reflected light from the target object.' " *Id.* (quoting Ex. 1007, 10:33–35). And that this extraction is done using photo-detection optics (107). *Id.* (citing Ex. 1007, 11:11–15). Petitioner's declarant testifies that "[a] POSITA would have understood this term [("photo-detection optics")] to be applicable to a visible (or infrared) light camera." Ex. 1003 ¶ 149.

Petitioner concludes that "*Numazaki* discloses the function and corresponding structure of the recited *camera means ... for obtaining an image using reflected light of at least one object*, as the structure corresponding to the *camera means* limitation includes at least electro-optical sensors, such as those disclosed in *Numazaki*." Pet. 37 (citing Ex. 1003 ¶¶ 148–150).

Patent Owner first argues that "Numazaki is silent regarding the 'photo-detection sensor unit' being or including a camera" and that Numazaki fails to provide any details regarding the function of the photo-detection sensor unit and thus fails to disclose the photo-detection sensor unit obtains an image, as required by this claim element. PO Resp. 29 (citing Ex. 2007 ¶ 86). We disagree.

In support, Patent Owner relies on its declarant, who testifies:

> I reviewed Numazaki in its entirety and it contains no disclosure stating that the "photo-detection sensor unit" is a camera. A POSITA would understand that Numazaki's disclosure that "photo-detection sensor unit" is capable of "photodetecting on an external body" (Ex. 1007, 52:9-14), does not necessarily mean that the "photo-detection sensor unit" is or includes a camera. Photo-detecting an external body does not mean that the "photo-detection sensor unit" captures an image, like a camera.

Ex. 2007 ¶ 86.

Patent Owner's declarant does not further explain his reasoning. For example, the declarant does not discuss why the discussion of photodetecting "does not necessarily mean that the 'photo-detection sensor unit' is or includes a camera." The disclosure of Numazaki when discussing photodetecting is directed to taking images; and according to both Patent Owner and their declarant obtaining images "is what cameras do." PO Resp. 8; Ex. 2007 ¶ 47 ("a POSITA would understand that cameras obtain images of objects").

For example, Numazaki describes a "photo-detecting state" in reference to when a photo-detection unit "detects the optical image." Ex. 1007, 11:20–31; *see also id.* at 11:38–52. Numazaki's eighth embodiment itself states that "the photo-detection section ... outputs an image" and "the photo-detection section stores the charges generated by the photo-electric conversion element upon photo-detecting images of the object at a time of light emission by the lighting unit and at a time of no light

emission by the lighting unit, ..., as already described in detail above." *Id.* at 53:22–36;[8] *see also e.g., id.* at 10:33–56 (discussing a "photo-detection section" to capture reflected light as an image), 11:9–52, 12:56–65, 15:23–51.

***9** Thus, the testimony of Patent Owner's declarant, which is stated as being based on "Numazaki in its entirety," does not appear to be consistent with how the term "photo-detecting" is used in Numazaki. Read in context, photo-detecting an external body *does* mean that the "photo-detection sensor unit" captures an image, like a camera, because that is how Numazaki uses the term. Thus, though Patent Owner is correct that Numazaki does not explicitly say that the "photo-detection sensor unit" is a camera, it is clear from the disclosure of Numazaki that "photo-detecting" refers to obtaining an image, which is what Patent Owner asserts is the function of a camera.

The function of the photo-detection sensor unit is further taught in a number of locations in Numazaki. For example, Numazaki at 52:8–14 (cited at Pet. 37) teaches that "a window 712 is provided for the lighting unit and the photo-detection sensor unit" to enable the function of "lighting and photo-detecting on an external body." The paragraph continues to teach that "[a] position of a cursor 714 on the screen can be controlled by moving a finger 713 in front of this window 712." Ex. 1007, 52:14–16. As discussed above, Numazaki teaches that in the eighth embodiment "the photo-detection section ... outputs an image" and "the photo-detection section stores the charges generated by the photo-electric conversion element upon photo-detecting images of the object at a time of light emission by the lighting unit and at a time of no light emission by the lighting unit, ..., as already described in detail above." *Id.* at 53:22–36.

As will be understood from reviewing Numazaki, Numazaki discloses an eighth embodiment having a number of different portable form factors shown in Figures 74–79, but sharing "a system configuration incorporating the information input generation apparatus of the present invention as described in the above embodiments." *Id.* at 50:19–20. In addition to referring back to prior disclosure, additional details of the information input generation apparatus including the photo-detection section are provided at 52:33–54:6, which also refers back to the "the photo-detection section ..., as already described in detail above." *Id.* at 53:22–36; *see also* Dec. 15 (explaining that "details about the photo-detection sensor unit" could be found at Ex. 1007, 50:25–54:6).

Thus, the function of the photo-detection sensor unit is taught by Numazaki. Further, this description of the function of the photo-detection sensor unit is consistent with, and points to, Numazaki's more detailed earlier discussion of the reflected light extraction unit and photo-detection optics, which teaches obtaining an image. *See* Ex. 1007, 10:33–35, 11:11–15 ("an image is formed on a photo-detection plane of the reflected light extraction unit 102 by a photo-detection optics 107."), 50:21–42, 53:22–36; Pet. 37.

For the above reasons, Patent Owner's arguments do not identify any shortcomings in the showing by Petitioner that Numazaki teaches all the aspects of the camera means claim element including a camera.

(b) Computer Means

Claim 7 requires "computer means within said housing for analyzing said image to determine information concerning a position or movement of said object." Ex. 1001, 26:1–3. Petitioner argues that this limitation is subject to 35 U.S.C. § 112 ¶ 6, and that the relevant structure "is a general purpose computer programmed with an algorithm to cause the general purpose computer to: (1) analyze target image(s) of an object captured by the camera means; and (2) determine position(s) of the object." Pet. 15 (citing, *e.g.*, Ex. 1001, 12:46–52).

Petitioner argues that Numazaki's feature data generation unit 103 "which 'extracts [ ] information ... from the reflected light image" would be understood to be the claimed computer means. *Id.* at 38–39 (quoting Ex. 1007, 10:57–61). Petitioner argues that the feature data generation unit is "coupled to a digital memory, timing control, and other control components, and is depicted within a computing device; thus, it would be recognized as corresponding to part of a general purpose computing device, consistent with the structure of the recited computer means." *Id.* (citing Ex. 1003 ¶¶ 156–157) (emphasis omitted).

***10** Petitioner further argues, among other things, that consistent with the above computer program, Numazaki teaches "that '[w]hen the hand is used as the target object, it is possible to capture the **information on a position** and a shape of the hand without a contact, so that it is possible to utilize the present invention as a means for inputting information.' " *Id.* at 39 (quoting Ex. 1007, 17:19–23).

Patent Owner makes two arguments, that the Petition fails to disclose a general purpose computer, and that the structure of Numazaki is different from that of claim 7. We address each in turn.

(1) General Purpose Computer

Patent Owner argues that the Petition fails to disclose a general purpose computer under Petitioner's claim construction. PO Resp. 33. Patent Owner argues that this is because the relied-upon "feature data generation unit" in Numazaki includes "numerous specialized units" and "Petitioner has not provided any explanation as to how these specialized units correspond to a 'general purpose computer.' " *Id.* at 33–34 (citing Pet. 38; Ex. 2007 ¶ 94). Patent Owner further argues that "[j]ust because a component is 'coupled to a digital memory, timing control, etc.' " or ' "correspond[s] to part of a general purpose computing device' does not mean the component itself is necessarily a general purpose computer." *Id.* at 34.

Petitioner responds that the Petition relies on the eighth embodiment of Numazaki (Reply 21 (citing Pet. 37), which when discussing Figure 74 of the eighth embodiment describes a computer and "**a portable computer** generally called **note PC**" (*id.* (quoting Ex. 1007, 50:25–29)). Petitioner argues that "Numazaki's eighth embodiment, which Petitioner relied upon for claim 7's anticipation, expressly implements the 'feature data generation unit' in a generic 'computer' contrary to [Patent Owner's] arguments." *Id.* (citing Pet. 38–39; Ex. 1034 ¶¶ 76–81).

Patent Owner responds that "*Numazaki* does not disclose that the 'compact portable information device' is a 'generic computer.' " Sur-reply 15 (citing Ex. 1007, 52:5–19). Patent Owner does not contest that Numazaki teaches that the eighth embodiment can be implemented in a generic computer, or that the Petition relies on the eighth embodiment. Patent Owner merely contests that the "compact portable information device" or the device shown in Figure 78 is not expressly taught as a generic computer.

As discussed above, Numazaki uses Figures 74–79 to show different form factors of the eighth embodiment. *See* Ex. 1007, 50:19–20. As demonstrated by Petitioner, Numazaki teaches that the eighth embodiment can be implemented in a general purpose computer. This is in direct contrast to Patent Owner's argument that the feature data generation unit is not "necessarily" implemented in a general purpose computer. PO Resp. 34. We further determine that Petitioner's argument and evidence shows what one of skill would understand that Numazaki teaches that the feature data generation unit is implemented in a general purpose computer.

(2) Structure of Numazaki

Patent Owner argues that:

> Numazaki requires: (1) two, not one, photo-detection units; (2) a lighting unit for illumination; (3) timing circuitry that selectively activates the lighting unit based on which photo-detection unit is active; and (4) circuitry for subtracting one image from another. Simply put, this is fundamentally different than the apparatus recited in claim 7.

***11** PO Resp. 35; *see id.* at 34–35 (describing Numazaki in more detail) (citing Ex. 1007, 10:57–66, 11:20–56, Fig. 2).

Patent Owner further argues that:

> The alleged "computer means" disclosed in Numazaki cannot analyze target images of an object from one TV camera. The alleged "computer means" disclosed in Numazaki cannot analyze target images without a lighting unit to illuminate the object. And the alleged "computer means" disclosed in

> Numazaki cannot analyze target images of an object without circuitry for subtracting one image from another. Accordingly, Numazaki does not disclose corresponding structure for performing the recited function of [the] claim element.

Id. at 35–36 (internal citations omitted).

We are persuaded, however, that Petitioner has adequately shown that Numazaki teaches the claimed computer means.

Patent Owner appears to argue that the camera means requires one camera and that the computer means analyzes images from only that one camera. *Id.* Patent Owner does not identify why the claim should be *limited* to one camera or one image.

Petitioner argued in its claim construction that the structure in the '431 patent for the camera means is "one or more TV cameras (or other suitable electro-optical sensors)." Ex. 1001, 3:17–18; Pet. 14. Patent Owner argued that ' "[a] camera means' is properly construed as 'a camera.' " PO Resp. 9. Unless a more limited construction is indicated by the specification or prosecution history, the indefinite article "a" or "an" is construed in a claim to mean "one or more." *KCJ Corp. v. Kinetic Concepts, Inc.*, 223 F.3d 1351, 1356 (Fed. Cir. 2000).

Moreover, we find that the '431 patent appears to expressly contemplate one or more TV cameras. *See* Ex. 1001, 3:25 ("A stereo pair of cameras 100 and 101"), 3:44 ("a three camera arrangement can be used"). Patent Owner does not identify, and we were not able to find, any disclosure in the '431 patent that these multiple cameras are used to obtain only a single image to support Patent Owner's argument that the claim should be limited to either a single camera or a single image.

Thus, based on the record, the claim encompasses one or more cameras for obtaining one or more images, and analyzing those one or more images.

Second, as to Patent Owner's argument that Numazaki requires a lighting unit for illumination, claim 7 uses the term "comprising" to create an "open ended" claim. " 'Comprising' is a term of art used in claim language which means that the named elements are essential, but other elements may be added and still form a construct within the scope of the claim." *Genentech, Inc. v. Chiron Corp.*, 112 F.3d 495, 501 (Fed. Cir. 1997). Thus, the presence of a lighting unit is not excluded from the claim. Rather, the '431 patent teaches the use of LEDs "to illuminate [associated] targets" and claim 12, which depends from claim 7, expressly requires "a light source for illuminating said object." Ex. 1001, 3:34–35, 26:14–15.

Third, it is not clear what relevance Patent Owner's following statement has to the claim: "Numazaki cannot analyze target images of an object without circuitry for subtracting one image from another." This level of detail on how the target images are analyzed by the computer does not appear to be implicated by the current claim construction. Thus, even if true, the statement does not identify errors in the Petition.

(c) Conclusion as to Claim 7

***12** After review of the arguments and evidence, and further in view of the above discussion, we determine that the Petition has shown, by a preponderance of the evidence, that claim 7 is unpatentable as anticipated by Numazaki.

3. Dependent Claims 8, 9, 12

Petitioner argues that Numazaki anticipates dependent claims 8, 9, and 12. Pet. 41–42 (citing Ex. 1007, 10:29–31, Fig. 78; Ex. 1003 ¶¶ 166–170, 175–177). Patent Owner relies on its arguments over claim 7 for the patentability of these claims. PO Resp. 36. We have reviewed Petitioner's assertions and the supporting evidence, and determine that Petitioner has established by a preponderance of the evidence that claims 8, 9, and 12 are unpatentable.

4. Dependent Claim 11

Dependent claim 11 recites "Apparatus according to claim 7, further including means for transmitting information." Ex. 1001, 26:12–13. As noted previously, Petitioner argues that the "means for transmitting information" is subject to 35 U.S.C. § 112 ¶ 6, and that "[t]he structure corresponding to this function is a mobile phone link and equivalents thereof." Pet. 17 (citing Ex. 1001, 12:65–13:3).

We determine above that claim 11's limitation of "means for transmitting information" is a means-plus-function limitation under 35 U.S.C. § 112 ¶ 6; that the limitation's function "is transmitting information;" and that the corresponding structure is "a cell phone and equivalents thereof."

Petitioner argues that "*Numazaki* discloses this limitation." *Id.* at 42. This is because "*Numazaki* describes a 'transmission unit 356' which 'transmits the extracted image.' " *Id.* (quoting Ex. 1007, 40:45–49); *see also* Ex. 1003 ¶ 172 (Petitioner's Declarant making an identical statement).

As the Petition does not identify a cell phone in Numazaki as teaching the limitation of claim 11 it cannot show how the Numazaki teaches all of the limitations of the claim.

Further, even under Petitioner's own construction the Petition is deficient. The Petition contains no analysis of how Numazaki's transmission unit 356 corresponds with the structure of a mobile phone link or equivalents thereof. *See* PO Resp. 37–38. In the Reply Petitioner attempts to overcome this shortcoming by stating that the "transmission unit" "is part of a 'TV telephone' embodiment" in Numazaki; and further arguing that the "transmission unit" is a "functional equivalent for *transmitting information*." Reply 22 (emphasis omitted).

Notably absent from Petitioner's argument is an explanation of how the "transmission unit" is a functional equivalent to a mobile phone link. Thus, Petitioner makes no assertion that the transmission unit is the same as or equivalent to the structure Petitioner has identified in the '431 patent as the relevant structure under 35 U.S.C. § 112 ¶ 6. For these reasons, Petitioner has not satisfied its burden with respect to its own claim construction.

As discussed above, the Petition fails to show how Numazaki teaches the limitation of claim 11 whether under our claim construction or Petitioner's.

G. 35 U.S.C. § 103(a) – Rhoads

Petitioner asserts that claims 7, 9, and 11 of the '431 patent would have been obvious over Rhoads. Pet. 42–51. Patent Owner argues that Rhoads is not prior art to the '431 patent. PO Resp. 38–40. For the reasons below, we determine that Rhoads is not prior art to the '431 patent. Therefore, Petitioner cannot show that claims 7, 9, and 11 would have been obvious at the time of the invention over Rhoads.

***13** As noted by Patent Owner:

> An inventor can antedate a reference by showing that the invention was conceived before the effective date of the reference, with diligence to actual or constructive reduction to practice. *In re Steed*, 802 F.3d 1311, 1320 (Fed. Cir. 2015) (citing 37 C.F.R. § 1.131). The critical period in which diligence must be shown begins just prior to the effective date of the reference and ends with the date of a reduction to practice, either actual or constructive. *Id*.

PO Resp. 38.

The Petition asserts that Rhoads is prior art to the '431 patent under 35 U.S.C. § 102(e) based on its claim to priority to "U.S. Patent Application 09/343,104 filed June 29, 1999." Pet. 5.

Concerning the priority date of the ’431 patent, the Petition states that “[f]or purposes of this proceeding, Petitioner assumes a priority date of July 8, 1999 (*i.e.,* the filing of the provisional application).” *Id.* at 12; *see also id.* at 4 (“The ’431 Patent claims priority through a chain of applications to U.S. Provisional Application 60/142,777 filed July 8, 1999.”).

As can be seen from the above and based on the positions taken in the Petition, Rhoads could only be prior art to the ’431 patent by a few days, June 29, 1999 v. July 8, 1999.

In support of conception, diligence and constructive reduction to practice, Patent Owner provides the Declaration of Timothy R. Pryor (Ex. 2006), named inventor of the’431 patent and the ’777 provisional. Ex. 1001, code (76); Ex. 2005, 1–3. Mr. Pryor testifies:

> 1. I am the sole inventor of the subject matter recited in claims 7, 9, and 11 of U.S. Patent No. 7,933,431 (the “’431 Patent”), which claims priority to U.S. Provisional Patent Application Serial No. 60/142,777 (the “provisional application”).
>
> ...
>
> 4. At the time of filing the provisional application, I was a resident of Ontario, Canada. This is stated directly on the patent cover sheet for the provisional application. Ex. 2005, p. 1.
>
> 5. At the time of filing the provisional application, Larson & Taylor (“Patent Counsel”) was located in Alexandria, VA, USA. This is stated directly on the patent cover sheet. Ex. 2005, p. 1.
>
> ...
>
> 7. I conceived the subject matter recited in claims 7, 9, and 11 of the ’431 Patent no later than June 27, 1999.... Specifically, each page of the specification of the provisional application is explicitly dated “6/27/99,” showing that the provisional application was drafted, and thus conception had taken place, no later than June 27, 1999.
>
> 8. I was diligent in constructively reducing the invention to practice starting no later than June 27, 1999 (i.e., just prior to the effective filing date of Rhoads). This is evidenced by the preparing/drafting of the provisional application no later than June 27, 1999.
>
> 9. I remained diligent until the subsequent filing of the provisional application approximately 10 days later on July 8, 1999. This short ten day period included both the July 1 federal holiday in Canada (“Canada Day”), where I was a resident at the time, and the July 4 federal holiday in the US, where Patent Counsel was located.

***14** Ex. 2006.

Petitioner does not contest (*see* Reply 23–24), and we determine that Mr. Pryor’s testimony, supported by the ’777 provisional, shows that Mr. Pryor conceived of the subject matter in the ’777 provisional before the effective filing date of Rhoads, and was diligent in constructively reducing it to practice. As testified by Mr. Pryor, the ’777 provisional was prepared by June 27, 1999. Ex. 2006 ¶ 8. This is supported by the ’777 provisional itself where each page of the written description includes the date of June 27, 1999. Thus, the evidence shows that conception occurred prior to the filing of Rhoads.

As there are only ten days between June 27, 1999 and the filing on July 8, 1999 this does not evidence any delay in filing the application. This is especially the case because as noted by Mr. Pryor, there were two holidays during that ten day period. *Id.* ¶ 9. Thus, the evidence shows that Mr. Pryor and his attorney were diligent in preparing the ’777 provisional for filing, which serves as a constructive reduction to practice.

Concerning the issue of whether the ’777 provisional provides adequate support for claims 7, 9, and 11 of the ’431 patent, Patent Owner relies on the statements in the Petition that “[f]or the purposes of this proceeding, Petitioner assumes a priority date of July 8, 1999 (*i.e.*, the filing date of the provisional application)”). PO Resp. 39 (quoting Pet. 12). Patent Owner also generally points to the ’777 provisional for support. *Id.* at 40.

Though Petitioner makes the general allegation that Patent Owner should have provided more detailed analysis, Petitioner's Reply does not identify any particular claim element from claims 7, 9, and 11 of the '431 patent that lacks support in the '777 provisional. Reply 23–24. In response to Petitioner's arguments that Patent Owner should have provided more detailed analysis (*id.* at 23–24), Patent Owner provides a listing of support by claim element (Sur-reply 19–20).

Comparing the '431 patent to the '777 provisional, it can be seen that the disclosures are very similar. *Compare* Ex. 1001, *with* Ex. 2005. One figure was added (Figure 17) to the '431 patent that was not in the '777 provisional, but otherwise there does not appear to be any material difference. *See* Sur-reply 19. This can be determined by a fairly quick review of the documents.

The Petition itself also identifies where the '431 patent provides written description support for the main limitations of claims 7 and 11. This is because the Petition argues that the main claim elements of claim 7 and claim 11 are means plus function claim limitations. Pet. 13–17. The Petition identifies the structure in the '431 patent that Petitioner argues one of skill in the art would understand to correspond with the means limitations identified in the claims. *Id.* (citing, *e.g.*, Ex. 1001, 3:15–19, 6:9–18, 7:22–29, 11:54–58, 11:62–67, 12:1–9, 12:46—13:3, 13:36–40, 13:63–67, 17:34–50, Fig. 8B). Petitioner's expert also implicitly admits that the main claim elements of claims 7 and 11 have written description support in the '431 patent. Ex. 1003 ¶¶ 51, 55–56, 58–59, 62. Reviewing the '777 provisional, it can be seen that most, if not all, of the disclosures from the '431 patent relied on by Petitioner and Petitioner's declarant are present in the '777 provisional.

***15** We have reviewed Patent Owner's a listing of support by claim element, and compared the Petition's and Petitioner's declarant's listing of support in the '431 patent to the disclosures of the'777 provisional and determine that the evidence shows that the '777 provisional provides written description support for every limitation of claims 7, 9, and 11.

Further, though the Reply argues that the Patent Owner Response should have provided a more detailed explanation of where the claims find support in the '777 provisional, we determine such explanation was unnecessary. First, Patent Owner properly relied on the Petition's stated position that that "[f]or the purposes of this proceeding, Petitioner assumes a priority date of July 8, 1999 (*i.e.*, the filing date of the provisional application)"). PO Resp. 39 (quoting Pet. 12). Thus, the Petition did not call priority into question and even went further to affirmatively "assume" priority to the '777 provisional.

Secondly, the Petition and Petitioner's declarant identified support for the main claim elements of claims 7 and 11 in the '431 patent that are easily identifiable and present in the '777 provisional. Further, the limitation added in claim 9 is closely related to the limitations in claim 7. This can be seen in the Petition where the Petition does not provide any citations to Rhoads for claim 9 but merely points to claim 7. *See* Pet. 51. Thus, support for Patent Owner's position could be readily determined based on the record.

We also determine that by failing to argue in the papers that any particular claim element lacks support in the '777 provisional, Petitioner waived such arguments.[9]

For the reasons discussed above, we determine that Rhoads is not prior art to claims 7, 9, and 11 of the '431 patent. Thus, the Petition cannot show that claims 7, 9, and 11 would have been obvious at the time of the invention over Rhoads.

H. 35 U.S.C. § 103(a) – Doi and Cousins

Petitioner asserts that claims 7–12 of the '431 patent would have been obvious over Doi and Cousins. Pet. 17–33. Patent Owner presents a number of arguments that the Petition is insufficient. PO Resp. 11–24.

We first give a short overview of the asserted prior art, Doi and Cousins. This is followed by a discussion of Petitioner's position and Patent Owner's arguments in response.

1. Doi

***16** Doi "relates to a user interface apparatus and an input method of performing input by image processing." Ex. 1005,

1:9–11. Doi describes a user interface apparatus that is applicable to, for example, a computer with a graphical user interface. *Id.* at 7:13–14. The user interface apparatus includes a display screen to display objects, such as a cursor and application icons, and an input device is used to input instructions, such as to move the cursor or start an application. *Id.* at 7:14–19. Doi teaches that the input device can receive input via image processing of an object, such as a user's hand, and can replace the use of a computer mouse. *Id.* at 7:19–22. Figure 3, reproduced below shows a display screen and an input device.

Tabular or graphic material set at this point is not displayable.

Figure 3 "is a view for explaining the relationship between a display device, the housing of the image input unit, and an object." *Id.* at 5:47–49. Figure 2, reproduced below, shows a block diagram of an exemplary image input unit.

Tabular or graphic material set at this point is not displayable.

Figure 2 shows an image input unit's light-emitting unit (101), reflected light extracting unit (102), and timing controller (103). *Id.* at 7:44–46. Doi describes the light-emitting unit (101) as irradiating light onto an object and the reflected light extracting unit (102) receiving reflected light from the object. *Id.* at 7:46–51. The timing controller (103) controls the operation timings of the light-emitting unit (101) and the reflected light extracting unit (102) so that a difference between the reflected light received by the reflected light extracting unit (102) and the light produced by the light-emitting unit (101) can be used to correct for a background, thereby permitting extraction of light reflected by an object. *Id.* at 7:51–60. Doi also teaches that the image input unit does not need to have a light-emitting unit but "can have only a light-receiving unit such as a CCD camera." *Id.* at 7:60–62.

Doi further describes interpretation rules for shape interpretation. *Id.* at 8:35–36. For instance, Doi discloses treating the state of a user's open and raised thumb and index finger as indicating cursor movement, treating the state of a user's closed and raised thumb and index finger to indicate selection of an icon, and treating the state of a user's raised thumb and index finger and turned palm as indicating the start of an application. *Id.* at 8:46–58.

2. Cousins

Cousins is directed to "a multi-purpose portable imaging device" where "[t]he device is small enough to be hand-held ... and has embedded on its surface at least one sensor." Cousins' system further involves sending the "energy received from the sensors ... to an advanced computer" where "[t]he data is processed." Ex. 1006, Abst.; *see also id.* at 4:15–34 (Summary of the Invention discussing a "a multi-purpose portable imaging device" and an advanced computer that processes data from the imaging device).

Figure 2, reproduced below, shows a perspective view of a portable multi-purpose imaging device.

Tabular or graphic material set at this point is not displayable.

Figure 2 is a bottom view of a multi-purpose imaging device (100) including a sensor array (130), such as radar transducers, and a CCD camera (140). *Id.* at 7:10–21. A display can be included on the top side, opposite from the view illustrated. *Id.* at 5:17, Fig. 1.

Cousins teaches that the imaging device may be used to scan an area to produce a representational and accurate 3D map which can be displayed on the device. *Id.* at 6:57–59. Cousins also teaches that the digital data from the portable device can be sent to "an advanced computer" or an "expert machine" for additional processing. *Id.* at Abst., 4:19–21, 13:34. Cousins further explains that the "[p]ortability of imaging device 100 is increased through use of personal communication systems to tap into remote expert systems." *Id.* at 13:65–67.

3. Claim 7

***17** Petitioner argues that, while Doi "teach[es] most of the subject matter of claim 7," including "a computer having a

graphical user interface," "it does not explicitly disclose that such a computer is handheld as recited in the preamble of claim 7." Pet. 18 (emphasis omitted). For this reason, the Petition relies on Cousins for teaching a handheld device with a graphical user interface. *Id.* It is this same handheld device of Cousins that the Petition relies on for teaching the claimed housing (*id.* at 22), that houses the computer means and is associated with the camera means (Ex. 1001, 25:63, 26:1).

Petitioner argues that

> *Cousins* explicitly teaches and suggests the combination, as it suggests that "another application consists of using imaging device 100 along with an expert system to read sign language or the like" and that "[h]and gestures can be used to issue commands...."

Pet. 20–21 (citing Ex. 1006, 13:33–47).

Petitioner first argues that Cousins provides an explicit motivation to combine because "*Cousins* states that its imaging device can be used with hand gestures for input to a computer," which is the focus of Doi. *Id.* at 19 (citing Ex. 1006, 13:33–47). Second, Petitioner argues that the combined device would provide the benefit of being smaller. *Id.* at 20. Third, Petitioner argues that "combining the teachings of *Doi* and applying them to the *handheld* apparatus of *Cousins* would have been no more than the simple substitution of one known element for another." *Id.* (citing Ex. 1003 ¶ 80).

Patent Owner argues that there are a number of issues with the proposed combination of Doi and Cousins. PO Resp. 11–22. For example, Patent Owner argues that the reasons to combine provided in the Petition do not consider the actual context of Cousins. *Id.* at 13–14. As noted above, Petitioner argues that Cousins provides an explicit motivation to modify Doi to be a handheld device because "*Cousins* states that its imaging device can be used with hand gestures for input to a computer," which is the focus of Doi. Pet. 19 (citing Ex. 1006, 13:33–47).

However, Patent Owner correctly notes that Cousins teaches that using hand gestures for input is done with the combination of the handheld imaging device and an "expert system." PO Resp. 13. As noted above, the Petition acknowledges, and relies on, Cousins' teaching of "using imaging device 100 along *with an expert system*" (Pet. 20–21), but the analysis in the Petition completely ignores the "expert system" and only addresses the imaging device. Thus, the Petition fails to establish that the expert system is part of the handheld imaging device.

In response to Patent Owner's arguments, Petitioner argues that Cousins teaches "two types of expert systems ...: expert systems within the portable device, and remote expert systems." Reply 10. Petitioner explains that Cousins

> mentions "expert systems" in, for example, columns 10, 12, and 13, and only later contemplates "remote expert systems" near the end of column 13. Thus, not all "expert systems" must be "remote" or "physically separate", and a POSITA would have understood expert systems within the handheld device as consistent with Cousins.

Id. (citing Ex. 1034 ¶¶ 38–39).

As noted previously, Petitioner bears the burden to demonstrate unpatentability. *Dynamic Drinkware, LLC*, 800 F.3d at 1378. At this stage Petitioner must show that the claims are unpatentable by a preponderance of the evidence. Petitioner has not met its burden.

For example, Petitioner merely asserts that the word "remote" means "physically separate" without explanation. Petitioner does not address or explain how "remote" is used in the context of Cousins. Petitioner does not address the specific teachings related to an "expert system" in Cousins or how they would be understood in context. Petitioner does not explain why Cousins' teaching of "using imaging device 100 *along with* an expert system" (Pet. 20–21) means that the expert system is within the housing of or part of the imaging device.

***18** Cousins teaches a system where an imaging device can provide the image data, but an expert system is needed to

perform processing other than imaging, such as comparing the obtained image to images stored in a database. *See, e.g.*, Ex. 1006, 12:23–27 (discussing using expert systems to identify an organ in an image); *id.* at 13:5–13 (explaining that expert systems can be used to "perform pattern matching of scanned images to a database of images" such as to identify weapons in scanned images at airports); *id.* at 13:33–47 (discussing pattern matching hand signs with an expert system). In each instance the expert system is identified separately from, but used with the imaging device.

Cousins further teaches that "Personal communication systems may be connected to imaging device 100 for connection to a remote database" and that "Portability of imaging device 100 is increased through use of personal communication systems to tap into remote expert systems." *Id.* at 13:63–67. Though Petitioner relies on this use of the word "remote" in the abstract, Petitioner fails to discuss the actual teaching or to address why one of skill in the art would have understood this to mean that non-remote expert systems are within Cousins' handheld imaging device. We find such a position to be unsupported, as well as being based on too many assumptions and asserted implications, to satisfy Petitioner's burden. Though we agree that this implies that some expert systems are farther away from the imaging device than others, we do not agree that this expressly teaches two different types of expert systems. Rather we determine that this supports a finding that Cousins' expert systems would be understood to be separate from the imaging device. PO Resp. 13; Ex. 2007 ¶¶ 57–60; Sur-reply 7–8.

Thus, Cousins is similar to Doi, in that Doi also teaches an image input unit which can do some limited processing of sensor data to obtain an image and then sending the data to a separate computer that performs more advanced processing. *See* Ex. 1005, 7:10–8:12, Figs. 1–3. Thus, neither reference teaches a

> Handheld computer apparatus comprising: a housing; ... [and] computer means within said housing for analyzing said image to determine information concerning a position or movement of said object handheld device

as required by claim 1, because the computer means is not within a housing of the handheld computer apparatus but is a separate device.

We determine that Petitioner's analysis is insufficient to establish that one of skill in the art would understand that Cousins' "expert systems" are within the housing of the handheld imaging device.[10] Therefore, Petitioner fails to establish that the combination of Doi and Cousins teaches all of the limitations of claim 7.

4. Claims 8–12

Claims 8–12 depend from claim 7. As Petitioner fails to establish that the combination of Doi and Cousins teaches all of the limitations of claim 7, it likewise fails to establish the same for claims 8–12 based at least on their dependency from claim 7.

I. 35 U.S.C. § 103(a) – Doi, Cousins, Parulski

Petitioner asserts that claim 13 of the '431 patent would have been obvious over Doi, Cousins, and Parulski. Pet. 33–34. Claim 13 depends from claim 7. Petitioner does not rely on Parulski in a manner that would overcome the deficiencies identified above with respect to independent claim 7. Thus, Petitioner has not shown how the combination of Doi, Cousins, and Parulski teaches all of the limitations of claim 13 for at least the same reasons as independent claim 7.

J. Jurisdiction Over Expired Patents

***19** Patent Owner argues that the USPTO does not have jurisdiction over expired patents. PO Resp. 1–2. Rather, Patent Owner argues, the USPTO only has jurisdiction over patents with claims that can be amended or cancelled. *Id.* Patent Owner states that, as explained by the Supreme Court, "Congress [has] significant latitude to assign [the] adjudication of public rights to entities other than Article III courts," including for the USPTO to "reexamine—and perhaps cancel—a patent claim

in an inter partes review." *Id.* (quoting *Oil States Energy Servs., LLC v. Greene's Energy Grp., LLC*, 138 S. Ct. 1365, 1368, 1374 (2018). However, Patent Owner argues that this authority does not extend to expired patents because the public franchise associated with an issued patent no longer exists after expiration. *Id.* at 2. Thus, it is argued, the USPTO no longer has jurisdiction, even though the patent owner "may be entitled to collect damages" for patent infringement, because "the patent owner[ ] no longer has the right to exclude others" and the USPTO has nothing to cancel or amend. *Id.*

Patent Owner reasons that:

> Expiration removes the patent from the [US]PTO's jurisdiction and returns it to the sole jurisdiction of the Article III courts, which have exclusive authority to govern claims for damages. If this were not so, the [US]PTO would purport to have authority to retroactively modify a public franchise that no longer exists, in a setting where the expired public franchise does not enjoy any presumption of validity and in which amendment of claims is no longer permitted.

Id.

Inter partes review of patents, whether expired or not, fits within the USPTO's mandate "for the granting and issuing of patents" (35 U.S.C. § 2(a)(1)), for as the Supreme Court has stated, "[i]nter partes review is 'a second look at an earlier administrative grant of a patent' " (*Oil States Energy Servs.*, 138 S. Ct. at 1374 (quoting *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2144 (2016)). Our rules have also made clear that *inter partes* review covers expired patents. 37 C.F.R. 42.100(b) (2012); *see also, e.g.*, 83 Fed. Reg. 51341 (Oct. 11, 2018) (Changes to the Claim Construction Standard for Interpreting Claims in Trial Proceedings Before the Patent Trial and Appeal Board)[11] ("The claim construction standard adopted in this final rule also is consistent with the same standard that the Office has applied in interpreting claims of expired patents and soon-to-be expired patents. *See, e.g.*, *Wasica Fin. GmbH v. Cont'l Auto. Sys., Inc.*, 853 F.3d 1272, 1279 (Fed. Cir. 2017) (noting that '[t]he Board construes claims of an expired patent in accordance with *Phillips* ... [and] [u]nder that standard, words of a claim are generally given their ordinary and customary meaning').").

Further, the statutes governing *inter partes* review do not limit them to non-expired patents. For example, 35 U.S.C. § 311(b), which sets forth the scope of *inter partes* review merely refers to patents, with no mention of the expiration date. Further, 35 U.S.C. § 311(c) entitled "Filing Deadline" makes no mention of the expiration date of the patent. Elsewhere, 35 U.S.C. § 315 does limit the filing of IPRs based on civil actions and the serving of complaints, but again makes no mention of the expiration date of the patent. Patent Owner does not identify any statute or legal precedent that expressly limits *inter partes* review to non-expired patents.

Patent Owner fails to adequately explain why the Patent Office's authority to take a second look at an earlier administrative grant of a patent ends when the patent term expires even though the rights granted by the patent are not yet exhausted.

For all of these reasons, we do not agree that the Board lacks jurisdiction over expired patents.

K. Motion to Strike

Petitioner also filed a Motion to Strike (Paper 19) and Patent Owner filed an Opposition to the Motion to Strike (Paper 23). The Motion to Strike requests that we strike Ex. 2008 for assertedly being new improper evidence. Paper 19, 1 (citing Consolidated Trial Practice Guide (Nov. 2019)[12] 73–74). The Motion to Strike also requests that we strike § V.A of Patent Owner's Sur-reply (Paper 18). Paper 19, 1.

***20** As this Decision does not rely on or cite to Ex. 2008, we determine that these portions of the Motion to Strike are moot.

Concerning § V.A of Patent Owner's Sur-reply, we deny Petitioner's request to strike. As already discussed herein, Patent Owner's arguments in the Sur-reply related to support for claims 7, 9, and 11 in the '777 provisional (i.e. § V.A) were in

direct response to Petitioner's related arguments in the Reply. We do not fault Patent Owner for relying on Petitioner's statement affirmatively "assum[ing]" priority to the '777 provisional. *See* PO Resp. 39 (quoting Pet. 12). Further, the disclosures of the '431 patent and the '777 provisional are very similar and Petitioner in its claim construction laid out and admitted support in the '431 patent for the main claim limitations of claims 7 and 11, with claim 9 closely related to claim 7. Pet. 13–17. Reviewing the '777 provisional, it can be seen that most, if not all, of the disclosures from the '431 patent relied on by Petitioner and Petitioner's declarant are present in the '777 provisional.

Under the facts of the present case, the issue of priority to the '777 provisional was not in issue until Petitioner raised it in the Reply. And thus, Patent Owner's response in the Sur-reply was proper. Petitioner had the opportunity and did challenge the claim to priority in the Reply. But by not addressing any specific claim limitation that was not supported, Petitioner waived the opportunity to make specific arguments in that regard.

For these reasons, Petitioner's Motion to Strike is rendered moot and otherwise denied.

III. CONCLUSION

For the reasons discussed above, we determine that Petitioner has proven, by a preponderance of the evidence, that some of the challenged claims are unpatentable, as summarized in the following table:

Claims	35 U.S.C. §	Reference(s)/Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
7–9, 11, 12	102(e)	Numazaki	7–9, 12	11
7, 9, 11	103(a)	Rhoads		7, 9, 11
7–12	103(a)	Doi, Cousins		7–12
13	103(a)	Doi, Cousins, Parulski		13
Overall Outcome			7–9, 12	10, 11, 13

IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that claims 7–9, 12 of U.S. Patent 7,933,431 B2 have been shown to be unpatentable;

FURTHERED ORDERED that claims 11 and 13 of U.S. Patent 7,933,431 B2 have not been shown to be unpatentable;

FURTHERED ORDERED that the portions of Petitioner's Motion to Strike that are not moot are denied; and

FURTHERED ORDERED that, because this is a Final Written Decision, parties to the proceeding seeking judicial review of the Decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

Footnotes

[1] Petitioner also filed a Preliminary Reply. Paper 7.

2 The Leahy-Smith America Invents Act ("AIA"), Pub. L. No. 112-29, 125 Stat. 284, 285–88 (2011), revised 35 U.S.C. §§ 102, 103, 112 effective March 16, 2013. Because the challenged patent was filed before March 16, 2013, we refer to the pre-AIA versions.

3 U.S. Patent 6,144,366, issued Nov. 7, 2000 ("Numazaki") (Ex. 1007).

4 U.S. Patent Application Publication 2005/0013462 A1, published Jan. 20, 2005 ("Rhoads") (Ex. 1004).

5 U.S. Patent 6,266,061 B1, issued July 24, 2001 ("Doi") (Ex. 1005).

6 U.S. Patent 6,417,797 B1, issued July 9, 2002 ("Cousins") (Ex. 1006).

7 U.S. Patent 5,666,159, issued Sept. 9, 1997 ("Parulski") (Ex. 1008).

[8] Numazaki also teaches that "CMOS sensors are used as the photo-detection means" in the eighth embodiment. Ex. 1007, 53:7–18. The '431 patent similarly teaches that "CMOS cameras" can be used to obtain images. Ex. 1001, 5:50–57.

[9] At the hearing, Petitioner requested to introduce new arguments into the record concerning the support provided by Patent Owner in the Sur-reply. Tr. 64:15–67:23. We allowed Petitioner to advance the arguments, but did not rule at that time whether they were improper new arguments. *Id.* at 64:15–65:23. We determine that these arguments are improper new arguments that should have been advanced in the Reply.

[10] The Petition does not rely on Cousins' imaging device alone without the expert system as that is the only embodiment in Cousins related to reading hand gestures. *See* Pet. 19–21 (the only citations to Cousins in the reasons to combine are to Ex. 1006, 13:33–47); *see also* Reply 9–10 (arguing over Cousins' imaging device divorced from the expert systems).

[11] Available at https://www.federalregister.gov/d/2018-22006/p-13.

[12] Available at www.uspto.gov/TrialPracticeGuideConsolidated.

EXHIBIT C

129 F.4th 1367
United States Court of Appeals, Federal Circuit.

APPLE INC., Appellant
LG Electronics Inc., LG Electronics USA, Inc., Google LLC, Appellees
v.
GESTURE TECHNOLOGY PARTNERS, LLC, Cross-Appellant

2023-1475, 2023-1533
|
Decided: March 4, 2025

Synopsis

Background: Alleged infringers petitioned for inter partes review of patent related to camera-based sensing in electronic devices. The Patent Trial and Appeal Board, Nos. IPR2021-00920, IPR2022-00091, IPR2022-00359, issued a final written decision holding 29 claims unpatentable and two claims not unpatentable. Alleged infringers appealed Board's holding that two claims were not shown to be unpatentable, and patentee cross-appealed Board's holding that four claims were unpatentable and argued that by extension all claims that depended from those claims were also not unpatentable.

Holdings: The Court of Appeals, Prost, Circuit Judge, held that:

[1] patentee forfeited its arguments that alleged infringers had no standing to appeal;

[2] alleged infringers failed to show that two claims were unpatentable as obvious in view of alleged prior art;

[3] substantial evidence supported Board's finding that prior art taught "electro-optical sensing" claim limitation;

[4] substantial evidence supported Board's findings that prior art taught "camera" and "camera means" and "computer means" claim limitations; and

[5] substantial evidence supported Board's determination that prior art disclosed a dependent claim.

Affirmed.

Procedural Posture(s): Review of Administrative Decision.

West Headnotes (19)

[1] **Patents** Construction and Operation of Patents

Federal Circuit reviews patent claim construction de novo and reviews any subsidiary factual findings based on extrinsic evidence for substantial evidence.

[2] **Patents** Obviousness; lack of invention

Federal Circuit reviews Patent Trial and Appeal Board's legal determination of obviousness de novo and its factual findings for substantial evidence. 35 U.S.C.A. § 103.

[3] **Evidence** Reasonableness in general

"Substantial evidence" is such relevant evidence as a reasonable mind might accept as adequate to support a conclusion.

[4] **Patents** Judicial Review or Intervention

Patentee, appealing from Patent Trial and Appeal Board's final decision on an inter partes review of its patent related to camera-based sensing in electronic devices, forfeited its arguments that petitioner had no standing to

appeal pursuant to statutory estoppel provision since petitioner was a real party in interest or privy of organization which filed another earlier inter partes review challenging the same patent, where patentee failed to present those arguments before the Board, even though patentee was aware of relationship between petitioner and organization many months before Board's final decision issued. 35 U.S.C.A. § 315(e)(1).

[5] **Patents** Inter partes review

Whether a party is a real party in interest or privy, for purposes of statutory estoppel provision, is a question of fact. 35 U.S.C.A. § 315(e)(1).

[6] **Federal Courts** In general; necessity

As an appellate court, Federal Circuit may not decide questions of fact in the first instance on appeal.

[7] **Federal Civil Procedure** In general; injury or interest

While Article III standing may not be waived, statutory standing arguments are subject to different rules of waiver and forfeiture. U.S. Const. art. 3, § 2, cl. 1.

[8] **Patents** Photography; imaging and graphic arts

Inter partes review petitioner, challenging patent related to camera-based sensing in electronic devices, failed to show that two claims were unpatentable as obvious in view of alleged prior art; despite petitioner's argument for a specific construction of one claim, petition presented no argument or analysis as to how alleged prior art, alone or in view of knowledge of a person of ordinary skill in the art, would meet that claim construction, and with respect to second claim, evidence did not support petitioner's argument, as petitioner's expert relied on an article which did not discuss claim limitation at issue. 35 U.S.C.A. § 103.

More cases on this issue

[9] **Patents** Inter partes review

Ultimately, it is inter partes review petitioner's burden to present a clear argument. 35 U.S.C.A. § 312(a)(3).

[10] **Patents** Inter partes review

There is no requirement that Patent Trial and Appeal Board expressly discuss each and every negative and positive piece of evidence lurking in record to evaluate a cursory argument.

[11] **Patents** Photography; imaging and graphic arts

Substantial evidence supported Patent Trial and Appeal Board's finding that prior art taught

"electro-optical sensing" claim limitation, in inter partes review of patent related to camera-based sensing in electronic devices; prior art's "photo-detection sensor unit" was claimed "sensing means" based on express declaration of prior art that photo-detection section of eighth embodiment incorporated disclosure of prior embodiments, prior art taught that its photo-detection sensor unit was or at least included a camera/sensing means, and obviousness did not require an express disclosure of relationship between prior art's photo-detection sensor unit and its computing device.

More cases on this issue

[12] **Patents** Photography; imaging and graphic arts

Substantial evidence supported Patent Trial and Appeal Board's findings that prior art taught "camera" and "camera means" and "computer means" claim limitations, in inter partes review of patent related to camera-based sensing in electronic devices; Board properly mapped prior art's "photo-detection sensor unit" to claimed "camera" and "camera means," prior art taught a "computer means" for analyzing an image when it taught a relationship between its "feature data generation unit" and its photo-detection sensor unit, patentee admitted that prior art disclosed claimed structure when it disclosed that it was possible to realize operation of feature data generation unit in a form of software, and that admission was supported by expert testimony.

More cases on this issue

[13] **Patents** Photography; imaging and graphic arts

Substantial evidence supported Patent Trial and Appeal Board's determination that prior art disclosed a dependent claim, in inter partes review of patent related to camera-based sensing in electronic devices; dependent claim was properly read according to its plain and ordinary meaning, patentee's claim construction appeared to add a temporal limitation that was simply not there in dependent claim or claim on which it depended, prior art's light was only off when its second detection unit was in a photo-detecting state, and claimed light unit was also on for at least half the time.

1 Case that cites this headnote
More cases on this issue

[14] **Patents** Plain, ordinary, or customary meaning in general

Words of a patent claim are generally given their ordinary and customary meaning.

[15] **Patents** Language of claims in general
Patents Dependent and independent claims

Patent claims themselves provide substantial guidance as to meaning of particular claim terms, which includes reading a dependent claim in context of a claim on which it depends.

[16] **Patents** Inter partes review

The Patent Trial and Appeal Board has jurisdiction over inter partes reviews concerning expired patents.

[17]	**Patents**In general; utility
	US Patent 7,933,431. Invalid in Part.
[18]	**Patents**In general; utility
	US Patent 5,986,574. Recognized as Invalid.
[19]	**Patents**In general; utility
	US Patent 6,144,366. Cited as Prior Art.

***1369** Appeals from the United States Patent and Trademark Office, Patent Trial and Appeal Board in Nos. IPR2021-00920, IPR2022-00091, IPR2022-00359.

Attorneys and Law Firms

Melanie L. Bostwick, Orrick, Herrington & Sutcliffe LLP, Washington, DC, argued for appellant Apple, and appellees LG Electronics Inc., LG Electronics USA, Inc., and Google LLC. Apple also represented by Abigail Colella, Jonas Wang; Elizabeth Moulton, San Francisco, CA; Clifford T. Brazen, Adam Prescott Seitz, Erise IP, P.A., Overland Park, KS; Paul R. Hart, Denver, CO.

John Wittenzellner, Williams, Simons, and Landis PLLC, Philadelphia, PA, argued for cross-appellant. Also represented by Eric Carr, Mark John Edward McCarthy, Fred Williams, Austin, TX.

Erika Arner, Finnegan, Henderson, Farabow, Garrett & Dunner, LLP, Washington, DC, for appellee Google LLC. Also represented by Daniel Cooley, Reston, VA.

Stanley Joseph Panikowski, III, DLA Piper LLP (US), San Diego, CA, for appellees LG Electronics Inc., LG Electronics USA, Inc. Also represented by Matthew D. Satchwell, Chicago, IL.

Before Moore, Chief Judge, Prost and Stoll, Circuit Judges.

Opinion

Prost, Circuit Judge.

***1370** Apple Inc. ("Apple"), LG Electronics Inc., LG Electronics USA Inc.,[1] and Google LLC ("Google") filed petitions for inter partes review ("IPR") of U.S. Patent No. 7,933,431 ("the '431 patent"). The Patent Trial and Appeal Board ("Board") joined the petitions and issued a final written decision, holding claims 1–10, 12, and 14–31 unpatentable and claims 11 and 13 not unpatentable. *Apple Inc. v. Gesture Tech. Partners, LLC*, Nos. IPR2021-00920, IPR2022-00091, IPR 2022-00359, 2022 WL 17364390, at *16 (P.T.A.B. Nov. 30, 2022) ("*Final Written Decision*"). Apple appeals the Board's holding that claims 11 and 13 were not shown to be unpatentable. Gesture Technology Partners, LLC ("Gesture") cross-appeals the Board's holding that claims 1, 7, 12, and 14 are unpatentable and argues that by extension all claims that depend from these claims are also not unpatentable. We affirm the Board's holding as to all claims.

BACKGROUND

I

The '431 patent is titled "Camera Based Sensing in Handheld, Mobile, Gaming, or Other Devices." '431 patent title. "The invention relates to simple input devices for computers, particularly, but not necessarily, intended for use with 3-D graphically intensive activities, and operating by optically sensing a human input to a display screen or other object and/or the sensing of human positions or orientations." *Id.* at col. 2 ll. 7–11. "The invention uses single or multiple TV cameras whose output is analyzed and used as input to a computer, such as a home PC, to typically provide data concerning the location of parts of, or objects held by, a person or persons." *Id.* at col. 2 ll. 20–23.

For example, in one embodiment, cameras (100 and 101) are located on top of a monitor (102) and are connected to

a computer (106). *See id.* at Fig. 1A (below); *id.* at col. 3 ll. 23–30. The cameras also have associated light sources (111 and 112), e.g. LEDs, that "illuminate targets associated with any of the fingers, hand, feet and head of the user, or objects such as 131 held by a user." *Id.* at col. 3 ll. 34–36. The ***1371** cameras sense the illuminated targets, *id.* at col. 3 ll. 34–52, and the resulting image information is then used by a computer "to provide various position and orientation related functions of use," *id.* at col. 11 ll. 57–58.

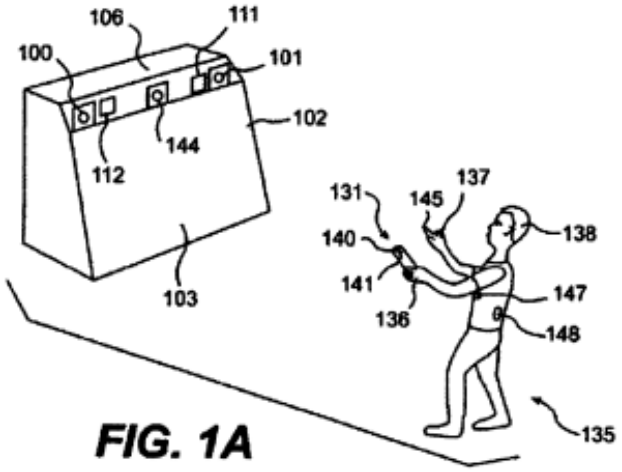


FIG. 1A

The '431 patent expired in July 2020. *See* Cross-Appellant's Br. 57.

II

In February 2021, Gesture sued several companies, including Apple, LG Electronics, and Google, of infringing the '431 patent. On May 21, 2021, Apple filed an IPR ("Apple IPR") challenging the patentability of all claims of the '431 patent. LG Electronics and Google also filed "nearly identical" petitions for IPR of the '431 patent, and the three IPRs were joined. *See* No. IPR2021-00920, Paper 16 (P.T.A.B. Mar. 17, 2022); No. IPR2021-00920, Paper 18 (P.T.A.B. May 6, 2022). The petitions raised four grounds of unpatentability under 35 U.S.C. § 103. Each of the four grounds relied on U.S. Patent No. 6,144,366 ("Numazaki"), J.A. 657–803, and the knowledge of a person of ordinary skill in the art and/or at least one prior-art reference. *See Final Written Decision*, 2022 WL 17364390, at *2. The Board held all claims unpatentable except for claims 11 and 13. *Id.* at *16.

Also relevant to this appeal is another IPR, filed by Unified Patents, LLC ("Unified Patents") on May 14, 2021, seven days before Apple filed its IPR. *See* J.A. 2026–88 (*Unified Patents, LLC v. Gesture Tech. Partners, LLC*, No. IPR2021-00917, Paper 1 (P.T.A.B. May 14, 2021) ("Unified Patents IPR")). Unified Patents is a multi-member organization; Apple is one of its members. J.A. 2090 (*Unified Patents, LLC v. Gesture Tech. Partners, LLC*, No. IPR2021-00917, Paper 7, at 1 n.2 (P.T.A.B. Sept. 22, 2021)).

Both the Unified Patents IPR and Apple IPR appealed here challenged the same patent—the '431 patent—and some of the same claims. On November 21, 2022, the Board issued a final written decision in the Unified Patents IPR, holding claims 7–9 and 12 unpatentable and holding claims 10, 11, and 13 were not unpatentable. *Unified Patents, LLC v. Gesture Tech. Partners, LLC*, No. IPR2021-00917, 2022 WL 17096296, at *20 (P.T.A.B. Nov. 21, 2022).[2] The final written decision in Apple's IPR (IPR2021-00920) issued nine days later on November 30, 2022. *Final Written Decision*, 2022 WL 17364390.

Apple appeals the *Final Written Decision* as to claims 11 and 13, and Gesture cross-appeals as to the remaining claims. We have jurisdiction under 28 U.S.C. § 1295(a)(4)(A).

DISCUSSION

[1] [2] [3]"We review claim construction de novo and review any subsidiary factual findings based on extrinsic evidence for substantial evidence." *ParkerVision, Inc. v. Vidal*, 88 F.4th 969, 975 (Fed. Cir. 2023) (internal citation omitted). "We review the Board's legal determination of obviousness de novo and its factual findings for substantial ***1372** evidence." *Outdry Techs. Corp. v. Geox S.p.A.*, 859 F.3d 1364, 1367 (Fed. Cir. 2017) (internal citation omitted). "Substantial evidence is such relevant evidence as a reasonable mind might accept as adequate to support a conclusion." *Intel Corp. v. PACT XPP Schweiz AG*, 61 F.4th 1373, 1378 (Fed. Cir. 2023) (internal citation omitted).

Apple challenges the Board's holding that claims 11 and 13 were not shown to be unpatentable, alleging that the Board applied the wrong legal standard for obviousness and ignored Apple's arguments. Gesture responds that Apple has no standing to appeal under the estoppel provision of 35 U.S.C. § 315(e)(1), but even if it did, the Board's findings as to claims 11 and 13 were supported by substantial evidence.

Gesture argues in its cross-appeal that substantial evidence does not support the Board's finding that Numazaki teaches claims 1, 7, 12, and 14 and that the Board misconstrued a limitation in claim 12. Gesture also argues that the Board does not have jurisdiction over expired patents, such as the '431 patent, and thus the Board has no authority to cancel the '431 patent claims in an IPR. We address each argument in turn.

I

As to Apple's appeal, we begin with Gesture's argument that Apple has no standing to appeal under 35 U.S.C. § 315(e)(1).[3] If Apple has no standing, then its appeal must be dismissed. If, however, Apple has standing, we must decide the merits of Apple's appeal.

A

[4]"The petitioner in an inter partes review of a claim in a patent ... that results in a final written decision ..., or the real party in interest or privy of the petitioner, may not ... maintain a proceeding before the [Patent] Office with respect to that claim on any ground that the petitioner raised or reasonably could have raised during that inter partes review." 35 U.S.C. § 315(e)(1).

Gesture argues that Apple has no standing to appeal because § 315(e)(1)'s statutory estoppel provision bars Apple's appeal. According to Gesture, once the final written decision issued in the Unified Patents IPR, Apple could not "maintain a proceeding" before the Patent Office or an appeal before this court because Apple is a real party in interest or privy of Unified Patents. *See* Cross-Appellant's Br. 25. Apple counters that Gesture forfeited this estoppel argument because "Gesture ... never argued before the Board that Apple was a real party in interest or privy of Unified [Patents], or that Apple should be estopped from petitioning for inter partes review of the '431 patent on that basis." Appellant's Reply Br. 24. Additionally, Apple asserts that it is not a real party in interest or privy of Unified Patents. As explained below, we agree with Apple that Gesture's argument that Apple is a real ***1373** party in interest or privy of Unified Patents was forfeited.

[5] [6]"Whether a party is [a real party in interest] or privy is a question of fact ...." *Uniloc 2017 LLC v. Facebook Inc.*, 989 F.3d 1018, 1028 (Fed. Cir. 2021); *see also Applications in Internet Time, LLC v. RPX Corp.*, 897 F.3d 1336, 1351 (Fed. Cir. 2018) (explaining the nature of the inquiry is "fact-dependent"). As an appellate court, we may not decide questions of fact in the first instance on appeal. *Middleton v. Dep't of Def.*, 185 F.3d 1374, 1383 (Fed. Cir. 1999) ("[A]s an appellate court, we may not find facts."). Indeed, we have rejected similar patent owner arguments raising factual questions as to real party in interest or privy status for the first time on appeal. *See Acoustic Tech., Inc. v. Itron Networked Sols., Inc.*, 949 F.3d 1360, 1364 (Fed. Cir. 2020).

In *Acoustic Technology*, Acoustic sued Itron for infringement of U.S. Patent No. 5,986,574 ("the '574 patent") in March 2010. *Id.* at 1362. Six years later, Acoustic sued Silver Spring for alleged infringement of the same patent. *Id.* "In response, on March 3, 2017, Silver Spring timely filed two IPR petitions that challenge[d] the '574 patent ...." *Id.* Both IPRs were instituted on September 8, 2017. *Id.* at 1361. Nine days later, Silver Spring agreed to merge with Itron. *Id.* The merger was completed in January 2018, and the Board entered final written decisions in both IPRs in August 2018, holding all challenged claims unpatentable. *Id.* at 1363. Acoustic appealed the merits of that decision and argued that the "final written decisions should be vacated because the underlying IPR proceedings are time-barred under 35 U.S.C. § 315(b)." *Id.* Section 315(b) provides:

> An inter partes review may not be instituted if the petition requesting the proceeding is filed more than 1 year after the date on which the petitioner, *real party in interest, or privy of the petitioner* is served with a complaint alleging infringement of the patent.

35 U.S.C. § 315(b) (emphasis added). On appeal, for the first time, Acoustic alleged that Itron was a real party in interest to the Silver Spring IPRs and was therefore time-barred based on the March 2010 complaint that Acoustic filed against Itron. "We [held] that Acoustic ha[d] waived its time-bar challenge to the IPRs because it failed to present those arguments before the Board." *Acoustic Tech.*, 949 F.3d at 1364.[4]

[7]While *Acoustic Technology* involved a question under § 315(b) and the case before us involves a question under § 315(e)(1), both statutory provisions involve a question of whether a nonparty to an IPR is a real party in interest or

privy of the petitioner under the same statute, 35 U.S.C. § 315—i.e., both statutory provisions involve the same question of fact. In both *Acoustic Technology* and here, the patent owner was aware of the relationship between the IPR petitioner and the alleged real party in interest/privy many months before the final written decision issued. In *Acoustic Technology*, "Acoustic became aware of the merger as of January 8, 2018, more than seven months before the Board issued its final written decisions." 949 F.3d at 1364. And here Gesture admits that "[d]uring the course of IPR2021-00917, Unified Patents admitted that Apple, Inc. (i.e., Petitioner here) was a member when Unified Patents filed the Unified IPR Petition." Cross-Appellant's ***1374** Br. 15 (citing J.A. 2090). The evidence that Gesture relies on for this assertion is from an admission by Unified Patents in September 2021—more than a year before the final written decisions issued in either the Unified Patent IPR or Apple IPR. Therefore, like *Acoustic Technology*, we hold that Gesture has forfeited its real party in interest/privy argument "because it failed to present those arguments before the Board." *Acoustic Tech.*, 949 F.3d at 1364.[5]

B

[8]Having determined that Gesture forfeited its argument under § 315(e) for failure to raise the factual dispute before the Board, we turn to the merits of Apple's appeal which relates to claims 11 and 13 of the '431 patent, which recite:

> Apparatus according to claim 7, further including means for transmitting information.

'431 patent claim 11.

> Apparatus according to claim 7, wherein said apparatus is a cellular phone.

Id. at claim 13.

Apple argues that these claims are unpatentable as obvious in view of Numazaki and the knowledge of person of ordinary skill in the art. Specifically, Apple contends that Numazaki's fifth embodiment teaches a conference record system or TV telephone, and Numazaki's eighth embodiment teaches a portable device. Apple argues that a person of ordinary skill in the art would be motivated to combine these two embodiments—i.e., the modification from a TV telephone to a cellphone would have been obvious based on the knowledge of a person of ordinary skill in the art. Appellant's Br. 26; *see also id.* at 28–29 ("[A] person of ordinary skill in July 1999 would have interpreted Numazaki's disclosure of a 'TV telephone' as a cellular phone (with a cellular transceiver) based on the state of the art at the time."). But the Board disagreed.

The Board began its analysis of these claims with Apple's argument that "means for transmitting information" in claim 11 is subject to 35 U.S.C. § 112 ¶ 6 "and that the structure corresponding to the claimed function is 'at least a wireless cellular transceiver.' " *Final Written Decision*, 2022 WL 17364390, at *13. The Board accepted that "construction as consistent with the current record." *Id.* at *5. But Apple's petition in addressing claim 11 "include[d] no analysis regarding whether the transmission functionality included in Numazaki[ ] ... is an equivalent of 'a wireless cellular transceiver' or a cell phone." *Id.* at *14. In other words, despite Apple's argument for a specific claim construction, the petition presented no argument as to how Numazaki, alone or in view of the knowledge of a person of ordinary skill in the art, would meet this claim construction. *See* J.A. 165–66.

With respect to claim 13, the Board concluded that Apple's expert testimony did not support the idea that "videoconference telephones were also known as cellular videophones." *Final Written Decision*, 2022 WL 17364390, at *14 (internal citations omitted). Apple's expert had admitted that "videophones were not prevalent in the marketplace at the time." J.A. 167; *see also id.* ("researchers were *working on* this technology" (emphasis added)). Indeed, Apple's expert instead relied on a New York Times newspaper article "discussing ***1375** the global efforts *preceding the launch* of a market leading cellular videophone." *See* J.A. 906 (emphasis added); *see also* J.A. 1026–32. And the Board found that this article "[did] not discuss videoconference telephones or equate videoconference telephones with cellular videophones." *Final Written Decision*, 2022 WL 17364390, at *14.

[9]According to Apple, the Board erred by (1) misapplying the legal standard for obviousness by only looking to the explicit disclosures of Numazaki instead of Numazaki in view of the knowledge of a person of ordinary skill in the

art and (2) failing to engage in reasoned decision making in violation of the Administrative Procedure Act ("APA"). Appellant's Br. 26. We disagree. While it is correct that the Board's decision first addressed whether Numazaki explicitly discloses wireless cellular transceivers or cell phones, the Board did not stop there. As explained above, the Board also rested on the petition's lack of analysis about how Numazaki (with or without the knowledge of a person of ordinary skill in the art) would apply to the claim construction that Apple had advocated for—i.e., "[t]he Petition includes no analysis ...." *Final Written Decision*, 2022 WL 17364390, at *14. "Ultimately, it is the petitioner's burden to present a clear argument." *See Netflix, Inc. v. DivX, LLC*, 84 F.4th 1371, 1377 (Fed. Cir. 2023); *see also Intelligent Bio-Systems, Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1369 (Fed. Cir. 2016) ("It is of the utmost importance that petitioners in the IPR proceedings adhere to the requirement that the initial petition identify 'with particularity' the 'evidence that supports the grounds for the challenge to each claim.' " (quoting 35 U.S.C. § 312(a)(3) (2012))). And with respect to claim 13, the Board simply found the evidence did not support Apple's argument. *Final Written Decision*, 2022 WL 17364390, at *14. This is not a misapplication of the obviousness standard.

[10]We likewise disagree with Apple's APA argument, which alleges that the Board "ignore[d] much of its evidence." Appellant's Br. 39. According to Apple, the Board ignored Apple's argument that Numazaki's fifth embodiment in view of the knowledge of a person of ordinary skill in the art teaches a cellular phone, which was allegedly supported by the New York Times article and discussions in Numazaki about low-cost communications. But Apple overstates what the Board ignored. Indeed, the Board did consider these arguments. *Final Written Decision*, 2022 WL 17364390, at *14. And it applied a reasoned analysis for rejecting those arguments. *Id.* While we agree that the Board did not expressly explain its thoughts on the relevance of low-cost communications, "there is no requirement that the Board expressly discuss each and every negative and positive piece of evidence lurking in the record to evaluate a cursory argument." *Novartis AG v. Torrent Pharms. Ltd.*, 853 F.3d 1316, 1328 (Fed. Cir. 2017); *see also Yeda Rsch. and Dev. Co. v. Mylan Pharms. Inc.*, 906 F.3d 1031, 1046 (Fed. Cir. 2018) (The Board "is not required ... to address every argument raised by a party or explain every possible reason supporting its conclusion." (cleaned up)). In sum, we disagree that the Board "utterly 'failed to ... evaluate [Apple's] primary argument.' " Appellant's Br. 42 (quoting *Power Integrations, Inc. v. Lee*, 797 F.3d 1318, 1325 (Fed. Cir. 2015)). The Board did not commit an APA violation.

For the reasons above, we affirm the Board's determination that claims 11 and 13 were not shown to have been unpatentable.

II

Gesture argues in its cross-appeal that the Board erred in determining that Numazaki renders obvious claims 1, 7, 12, and 14. We disagree.

*1376 A

[11]Claim 1 recites:

> A method for controlling a handheld computing device comprising the steps of:
>
> holding said device in one hand;
>
> moving at least one finger in space in order to signal a command to said device;
>
> *electro-optically sensing light reflected from said at least one finger using a sensing means associated with said device*;
>
> determining from said sensed light the movement of said finger, and
>
> using said sensed finger movement information, controlling said device in accordance with said command.

'431 patent claim 1 (emphasis added). Before the Board, Apple argued that Numazaki's eighth embodiment, depicted in Figure 78, "depicts a portable version of the basic information input generation apparatus described in [Numazaki's] first embodiment." Appellant's Reply Br. 37; *see* J.A. 150–52. According to Apple, together Numazaki's first and eighth embodiments render claim 1 obvious. The Board agreed.

Gesture argues that substantial evidence does not support that view because Numazaki does not teach or suggest "electro-optically sensing light reflected from said at least one finger using a sensing means associated with said device." Cross-Appellant's Br. 52. Specifically, Gesture disputes that Numazaki's "photo-detection sensor unit" is

the claimed "sensing means," *id.*, because there is no "photo-detection sensor unit" in the first seven embodiments and the first embodiment cannot be combined with the eighth embodiment. *Id.* at 53–54. The Board properly rejected this argument, explaining that "the position of Patent Owner and Patent Owner's declarant is inconsistent with the express disclosure of Numazaki that makes clear that the photo-detection section of the eighth embodiment, including the 'photodetection sensor unit' of Figure 78, incorporates the disclosure of the photodetection section of the prior embodiments, including Figure 2." *Final Written Decision*, 2022 WL 17364390, at *9; *see also* Numazaki col. 50 ll. 21–24 ("This eighth embodiment is directed to a system configuration incorporating the information input generation apparatus of the present invention as described in the above embodiments.").

Gesture also contends that the Board improperly "mapped Numazaki's 'reflected light extraction unit' to the claimed 'sensing means.' " Cross-Appellant's Br. 54. Gesture bases this argument on an incomplete quotation from the *Final Written Decision* that, according to Gesture, says "Numazaki's reflected light extraction unit ... teach[es] a camera/sensing unit." Cross-Appellant's Br. 54 (quoting *Final Written Decision*, 2022 WL 17364390, at *9). The full quote, however, states: "Thus, we determine that one of skill in the art would have understood Numazaki to teach that the 'photo-detection sensor unit' in Fig. 78 is or at least includes a camera/sensing means, just as Numazaki's reflected light extraction unit, with its two photo detection units in Figure 2, teach a camera/sensing means." *Final Written Decision*, 2022 WL 17364390, at *9. Based on the full quote, we agree with Apple that "the Board was consistently mapping the sensing means to the photo-detection units, but pointing out that those components are housed within the reflected light extraction unit." Appellant's Reply Br. 46. In this quotation, discussing both Figure 78 and Figure 2, the Board specifically pointed to the "photo-detection sensor unit" and "photo detection unit"[6] in identifying the "sensing means."

***1377** Additionally, Gesture argues that Numazaki's "feature data generation unit" does not "determine[ ] ... the movement of said finger" from the light sensed by Numazaki's "photo-detection sensor unit." Cross-Appellant's Br. 52–53. Claim 1 requires "*sensing light* ... using a sensing means [and] determining from said *sensed light* the movement of said finger." As we concluded above, the Board properly found that the "sensing means" is Numazaki's "photo-detection sensor unit." Therefore, to meet the limitation of claim 1, Numazaki's "photo-detection sensor unit" must sense light, and Numazaki's computing device must determine from the sensed light the movement of the finger. Gesture alleges that Numazaki does meet this limitation because there is no drawing or express disclosure in Numazaki that shows a relationship between the "photo-detection sensor unit" and Numazaki's computing device (i.e., "the feature data generation unit"). As a preliminary point, Gesture's argument assumes that express disclosure is required, but Apple's argument is grounded in obviousness, which does not require an express disclosure. *See, e.g., KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 418, 127 S.Ct. 1727, 167 L.Ed.2d 705 (2007) ("[T]he 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."). Regardless, Gesture does not appear to have raised this argument before the Board, and we therefore conclude it was forfeited. *See* J.A. 247–49; J.A. 341–45; Cross-Appellant's Reply Br. 8–10 (providing no reply to Apple's contention that this argument was forfeited).

For the reasons above, we conclude that substantial evidence supports the Board's finding that Numazaki teaches the disputed "electro-optical sensing" limitation.

B

[12]Gesture's next set of arguments relates to independent claims 7 and 14. In particular, Gesture argues that the Board erred by (1) mapping the claimed "camera means" in claim 7 and "camera" in claim 14 to Numazaki's "photo-detection sensor unit"; (2) finding that Numazaki teaches claims 7 and 14's limitation that a "computer means" "analyz[es] said image"; and (3) finding that Numazaki teaches a "computer means" as construed by the Board under 35 U.S.C. § 112, ¶ 6. We address each of these arguments in turn, below. The relevant portions of claims 7 and 14 recite:

> Handheld computer apparatus comprising:
>
> ...
>
> a camera means associated with said housing for obtaining an image using reflected light of at least one object positioned by a user operating said object;
>
> computer means within said housing for analyzing said image to determine information concerning a position or movement of said object; and

....

'431 patent claim 7.

A method for controlling a handheld computing device comprising the steps of:

...

associating a camera with said device, said camera viewing at least a portion of the body of a user operating said device ***1378** or an object held by said user, in order provide image data concerning said portion or object;

using said computer, analyzing said image data to determine information concerning a user input command; and

....

Id. at claim 14.

1

The Board found that Numazaki's "camera" / "camera means" is its "reflected light extraction unit, with its two photo detection units in Figure 2 teach a camera." *Final Written Decision*, 2022 WL 17364390, at *8. In disputing this finding, Gesture repeats the same arguments it made with respect to claim 1—i.e., that Numazaki is unclear as to the difference between its "photo-detection sensor unit" and "photo-detection units" and that the Board erred in mapping Numazaki's "reflected light extraction unit" to the "camera means." *See* Cross-Appellant's Br. 49–50. For the same reasons explained above with respect to claim 1, we also reject these arguments in the context of claim 7. *See* Discussion II.A., *supra* at 15, 16 n.6.

2

Next, Gesture disputes that Numazaki teaches a "computer means ... for analyzing said image to determine information concerning a position or movement of said object." Cross-Appellant's Br. 41. So the argument goes, "the image" must be obtained from the "camera means," and according to Gesture, there is no relationship between the identified "computer means" and "camera means" in Numazaki. Cross-Appellant's Br. 41. Specifically, Gesture argues that there is no relationship between the "feature data generation unit" (i.e., the Board-identified "computer means") and Numazaki's "photo-detection sensor unit" (i.e., the Board-identified "camera means") and that the Board erred by instead equating Numazaki's "photo-detection sensor unit" with its "reflected light extraction unit." Cross-Appellant's Br. 42.[7]

As explained above, express disclosures are not required when a petitioner is arguing obviousness. *KSR*, 550 U.S. at 418, 127 S.Ct. 1727. Additionally, substantial evidence supports the Board's finding that Numazaki teaches a relationship between Numazaki's "feature data generation unit" and Numazaki's "photo-detection sensor unit." Indeed, Gesture admits that Numazaki's "feature data generation unit" has a relationship with its "reflected light extraction unit." Cross-Appellant's Br. 42; *see also* Numazaki, Fig. 1 (showing a relationship between the "reflected light extraction unit" and "the feature data generation unit"). Figure 2 further shows that the "photo-detection units" are a part of the "reflected light extraction unit." *See id.* at Fig. 2. If the "reflected light extraction unit" has a relationship with the "feature data generation unit," then so do the "reflected light extraction unit's" components—i.e., the "photo-detection units" / "photo-detection sensor units."

For the same reasons, we disagree that the Board equated Numazaki's "photo-detection sensor unit" with its "reflected light extraction unit." *See* Discussion II.A, *supra* at 15. As explained above, the Board's statement that "Numazaki's reflected light extraction unit, with its two photo detection units in Figure 2, teach a ***1379** camera/sensing means," *Final Written Decision*, 2022 WL 17364390, at *9, reflects that the Board consistently mapped the camera means to the photo-detection units. *See* Appellant's Reply Br. 46.

Likewise, we are unpersuaded by Gesture's argument that because the "reflected light extraction unit" contains additional functionality (e.g., the "difference calculation unit"), that somehow undermines that Numazaki "photo-detection units" in Numazaki's "reflected light extraction unit" disclose a "camera means." *See* Cross-Appellant's Br. 44–45. Indeed, the Board rejected the argument that "photo-detection unit" does not specifically teach or suggest a camera and concluded that "[t]he disclosure of Numazaki when discussing photo-detecting is directed to taking images; and according to Patent Owner obtaining images 'is what cameras do.' " *Final Written Decision*, 2022 WL 17364390, at *11 (citing J.A. 339 (Patent Owner Response)); *see also* Numazaki col. 11 ll. 20–31 (describing the photo-detection unit "detects the optical

image"); *id.* at col. 11 ll. 38–52. That finding is supported by substantial evidence.

Finally, we reject Gesture's argument that Numazaki does not teach analyzing images obtained from the "photodetection units." Cross-Appellant's Br. 46. Gesture contends that the function of "analyzing an image 'to determine positioning or movement of an object" is missing from Numazaki because Numazaki requires subtracting one image from another image and this subtraction process does not involve determining information about the position of movement of the imaged object. *Id.* But Apple did not rely on this subtraction process as the embodiment of Numazaki that teaches this limitation. *See Final Written Decision*, 2022 WL 17364390, at *13 n.14. Thus, we agree with the Board that this argument is "not relevant." *Id.*

3

The Board determined that claim 7's limitation that reads "computer means within said housing for analyzing said image to determine information concerning a position or movement of said object" is a means-plus-function limitation under 35 U.S.C. § 112, ¶ 6. Gesture primarily argues that Numazaki does not teach the claimed structure that "includes a computer/processor programmed (1) to identify either natural or artificial features on an object as described ... or (2) to track the movement using one of the disclosed methods." *Final Written Decision*, 2022 WL 17364390, at *12; *see* Cross-Appellant's Br. 46–49. Under the Board's mapping of Numazaki to the '431 patent claim limitations, this would require Numazaki's "compact portable information device" (i.e., the claimed "handheld computer apparatus") to incorporate Numazaki's "feature data generation unit" (i.e. computer means) software. *Final Written Decision*, 2022 WL 17364390, at *13. Despite Gesture's arguments here focused on hardware, Gesture admitted before the Board that Numazaki discloses this structure—i.e. Gesture admitted that "Numazaki discloses that 'it is also possible to realize this operation of the feature data generation unit in a form of software.' " *See id.* (quoting J.A. 426 (Gesture's IPR sur-reply)). This admission was supported by Numazaki and expert testimony. *See* Numazaki col. 27 ll. 41–56; J.A. 903–04. We therefore conclude that the Board's determination that Numazaki teaches the claimed structure is supported by substantial evidence. To the extent Gesture's argument is a criticism of Numazaki's "silence on how" this was implemented, this court has repeatedly held "in general, a prior art reference asserted under § 103 does not necessarily have to enable its own disclosure, i.e., be 'self-enabling,' to be relevant to the obviousness inquiry." ***1380** *Raytheon Techs. Corp. v. General Elec. Co.*, 993 F.3d 1374, 1380 (Fed. Cir. 2021) (citing *Symbol Techs., Inc. v. Opticon, Inc.*, 935 F.2d 1569, 1578 (Fed. Cir. 1991)). Gesture provides no reason for why we should deviate from that general rule here.

For the reasons above, substantial evidence supports the Board's findings that Numazaki teaches claims 7 and 14.

C

[13]With respect to claim 12, Gesture argues that the Board misconstrued the term "light source for illuminating said object" and that Numazaki does not render claim 12 obvious. Cross-Appellant's Br. 37–41. We disagree.

1

As to claim construction, the Board gave the term its plain and ordinary meaning. But Gesture argues this is incorrect. *See* Cross-Appellant's Br. 37 (criticizing the Board for concluding that " 'a light source for illuminating said object,' simply means exactly what it says"). Gesture instead argues that "the most straightforward meaning of claim 12 is that the light source of the handheld computer apparatus illuminates the object while the 'camera means' obtains an imagine of the object." *Id.* at 38. Gesture bases its construction on reading claims 7 and 12 together:

> Handheld computer apparatus comprising:
>
> ...
>
> a camera means associated with said housing for obtaining an image using reflected light of at least one object positioned by a user operating said object; ....

'431 patent claim 7

> Apparatus according to claim 7, further including a light source for illuminating said object.

Id. at claim 12. According to Gesture, because claim 7 includes a "camera means ... using reflected light," then

the *light source* in claim 12 must be turned on when the "camera means" obtains the image.

[14] [15]"[T]he words of a claim 'are generally given their ordinary and customary meaning.' " *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)). "[T]he claims themselves provide substantial guidance as to the meaning of particular claim terms." *Id.* at 1314. This includes reading a dependent claim in the context of a claim on which it depends. Thus, we agree with Gesture that claims 7 and 12 should be read together. But read together, we agree with the Board that claim 12 should be read according to its plain and ordinary meaning. In contrast to the plain and ordinary meaning, Gesture's claim construction appears to add a temporal limitation to the claims that is simply not there and relies on an argument that claim 7's "reflected light" implicitly provides an antecedent basis for claim 12's "light source." We disagree that claim 7 provides such an antecedent basis. *See Final Written Decision*, 2022 WL 17364390, at *5.

2

We further disagree with Gesture's argument that substantial evidence does not support the Board's finding that Numazaki teaches claim 12. While not entirely clear, Gesture appears to argue that the "light source" in claim 12 is turned off during photo detection and therefore it is not "illuminating said object." *See* Cross-Appellant's Br. 39–40 ("[e]ach of the first photo-detection unit 109 and the second photo-detection unit 110 [of the reflected light extraction unit] detects the optical image [of the object] formed on the photo-detection plane ... the lighting unit 101 emits the light when the first photo-detection unit 109 is in a photo-detecting state, whereas the lighting unit 101 *does not* ***1381** *emit the light* when the second photo-detection unit 110 is in a photo-detecting state." (quoting Numazaki col. 11 ll. 20-33) (alterations and emphasis in original)). Even if this is true, the problem for Gesture is that the light is only off when the second detection unit is in a photo-detecting state. The same is not true for unit 109. Indeed, Numazaki expressly states that "lighting unit 101 *emits the light* when the first photo-detection unit 109 is in a photo-detecting state." Numazaki col. 11 ll. 20-33 (emphasis added). Gesture does not dispute this. *See* Cross-Appellant's Br. 40 (stating the " 'lighting unit' ... is *off* for at least half the time" (emphasis in original)). Because the light unit is also on for at least half the time, the Board's determination that Numazaki discloses claim 12 is supported by substantial evidence.

D

[16]Gesture's final argument is that the Board does not have jurisdiction over IPRs involving expired patents, including the '431 patent at issue here. *See* Cross-Appellant's Br. 55–57. We rejected this same argument in *Apple Inc. v. Gesture Technology Partners, LLC*, 127 F.4th 364, 368–69 (Fed. Cir. 2025) and confirmed that "the Board has jurisdiction over IPRs concerning expired patents." *Id.* at 368. For the same reasons, we reject this argument here.

CONCLUSION

We have considered the parties' remaining arguments and find them unpersuasive. For the foregoing reasons, we affirm the Board's holding that claims 1–10, 12, and 14–31 of the '431 patent are unpatentable and claims 11 and 13 were not shown to be unpatentable.

AFFIRMED

COSTS

No costs.

All Citations

129 F.4th 1367

Footnotes

1 LG Electronics Inc., LG Electronics USA Inc. are collectively referred to as LG Electronics.

[2] Gesture appealed the Board's determination as to claims 7–9 and 12 in *Gesture Technology Partners, LLC v. Unified Patents LLC*, No. 23-1444 (Fed. Cir. 2025).

[3] Apple's appeal pertains only to claims 11 and 13. In our proceedings, an appellee may only respond to arguments related to an appeal in the appellee's response brief. Absent unusual circumstances, which are not present here, an appellee is not permitted a sur-reply. When a cross-appeal is filed, four briefs are submitted to this court: appellant's brief, cross-appellant's brief, appellant's reply brief, and cross-appellant's reply brief. The issues raised in the appellant's brief must be contained to the first three briefs filed—i.e., issues related to the main appeal should not be argued in the fourth brief because it is effectively a sur-reply. Yet here, Gesture responded to Apple's arguments related to claims 11 and 13 in both its cross-appellant brief and its cross-appellant reply brief. As such, we view Gesture's arguments related to claims 11 and 13 in its cross-appellant reply brief as an improper sur-reply.

[4] While *Acoustic Technology* used the term "waived," we understand it to have been referring to the doctrine of forfeiture. *See In re Google Tech. Holdings LLC*, 980 F.3d 858, 862 (Fed. Cir. 2020). We therefore use "forfeiture" or "forfeited" instead of "waiver" or "waived" in this opinion.

[5] While we maintain that Gesture's cross-appellant's reply brief was an improper sur-reply, we note that its argument raised there, that standing may never be waived, is not correct. *See* Cross-Appellant's Reply Br. 4. While Article III standing may not be waived, statutory standing arguments like those raised here are subject to different rules of waiver and forfeiture. *See Brooklyn Brewery Corp. v. Brooklyn Brew Shop*, 17 F.4th 129, 140 (Fed. Cir. 2021).

[6] Throughout Gesture's briefs, it contends that it is unclear whether Numazaki's "photo-detection sensor unit" in Figure 78 is different from the "photo-detection units" in Figure 2. This argument is unpersuasive. Both components perform the same functionality as described in the specification, both discuss the components as "photo-detection sections," and both have nearly identical names. *Compare* Numazaki col. 10 ll. 40–46; *id.* at col. 11 ll. 20–25, *with id.* at col. 53 ll. 20–25.

[7] Gesture again argues that it is unclear whether the "photo-detection sensor unit" in Numazaki's eighth embodiment is incorporated in Numazaki's embodiments 1–7. Cross-Appellant's Br. 43. As explained above, we find this argument unpersuasive in light of Numazaki's express disclosure that the eighth embodiment may be incorporated with the earlier embodiments. *See* Numazaki col. 50 ll. 21–24.

EXHIBIT D

2022 WL 17364390 (Patent Tr. & App. Bd.)
Only the Westlaw citation is currently available.

APPLE, INC., LG Electronics, Inc., LG Electronics U.S.A., Inc., and Google LLC, Petitioner,
v.
GESTURE TECHNOLOGY PARTNERS, LLC, Patent Owner.

Patent Trial and Appeal Board.
IPR2021-00920[1]
Patent 7,933,431 B2
Date: November 30, 2022

West Headnotes (2)

[1] **Patents** In general; utility

US Patent 7,933,431. Construed and Unpatentable in Part.

[2] **Patents** In general; utility

US Patent 6,064,354, US Patent 6,088,018, US Patent 6,144,366, US Patent 6,243,683. Cited as Prior Art.

Go to PTAB Construed Terms

Attorneys and Law Firms

FOR PETITIONER: Adam Seitz, Paul Hart, ERISE IP, P.A., adam.seitz@eriseip.com, paul.hart@eriseip.com

FOR PATENT OWNER: Todd Landis, John Wittenzellner, WILLIAMS SIMONS & LANDIS PLLC, tlandis@wsltrial.com, johnw@wsltrial.com

Before KEVIN F. TURNER, JONI Y. CHANG, and BRENT M. DOUGAL, Administrative Patent Judges.

JUDGMENT

Final Written Decision

Determining Some Challenged Claims Unpatentable

35 U.S.C. § 318(a)

DOUGAL, Administrative Patent Judge.

I. INTRODUCTION

A. Background

***1** Applying the standard set forth in 35 U.S.C. § 314(a), we instituted an *inter partes* review challenging the patentability of claims 1–31 (the "challenged claims") of U.S. Patent No. 7,933,431 B2 (Ex. 1001, "the '431 patent"). Paper 12 ("Dec."). Apple, Inc.[2] filed the request for an *inter partes* review (Paper 1, "Petition" or "Pet."), which Patent Owner, Gesture Technology Partners, LLC, opposed (Papers 8, 10).[3]

After institution, Patent Owner filed a Response (Paper 15, "PO Resp."), Petitioner filed a Reply (Paper 19, "Reply"), and Patent Owner filed a Sur-reply (Paper 20, "Sur-reply"). An oral hearing was held on September 13, 2022, and a copy of the transcript was entered into the record. Paper 27 ("Tr.").

We have jurisdiction under 35 U.S.C. § 6. This Decision is a Final Written Decision under 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73 as to the patentability of the claims on which we instituted trial. Having reviewed the arguments of the parties and the supporting evidence, we determine that Petitioner has shown by a preponderance of the evidence, that claims 1–10, 12, 14–31 are unpatentable. We also determine that Petitioner has not shown that claims 11 and 13 are unpatentable.

B. Related Matters

The parties identify these related matters: *Gesture Technology Partners, LLC v. Huawei Device Co., Ltd.*, No. 2:21-cv-00040 (E.D. Tex.); *Gesture Technology Partners, LLC v. Samsung Electronics Co.*, No. 2:21-cv-00041 (E.D. Tex.); *Gesture Technology Partners, LLC v. Apple Inc.*, No. 6:21-cv-00121 (W.D. Tex.); *Gesture Technology Partners, LLC v. Lenovo Group Ltd.*, No. 6:21-cv-00122 (W.D. Tex.); *Gesture Technology Partners, LLC v. LG Electronics, Inc.*, No. 6:21-cv-00123 (W.D. Tex.); *Gesture Technology Partners, LLC v. Motorola Mobility LLC*, No. 1:22-cv03535 (N.D. Ill.); and *Gesture Technology Partners, LLC v. Katherine K. Vidal*, No. 1:22-cv-622 (E.D. Va). Pet. 76; Paper 21, 1–3. Patent Owner identifies the following Board proceedings as related matters: IPR2021-00917; IPR2021-00921; IPR2021-00922; and IPR2021-00923. Paper 21, 2–3. Patent Owner also identifies the following related *Ex Parte* Reexaminations: No. 90/014,900; No. 90/014,901; No. 90/014,902; and No. 90/014,903. *Id.* at 3–4.

C. The '431 Patent

The '431 patent "relates to simple input devices for computers, particularly, but not necessarily, intended for use with 3-D graphically intensive activities, and operating by optically sensing a human input to a display screen or other object and/or the sensing of human positions or orientations." Ex. 1001, 2:7–11. The '431 patent further states that it relates to "applications in a variety of fields such as computing, gaming, medicine, and education." *Id.* at 2:15–17. For instance, the '431 patent describes "a combination of one or more TV cameras (or other suitable electro-optical sensors) and a computer to provide various position and orientation related functions of use." *Id.* at 11:54–58.

***2** Figure 8A, reproduced below, illustrates the control of functions via a handheld device.

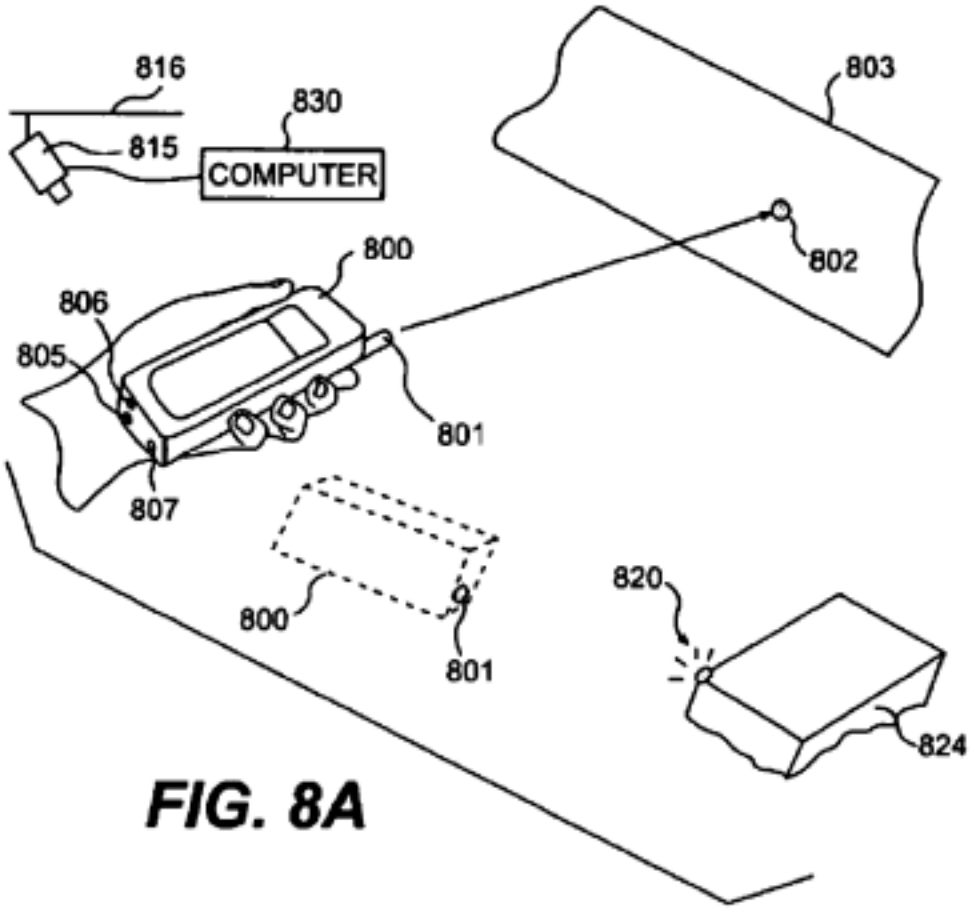


FIG. 8A

Figure 8A shows a perspective view of a cellular phone (800) using a laser spot projector (801) to project a laser spot on a detector (802) in a dashboard (803). *Id.* at 12:17–20. The ’431 patent discloses that, alternatively or in conjunction, round dot targets (805, 806, 807) can be sensed on the cellular phone (800), such as by a TV camera (815). *Id.* at 12:20–25.
In another example, the cellular phone (800) can be used to signal a fax unit (824) to print data from the phone by pointing the cellular phone toward the fax unit. *Id.* at 12:42–45. TV camera (815) scans images of the dot targets (805, 806, 807) and a computer (830) analyzes the target images to determine the position and/or orientation or motion of the cellular phone to thereby determine if a command is being issued with movement of the cellular phone. *Id.* at 12:45–51. The computer then commands the fax unit to print if this action is signaled by the position, orientation, or motion of the cellular phone. *Id.* at 12:51–52.

D. Illustrative Claim

Petitioner challenges claims 1–31 of the ’413 patent. Claims 1, 7, and 14 are independent. Claims 1 and 7 are illustrative:

> 1. A method for controlling a handheld computing device comprising the steps of:
>
> holding said device in one hand;
>
> moving at least one finger in space in order to signal a command to said device;
>
> electro-optically sensing light reflected from said at least one finger using a sensing means associated with said device;
>
> determining from said sensed light the movement of said finger, and
>
> using said sensed finger movement information, controlling said device in accordance with said command.

7. Handheld computer apparatus comprising:

a housing;

a camera means associated with said housing for obtaining an image using reflected light of at least one object positioned by a user operating said object;

computer means within said housing for analyzing said image to determine information concerning a position or movement of said object; and

means for controlling a function of said apparatus using said information.

Ex. 1001, 25:39–50, 25:61–26:5.

II. ANALYSIS

A. Summary of Issues

In the below analysis, we first address the grounds of unpatentability. We then address jurisdiction over expired patents.

B. Instituted Grounds

Petitioner asserts the following grounds of unpatentability (Pet. 4), supported by the declaration of Benjamin B. Bederson (Ex. 1008):

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1–4, 7–9, 11–22, 25, 26, 28	103(a)[4]	Numazaki,[5] Knowledge of a PHOSITA[6]
5, 6, 29	103(a)	Numazaki, DeLeeuw[7]
10, 23, 24, 27	103(a)	Numazaki, DeLuca[8]
30, 31	103(a)	Numazaki, Peters[9]

1. Legal Standards for Unpatentability

***3** Petitioner bears the burden to demonstrate unpatentability. *Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015).

A claim is unpatentable as obvious under 35 U.S.C. § 103 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." *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007) (quoting 35 U.S.C. § 103(a)). We resolve the question of obviousness based on underlying factual determinations, including: (1) the scope and content of the prior art; (2) any differences between the prior art and the claims; (3) the level of

skill in the art; and (4) when in evidence, objective indicia of nonobviousness. *See Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

We apply these principles to the Petition's challenges.

2. Level of Ordinary Skill in the Art

Petitioner asserts that "[a] person having ordinary skill in the art ('PHOSITA') at the time of the '431 Patent would have had at least a bachelor's degree in electrical engineering or equivalent with at least one year of experience in the field of human computer interaction" and that "[a]dditional education or experience might substitute for the above requirements." Pet. 3 (citing Ex. 1008 ¶¶ 30–32). Patent Owner does not dispute Petitioner's level of ordinary skill in the art. PO Resp. 6.

We are persuaded, on the present record, that Petitioner's declarant's statement is consistent with the problems and solutions in the '431 patent and prior art of record. We adopt this definition for the purposes of this Decision.

3. Claim Construction

In *inter partes* review, we construe claims 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. 37 C.F.R. § 42.100(b) (2021).

Petitioner provides a number of claim constructions. Pet. 5–12. Patent Owner does not contest Petitioner's claim constructions, and argues for a few additional claim constructions. PO Resp. 6–9. We address each term construed by one of the parties below.

We determine that it is not necessary to construe any other terms. *See Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) ("The Board is required to construe 'only those terms ... that are in controversy, and only 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)).

a) The Preambles

The preambles of claims 1 and 14 both state: "A method for controlling a handheld computing device comprising the steps of ..." and the preamble of claim 7 states: "Handheld computer apparatus comprising ...." Ex. 1001, 25:40–41, 25:61, 26:18–19. The Petition does not address whether the preambles are limiting, but rather attempts to show that independent of whether they are limiting, the preambles are taught by the prior art. *See e.g.* Pet. 17 ("To the extent the preamble is limiting, *Numazaki* teaches ..."). Patent Owner argues that the preambles should be limiting (PO Resp. 6–7) and Petitioner does not contest or address this argument (*see* Reply).

***4** Patent Owner argues that the preambles should be limiting because they recite essential structure or steps and are "necessary to give life, meaning, and vitality" to the claims. PO Resp. 6 (quoting *Acceleration Bay, LLC v. Activision Blizzard, Inc.*, 908 F.3d 765, 770 (Fed. Cir. 2018)). Specifically, Patent Owner asserts that each claim includes one or more limitations that refer back to the preamble's "handheld computing device" or "handheld computer apparatus" for antecedent basis. *Id.* at 6–7. Patent Owner further argues that the '431 patent discloses different embodiments, with some embodiments being in the form of a computer and some embodiments being in the form of a handheld device. *Id.* at 7 (citing Ex. 1001, 12:59–13:7, Fig. 10A). Patent Owner contends that the claims are directed to the latter embodiments related to a handheld device and, therefore, "the preamble is necessary to give life, meaning, and vitality to claims 1, 7, and 14, consistent with the embodiments that the inventor chose to claim." *Id.*

We agree that the preambles of claims 1, 7, and 14 are limiting. This is primarily because the body of each claim includes "said device" or "said apparatus" which refers back to the preamble and is understood with reference thereto. For example,

the last clause of claim 7 states: "means for controlling a function of *said apparatus* using said information." Ex. 1001, 26:4–5 (emphasis added). "Said apparatus" derives antecedent basis from the "[h]andheld computer apparatus" recited in the preamble. Moreover, the "means for controlling a function of said apparatus" is understood because of this reference to the handheld computer apparatus. The limitations of claims 1 and 14 are similar and so this logic applies equally to these claims as well. Thus, we agree that the preamble recites essential structure and is "necessary to give life, meaning, and vitality" to claims 1, 7, and 14.

b) Camera Means

Petitioner asserts that, though claim 7 recites "camera means," it is not a means-plus-function limitation under § 112 ¶ 6. Pet. 6. Petitioner argues that "a PHOSITA would have considered 'camera means associated with said housing' to have a sufficiently definite meaning as the name for structure." *Id.* (citing Ex. 1008 ¶ 36). Petitioner further argues that "all optical sensors obtain images by capturing light, so the claimed function is simply describing the general process that all optical sensors employ to obtain images of objects." *Id.* (citing Ex. 1008 ¶ 36).

"Patent Owner agrees" with Petitioner's construction PO. Resp. 7. We accept Petitioner's construction as consistent with the current record.

c) Computer Means

Petitioner contends that claim 7's limitation of "computer means within said housing for analyzing said image to determine information concerning a position or movement of said object" is a means-plus-function limitation under § 112 ¶ 6. Pet. 7. Petitioner argues that the limitation's function is analyzing an image "to determine positioning or movement of an object." *Id.* Petitioner argues that the corresponding structure "includes a computer/processor programmed (1) to identify either natural or artificial features on an object as described ... or (2) to track the movement using one of the disclosed methods." *Id.* at 9; *see id.* at 8–9 (discussing the disclosure of the '431 patent) (citing Ex. 1001, 3:38–47, 3:57–62, 4:9–14, 5:2–23, 6:64–7:13, 8:40–59, 11:16–35).

Petitioner also argues that "objects" should be construed to mean "both separate objects held/controlled by the user and also part of the user's body, such as a user's finger or hand." *Id.* at 8; *see id.* at 7–8 (citing Ex. 1001, 3:39–41, 3:48–50, claims 7–8).

"Patent Owner does not contest" Petitioner's construction. PO Resp. 6. We accept Petitioner's construction as consistent with the current record.[10]

d) Means for Controlling a Function

***5** Petitioner argues that claim 7's limitation of "means for controlling a function of said apparatus using said information" is a means-plus-function limitation under § 112 ¶ 6. Pet. 10. According to Petitioner, the limitation's function is "controlling a function of the apparatus using information about the object's location or movement." *Id.* Petitioner argues that the corresponding structure "is a processor programmed to perform the specific algorithms that accomplish this function" which "includes at least [the] Fig. 9 disclosure." *Id.* at 10–11.

"Patent Owner does not contest" Petitioner's construction. PO Resp. 6. However, as discussed above, we determine that "said apparatus" refers to the handheld computer apparatus in the preamble. Thus, we accept Petitioner's construction with the added requirement that the general purpose computer be a handheld computer apparatus.

e) Means for Transmitting Information

Petitioner asserts that claim 11's limitation of "means for transmitting information" is a means-plus-function limitation under § 112 ¶ 6. Pet. 11. Petitioner argues that the '431 patent teaches the structure for performing the limitation's function of

"transmitting information" is a "wireless cellular transceiver" and thus the corresponding structure required by the claim "includes at least a wireless cellular transceiver." *Id.* at 11–12 (citing Ex. 1001, 12:59–13:3).

"Patent Owner does not contest" Petitioner's construction. PO Resp. 6. We accept Petitioner's construction as consistent with the current record.[11]

f) Light Source for Illuminating

Patent Owner asserts that "a light source for illuminating said object" in dependent claim 12 should be construed to mean "the light source of the handheld computer apparatus illuminates the object while the 'camera means' obtains an image of the object." PO Resp. 8. Petitioner opposes this construction. Reply 16–19

Patent Owner argues that claim 7, from which claim 12 depends, requires that "[a] 'camera means' obtains an image of the object 'using reflected light' from the object" and that

> a POSITA would understand claim 12 as meaning the light source of the handheld computer apparatus illuminates the object while the "camera means" obtains an image of the object. The object reflects light from the light source and it is this "reflected light" that is used by the "camera means" to obtain the image of the object. *See* Ex. 2002, ¶ 44.

PO Resp. 8. This is not required by the claims.

Claim construction starts with an analysis of the claim language itself. *Sjolund v. Musland*, 847 F.2d 1573, 1582 (Fed. Cir. 1988) ("[T]he claims define the invention."). First, claims 7 and 12 are directed to an apparatus and not a method. Thus, neither claim 7 nor 12 require any method steps such as illuminating the object while the camera means obtains an image of the object. Claim 7 uses language to describe the function of the camera, but that does not require an active method step such as requiring that the camera means obtain an image.

Second, claim 12 does not rely on claim 7 for antecedent basis of the light source. Though claim 7 refers to "reflected light" and claim 12 provides "a light source," there is nothing in the language of the claims that would require the reflected light to come from the light source. That said, the light source may be the source of the reflected light, but it is not required by the language of the claims.

***6** Thus, reading claims 7 and 12, Patent Owner's construction is not apparent or implied from the claim language.

Patent Owner also argues that the purpose for having a light source in the Specification should be read into the claims. PO Resp. 8. Patent Owner argues that "the specification of the '431 Patent ... discloses 'cameras and their associated light sources' and operating the camera 'at the same time a ... light is on.' " *Id.* (quoting Ex. 1001, 3:31–32, 7:5–7).

The mere fact that the Specification provides an example as to how the light source is used is not a sufficient reason for us to read a limitation into the claims from the Specification. If the specification "reveal[s] a special definition given to a claim term by the patentee that differs from the meaning it would otherwise possess[,] ... the inventor's lexicography governs." *Phillips v. AWH Corp.*, 415 F.3d 1303, 1316 (Fed. Cir. 2005) (en banc) (citing *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002)). However, this is not the case here. Patent Owner does not identify anywhere in the Specification where "a light source for illuminating said object" is defined as "the light source of the handheld computer apparatus illuminates the object while the 'camera means' obtains an image of the object."

For these reasons, we decline to adopt Patent Owner's claim construction. We determine that the added limitation in claim 12 should be read according to its plain and ordinary meaning. In other words, "a light source for illuminating said object," simply means exactly what it says "a light source for illuminating said object."

4. Obviousness over Numazaki and Knowledge of a PHOSITA

Petitioner argues that Numazaki in view of the knowledge of a person having ordinary skill in the art ("PHOSITA") would have rendered obvious claims 1–4, 7–9, 11–22, 25, 26, and 28. Pet. 12–40. Patent Owner contends that Numazaki does not disclose all the limitations of claims 1, 7, and 11–14. PO Resp. 9–27.

We first give an overview of Numazaki. This is followed by a discussion of Petitioner's positions and Patent Owner's arguments in response, where we conclude that Petitioner has shown by a preponderance of the evidence that some of the challenged claims are unpatentable.

a) Numazaki

Numazaki "relates to a method and an apparatus for generating information input in which input information is extracted by obtaining a reflected light image of a target object." Ex. 1003, 1:8–11. Figure 1, reproduced below, depicts a block diagram for an information input generation apparatus.

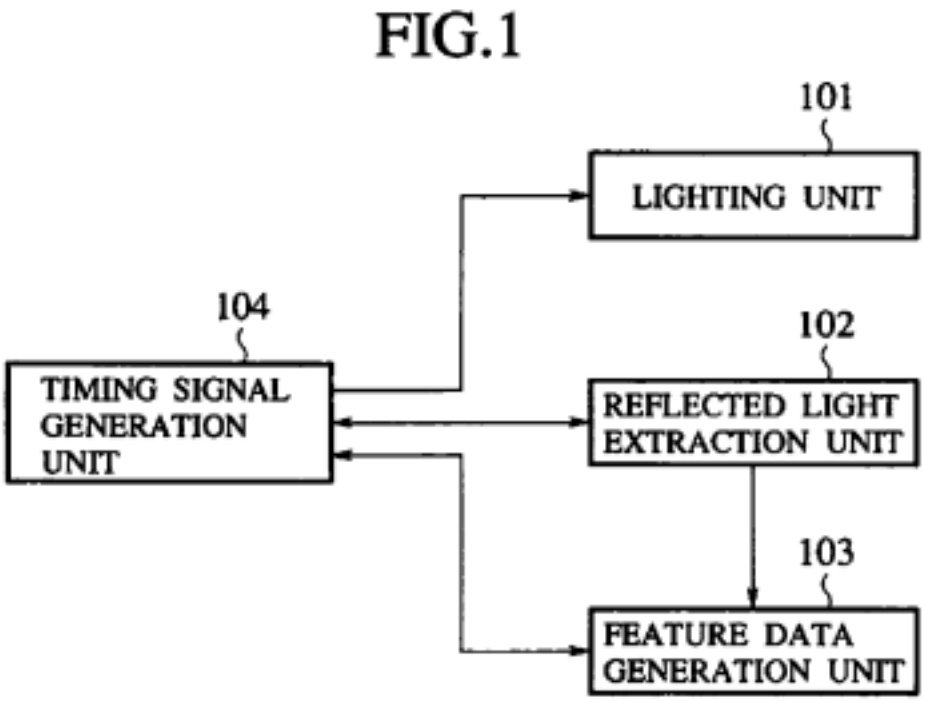
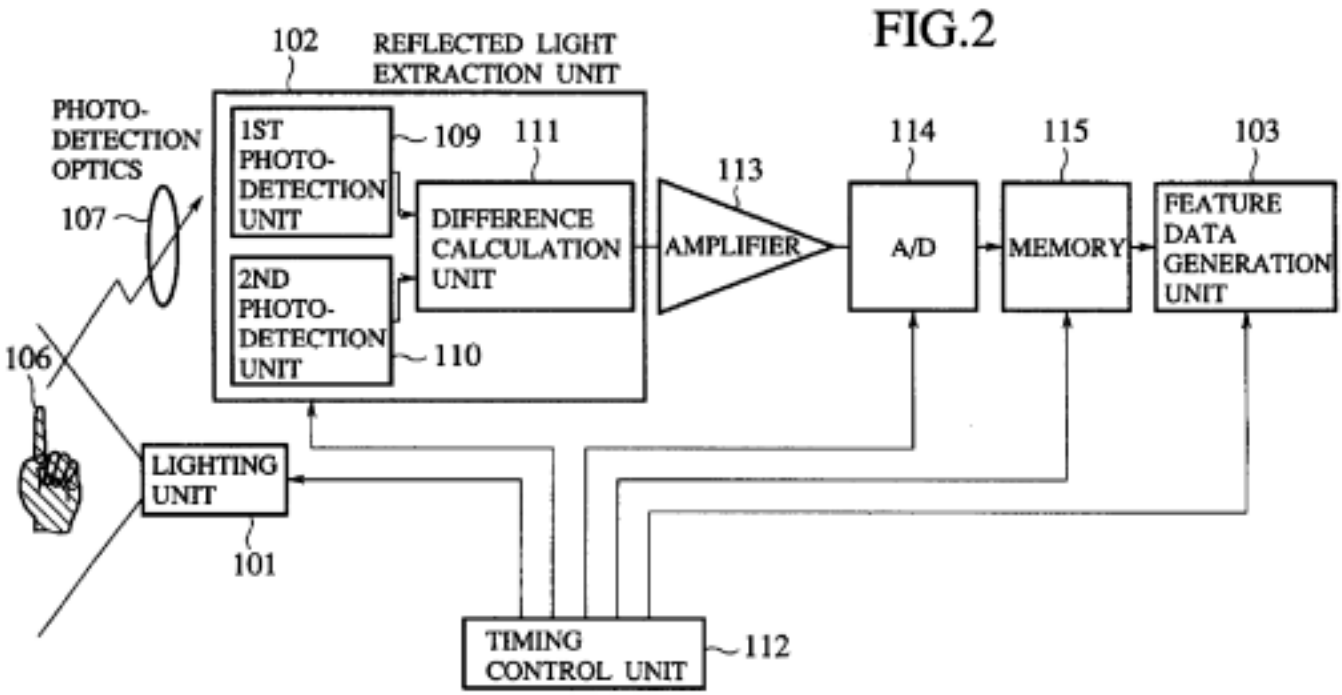


Figure 1 shows that an information input generation apparatus includes a lighting unit (101), a reflected light extraction unit (102), a feature data generation unit (103), and a timing signal generation unit (104). *Id.* at 10:23–28. Numazaki describes emitting light from the light emitting unit (101) and that the intensity of the light varies in time according to a timing signal from the timing signal generation unit (104). *Id.* at 10:29–31. The light is directed onto a target object and light reflected from the target object is extracted by the reflected light extraction unit (102). *Id.* at 10:31–35. Numazaki teaches that the feature data generation unit (103) extracts feature data from the reflected light image. *Id.* at 10:57–61. Numazaki further teaches operating a computer based on information obtained from the feature data. *Id.* at 10:61–66.

***7** Figure 2, reproduced below, shows a more detailed block diagram of an embodiment of information input generation apparatus.



In Figure 2, a timing control unit (112) is used to turn the lighting unit (101) on (i.e., illuminating the target object) when the first photo detection unit (109) is active and off when the second photo detection unit (110) is active. *Id.* at 11:20–32. The first photo detection unit captures an image of the target object illuminated by both natural light and the lighting unit and the second photo detection unit captures an image of the target object illuminated by only natural light. *Id.* at 11:33–39. The difference between the two images—obtained by a difference calculation unit (111)—represents the "reflected light from the object resulting from the light emitted by the lighting unit 101." *Id.* at 11:43–51. This information is then used by the feature data generation unit (103) to determine gestures, pointing, etc. of the target object that may be converted into commands executed by a computer. *Id.* at 10:57–66.

Figure 78, reproduced below, illustrates an information input generation apparatus.

FIG.78

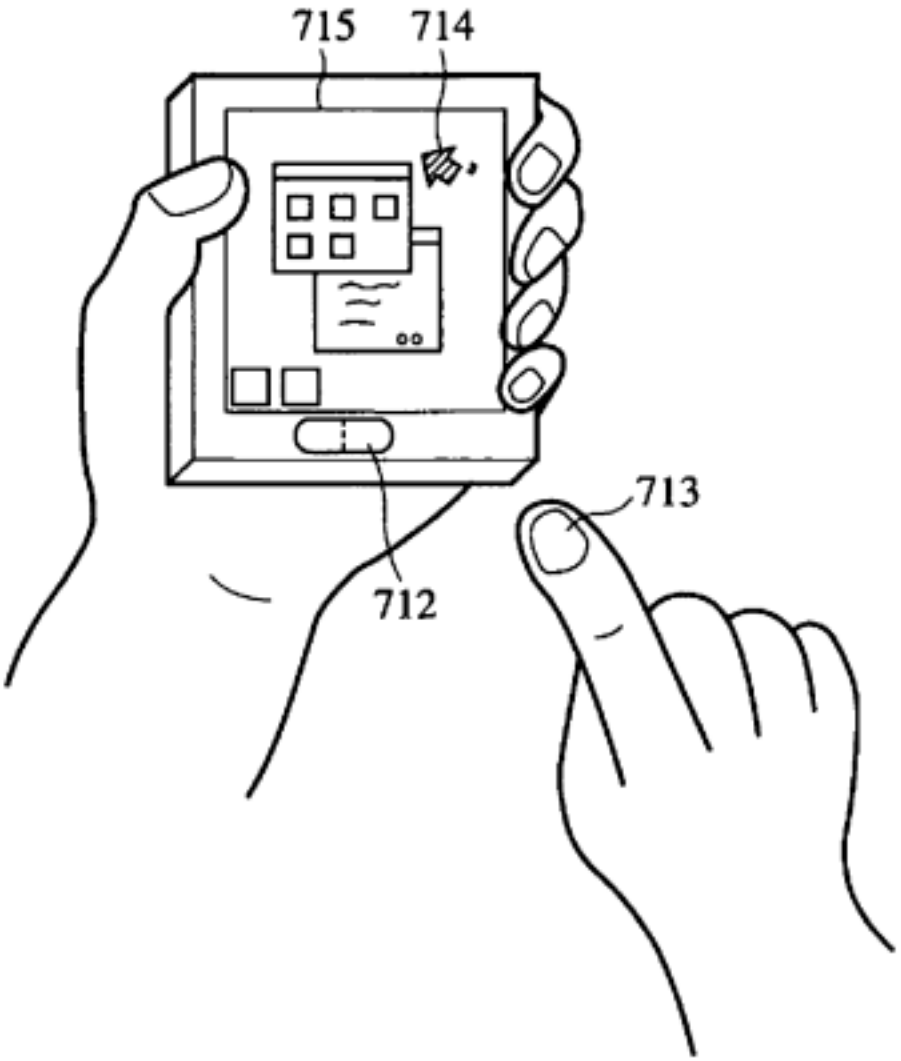


Figure 78 shows "a compact portable information device" having "a size that can be held by one hand." *Id.* at 52:5–8. The device includes a window (712) for a lighting unit and a photo-detection sensor unit. *Id.* at 52:12–14. Numazaki describes controlling the position of a cursor (714) on a screen by moving a finger (713) in front of the window (712). *Id.* at 52:14–16.

b) Independent Claim 1

Petitioner relies on Numazaki in view of the knowledge of a PHOSITA for teaching or suggesting all of the elements of claim 1. Pet. 12–21. For example, Petitioner relies on the portable computer with an information input generation device of Figure 78 for teaching the handheld computing device and holding the device in one hand. *Id.* at 17–19. For the remaining method steps of claim 1, Petitioner relies on Numazaki and the knowledge of a PHOSITA. *Id.* at 19–21. In particular, the Petition relies on the teaching of a window (712) for "the lighting unit and the photo-detection sensor unit" of Numazaki Figure 78 "which enables the 'position of a cursor 714 on the screen [to] be controlled by moving a finger 713 in front of this window 712.' " *Id.* at 19 (quoting Ex. 1003, 52:5–16); *see also id.* at 20–21. Petitioner argues that "[a] PHOSITA would have understood that controlling a cursor on the handheld device is signaling a command." *Id.* (citing Ex. 1008 ¶¶ 46–47).

Numazaki only provides some details about the photo-detection sensor unit. *See generally* Ex. 1003, 50:25–54:6. However, Petitioner relies on Numazaki's teaching that "light and camera arrangement" of Figure 2 "is incorporated into the eighth embodiment" for more details about the photodetection sensor unit. Pet. 20; *see also id.* at 15–16 (citing Ex. 1008 ¶ 44) (discussing what a PHOSITA would have understood was incorporated into the eighth embodiment). Petitioner describes Numazaki as teaching a system where two images are obtained of the target object by two different cameras, one with the lighting unit on and one with it off. *Id.* at 12–14 (citing Ex. 1003, 11:20–39, Fig. 2). The images are compared to obtain certain information. *Id.* at 14 (citing Ex. 1003, 11:43–51). Petitioner concludes that the obtained "information is then used by feature data generation unit 103 to determine gestures, pointing, etc. of the target object that may be converted into commands executed by a computer" and that this all reads on the electro-optically sensing, determining, and using steps of claim 1. *Id.* at 20–21.

***8** We determine that the Petition has shown by a preponderance of the evidence how Numazaki and the knowledge of a PHOSITA would have suggested all of the features of claim 1. Patent Owner argues that Numazaki does not teach or suggest aspects of the electro-optically sensing and determining steps of claim 1. PO Resp. 9–12. We address Patent Owner's arguments below.

(1) Electro-optically Sensing

Claim 1 requires "electro-optically sensing light reflected from said at least one finger using a sensing means associated with said device." Ex. 1001, 25:44–46.

For this limitation, the Petition relies generally on the teaching of 'a window 712 [ ] for the lighting unit and the photo-detection sensor unit" of Numazaki Figure 78 (Pet. 20 (quoting Ex. 1003, 52:12–14)) to teach "illuminat[ing] the target object (e.g., the user's hand) in a controlled manner such that a precise image of the user's hand and hand movement can be ascertained" through the incorporation of the teachings of Figure 2 into that embodiment (*id.* (citing Ex. 1003, 11:9–23).

Petitioner argues that Numazaki teaches a reflected light extraction unit, with two photo-detection units which it calls first and second camera units which read on the sensing means. *Id.*; *see also* Reply 3.

Neither Patent Owner, nor Patent Owner's declarant, contest Petitioner's position, supported by its declarant, that Numazaki's reflected light extraction unit, with its two photo detection units in Figure 2 teach a camera, i.e. the claimed sensing means. *See* PO Resp. 9–10 (citing Pet. 12–13, 20–21) (acknowledging Petitioner's position); Ex. 2002 ¶¶ 52–53 (Patent Owner's declarant acknowledging Petitioner's position and declarant support).[12]

However, Patent Owner argues that "[n]one of embodiments 1–7 in Numazaki [(including Figure 2)] mention a 'photo-detection sensor unit,' and thus none of embodiments 1–7 teach or suggest the 'photo-detection sensor unit' in Fig. 78 is or includes the 'photo detection unit' in Fig. 2." PO Resp. 10 (citing Ex. 2002 ¶ 54). Patent Owner admits that Numazaki at Figure 2 teaches two "photo-detection units," but essentially argues that because the term "photo-detection unit" is not identical to Figure 78's "photo-detection sensor unit," one of skill in the art would not understand what a "photo-detection sensor unit" is, or how it relates to the rest of the disclosure. *Id.* at 10, 12; *see also* Sur-reply 1–4.

In support, Patent Owner relies on its declarant who testifies: "I reviewed Numazaki in its entirety and it contains no disclosure stating that the 'photo-detection sensor unit' in Fig. 78 is or includes a 'photo-detection unit' from Fig. 2" and "it is my opinion that a POSITA would understand that none of embodiments 1–7 disclose the 'photo-detection sensor unit' in Fig. 78 as being or including 'photo-detection unit' in Fig. 2." Ex. 2007 ¶ 54.

As will be understood from reviewing Numazaki, Numazaki discloses an eighth embodiment having a number of different portable form factors shown in Figures 74–79, but sharing "a system configuration incorporating the information input generation apparatus of the present invention as described in the above embodiments," i.e. embodiments 1–7, including Figure 2. Ex. 1004, 50:19–20; *see also* Ex. 1008 ¶ 44. In addition to referring back to the prior disclosure, additional details of the information input generation apparatus including the photo-detection section are provided at 52:33–54:6. This section not only describes an information input generation apparatus that is very similar to the disclosure of Figure 2, but it again refers back to the "the photo-detection section ..., as already described in detail above." *Id.* at 53:22–36; *see also* Dec. 15 (explaining that "details about the photo-detection sensor unit" could be found at Ex. 1004, 50:25–54:6).

***9** Thus, the position of Patent Owner and Patent Owner's declarant is inconsistent with the express disclosure of Numazaki that makes clear that the photo-detection section of the eighth embodiment, including the "photodetection sensor unit" of Figure 78, incorporates the disclosure of the photodetection section of the prior embodiments, including Figure 2. Thus, we determine that one of skill in the art would have understood Numazaki to teach that the "photo-detection sensor unit" in Fig. 78 is or at least includes a camera/sensing means, just as Numazaki's reflected light extraction unit, with its two photo detection units in Figure 2, teach a camera/sensing means.

For the above reasons, Patent Owner's arguments do not identify any shortcomings in the showing by Petitioner that Numazaki teaches sensing means. We further determine that Petitioner has shown by a preponderance of the evidence that the electro-optically sensing limitation is taught by Numazaki.

(2) Determining

Claim 1 also requires "determining from said sensed light the movement of said finger." Ex. 1001, 25:47–48.

Petitioner addresses this limitation together with electro-optically sensing discussed above. Pet. 20. The Petition relies generally on the teaching of 'a window 712 [ ] for the lighting unit and the photo-detection sensor unit" of Numazaki Figure 78 (*id.* 20 (quoting Ex. 1003, 52:12–14)) to teach "illuminat[ing] the target object (e.g., the user's hand) in a controlled manner such that a precise image of the user's hand and hand movement can be ascertained" through the incorporation of the teachings of Figure 2 into that embodiment (*id.* (citing Ex. 1003, 11:9–23). We determine that Petitioner has shown by a preponderance of the evidence that this limitation is taught by Numazaki in view of the knowledge of a PHOSITA.

Patent Owner argues that "Numazaki requires two photo-detection units to perform an analysis of a target object and control the computer, so it does not teach or suggest 'determining' finger movement from reflected light that is 'electro-optically' sensed using one 'sensor means,' as set forth in [the] claim." PO Resp. 13.

Patent Owner does not identify why the claim should be limited to one sensor means or camera. Though the claim refers to "electro-optically sensing light ... using a sensing means" and "determining from said sensed light," this does not limit the claim to only one camera. Unless a more limited construction is indicated by the specification or prosecution history, the indefinite article "a" or "an" is construed in a claim to mean "one or more." *KCJ Corp. v. Kinetic Concepts, Inc.*, 223 F.3d 1351, 1356 (Fed. Cir. 2000). Thus, "a sensing means," encompasses one or more cameras.

Patent Owner also argues that "Numazaki does not teach or suggest 'determining' finger movement absent the other hardware that Numazaki identifies as necessary, such as the lighting unit, the image-subtraction circuitry, and the associated timing circuitry." PO Resp. 13.

However, claim 1 uses the term "comprising" to create an "open ended" claim. " 'Comprising' is a term of art used in claim language which means that the named elements are essential, but other elements may be added and still form a construct within the scope of the claim." *Genentech, Inc. v. Chiron Corp.*, 112 F.3d 495, 501 (Fed. Cir. 1997) (citing *In re Baxter*, 656 F.2d 679, 686 (CCPA 1981). Thus, the presence of a lighting unit or other hardware is not excluded from the claim. This is also consistent with the '431 patent, which teaches the use of LEDs "to illuminate [associated] targets." Ex. 1001, 3:34–35; *see also id.* at 26:13–14 (claim 12).

The claimed phrase "electro-optically sensing light ... using a sensing means" does require "a sensing means," such as a camera, be used in the step. However, it does not prohibit other hardware from being involved. For example, the claim does not say "electro-optically sensing light ... using only a sensing means." Thus, the fact that "Numazaki identifies as necessary ... the image-subtraction circuitry and associated timing circuitry" does not prevent Numazaki from teaching or suggesting the limitations of open-ended claim 1.

***10** For the above reasons, Patent Owner's arguments do not undermine the showing by Petitioner that Numazaki in view of the knowledge of a PHOSITA teaches all of the aspects of the determining movement claim element.

(1) Conclusion

After review of the arguments and evidence, and further in view of the above discussion, we determine that Petitioner has shown, by a preponderance of the evidence, that claim 1 is unpatentable over Numazaki in view of the knowledge of a PHOSITA.

c) Independent Claim 7

Independent claim 7 is directed to a handheld computer apparatus and is similar to method claim 1. *Compare* Ex. 1001, 25:61–26:5 *with id.* at 25:40–50. As such, the Petition relies on the essentially the same teachings of Numazaki discussed above with respect to claim 1 for the features of claim 7, which we agree with for the reasons explained above. *See* Pet. 26–31. Patent Owner argues that Numazaki does not teach or suggest the camera means or computer means required by claim 7. PO Resp. 13–19.

(1) Camera Means

As discussed above, both parties agree that "camera means" in claim 7 is not a means-plus-function limitation under § 112 ¶ 6 and merely requires a camera. Pet. 6. PO Resp. 7. Similar to the "sensing means" in claim 1, Petitioner argues that Numazaki teaches a reflected light extraction unit, with two photo-detection units which it calls first and second camera units, which reflected light extraction unit reads on the camera means. Pet. 27–28.

Neither Patent Owner, nor Patent Owner's declarant, contest Petitioner's position, supported by its declarant, that Numazaki's reflected light extraction unit, with its two photo detection units in Figure 2, teach a camera, i.e. the claimed camera means. *See* PO Resp. 14–15 (citing Pet. 12–13; Ex. 1008 ¶ 39) (acknowledging Petitioner's position and declarant support); Ex. 2002 ¶ 65 (Patent Owner's declarant acknowledging Petitioner's position and declarant support).[13]

Patent Owner repeats essentially the same arguments addressed above concerning claim 1 that because the term "photo-detection unit" in Figure 2 is not identical to Figure 78's "photo-detection sensor unit," one of skill in the art would not understand what a "photo-detection sensor unit" is, or how it relates to the rest of the disclosure. PO Resp. 14–16.

We reject these arguments for the same reasons expressed above. Namely, the express disclosure of Numazaki makes clear that the photodetection section of the eighth embodiment, including the "photo-detection sensor unit" of Figure 78, incorporates the disclosure of the photo-detection section of the prior embodiments, including Figure 2. Thus, we determine that one of skill in the art would have understood Numazaki to teach that the "photo-detection sensor unit" in Fig. 78 is or at least includes a camera means, just as Numazaki's reflected light extraction unit, with its two photo detection units in Figure 2, teaches a camera means.

Patent Owner also argues that "Numazaki fails to teach ... that the 'photo-detection sensor unit' can obtain an image." PO Resp. 15. Patent Owner relies on the testimony of its declarant for support who states that "[e]ven though Numazaki's 'photo-detection sensor unit' is capable of 'photo-detecting on an external body,' Ex. 1003, 52:9–14, a POSITA would not find this sufficiently specific for the 'photodetection sensor unit' to teach or suggest a camera." Ex. 2002 ¶ 63.

***11** Patent Owner's declarant does not further explain his reasoning. For example, the declarant does not discuss why the discussion of photo-detecting "does not necessarily mean that the 'photo-detection sensor unit' is or includes a camera." The disclosure of Numazaki when discussing photo-detecting is directed to taking images; and according to Patent Owner obtaining images "is what cameras do." PO Resp. 7.

For example, Numazaki describes a "photo-detecting state" in reference to when a photo-detection unit "detects the optical image." Ex. 1003, 11:20–31; *see also id.* at 11:38–52. Numazaki's eighth embodiment itself states that "the photo-detection section ... outputs an image" and "the photo-detection section stores the charges generated by the photo-electric conversion element upon photo-detecting images of the object at a time of light emission by the lighting unit and at a time of no light emission by the lighting unit, ..., as already described in detail above." *Id.* at 53:22–36; *see also e.g., id.* at 10:33–56 (discussing a "photo-detection section" to capture reflected light as an image), 11:9–52, 12:56–65, 15:23–51.

Thus, the testimony of Patent Owner's declarant, which is stated as being based on "Numazaki in its entirety," does not appear to be consistent with how the term "photo-detecting" is used in Numazaki. Read in context, photo-detecting an external body *does* mean that the "photo-detection sensor unit" captures an image, like a camera, because that is how Numazaki uses the term. Thus, though Patent Owner is correct that Numazaki does not explicitly say that the "photo-detection sensor unit" is a camera, it is clear from the disclosure of Numazaki that "photo-detecting" refers to obtaining an image, which is what Patent Owner asserts is the function of a camera.

The function of the photo-detection sensor unit is further taught in a number of locations in Numazaki. For example, Numazaki at 52:8–14 (cited at Pet. 37) teaches that "a window 712 is provided for the lighting unit and the photo-detection sensor unit" to enable the function of "lighting and photo-detecting on an external body." The paragraph continues to teach that "[a] position of a cursor 714 on the screen can be controlled by moving a finger 713 in front of this window 712." Ex. 1003, 52:14–16. As discussed above, Numazaki teaches that in the eighth embodiment "the photodetection section ... outputs an image" and "the photo-detection section stores the charges generated by the photo-electric conversion element upon photo-detecting images of the object at a time of light emission by the lighting unit and at a time of no light emission by the lighting unit, ..., as already described in detail above." *Id.* at 53:22–36.

Thus, the function of the photo-detection sensor unit, to obtain an image, is taught by Numazaki. Further, this description of the function of the photo-detection sensor unit is consistent with, and points to, Numazaki's more detailed earlier discussion of the reflected light extraction unit and photo-detection optics, which teaches obtaining an image. *See* Ex. 1003, 10:33–35, 11:11–15 ("an image is formed on a photo-detection plane of the reflected light extraction unit 102 by a photo-detection optics 107."), 50:21–42, 53:22–36; Pet. 37.

For the above reasons, Patent Owner's arguments do not identify any shortcomings in the showing by Petitioner that Numazaki teaches a camera means.

(2) Computer Means

***12** Claim 7 requires "computer means within said housing for analyzing said image to determine information concerning a position or movement of said object." Ex. 1001, 26:1–3. As discussed above, Petitioner argues that this limitation is subject to 35 U.S.C. § 112 ¶ 6, and that the relevant structure "includes a computer/processor programmed (1) to identify either natural or artificial features on an object as described ... or (2) to track the movement using one of the disclosed methods." Pet. 9. "Patent Owner does not contest" Petitioner's construction. PO Resp. 6.

Petitioner argues that "[a] PHOSITA would [ ] have understood that Numazaki's finger detection and tracking functionality is performed by a processor and would have considered the processes performed by Numazaki's processor the same or equivalent to the natural feature identification algorithm disclosed in the '431 Patent." Pet. 30 (citing Ex. 1008 ¶ 55). Petitioner explains:

> *Numazaki* teaches the same (or an equivalent) structure [as the '431 Patent] for detecting the position of a user's finger to permit the user to control a device using gestures. Namely, *Numazaki* expressly describes a process through which the system identifies a user's finger based on its characteristics and tracks lateral finger movements by "detecting the center of gravity" of a finger, where "finger tip movement and the center of gravity movement can be smoothly correlated" using pixel values. *Numazaki* (Ex. 1003), 19:43-20:25. To detect a finger, *Numazaki* teaches a "stick shaped object detection unit 213[, which] detects a stick shaped object extending in the vertical direction, that is, an upward extended finger (normally an index finger) of the hand of the operator." *Id*. at 18:32-35. Once the finger is detected, *Numazaki* calculates the center of gravity and tracks this center of gravity as the finger moves. *Id*. at 19:43-20:25. Using this technique, *Numazaki* teaches "the cursor on [a] screen can be controlled" so that "when the finger is moved, the cursor is also moved." *Id.* at 26:8-14, 26:23-25.

Pet. 29–30.

Patent Owner first argues that claim 7 more generally requires only a single camera obtain a single image for analysis by the computer means. PO Resp. 16–17. Patent Owner bases its argument on the claim language of "a camera means ... for obtaining an image" and "computer means ... for analyzing said image." *Id.*

As acknowledged by Patent Owner however, claim 7 is not limited to a single camera or a single image. Sur-reply 5. Unless a more limited construction is indicated by the specification or prosecution history, the indefinite article "a" or "an" is construed in a claim to mean "one or more." *KCJ Corp.*, 223 F.3d at 1356. Thus, "a camera means" encompasses one or more cameras, and "an image" encompasses one or more images.

Patent Owner clarifies its position that claim 7 requires the image obtained by "photodetection unit 109" or the image obtained by "photodetection unit 110" to be analyzed by the computer means without any other processing. Sur-reply 6. However, this does not reflect the position of Petitioner as to what is the camera means. Petitioner argues "that the output of Numazaki's reflected light extraction unit 102 is an image, that said image is analyzed by the [computer means]." Reply 13–14.

Petitioner's position is that Numazaki's reflected light extraction unit 102 with its two photodetection units reads on the camera means, rather than a single photodetection unit as argued by Patent Owner. *See* Pet. 28–29; Reply 14. The Petition makes clear that it is the image output from the reflected light extraction unit that is analyzed by the computer means. Pet. 28–29. As discussed in the preceding section, we determine herein that Petitioner has shown that Numazaki teaches a camera means by a preponderance of the evidence.

***13** We find no reason to limit claim 7 to a single camera or to read camera means to exclude multiple cameras. We further find no reason to limit claim 7 such that multiple cameras could not be used to obtain an image from the individual cameras that make up the camera means. Other than asserting their position, Patent Owner does not identify any errors in Petitioner's position, supported by a preponderance of the evidence herein, that the reflected light extraction unit reads on a camera, it obtains an image, and that image is analyzed by the computer means. *See, e.g.*, Pet. 28–29; Reply 13–14; *see also* Sur-reply 6 (acknowledging Petitioner's position).

Patent Owner also argues that the Petition does not show how Numazaki's "feature data generation unit" "correspond[s] to a computer or processor that has been 'programmed.' " PO Resp. 18. At the same time, Patent Owner acknowledges that the Petition "cites to various algorithms performed by Numazaki's 'feature data generation unit' " for teaching the determining step of claim 7.[14] *Id.* Further, Patent Owner later admits that "*Numazaki* discloses that 'it is also possible to realize this operation of the feature data generation unit in a form of software. It is obviously possible to realize a hardware configuration for carrying out this operation, and a configuration using both software and hardware is also possible.' " Sur-reply 6–7 (quoting Ex. 1003, 20:41–45); *see also* Reply 14–15; Ex. 1008 ¶ 55; Ex. 1017 ¶ 9. Thus, the evidence of record shows that Numazaki teaches that the feature data generation unit corresponds to a computer or processor that has been programmed.

Patent Owner then argues that "Numazaki's 'compact portable information device' " [of Figure 78] does not include "the corresponding structure for 'computer means' in [the] claim element." PO Resp. 18. Patent Owner further argues that "Numazaki does not disclose the internal hardware/circuitry of the 'compact portable information device.' " *Id.*

Patent Owner's argument is based on the same reasoning rejected above that one of ordinary skill in the art would not understand how Numazaki Figure 78 relates to the earlier disclosure in Numazaki. As previously discussed Numazaki expressly states that the eighth embodiment, including Figure 78 "incorporate[s] the information input generation apparatus of the present invention as described in the above embodiments," i.e. embodiments 1–7. Ex. 1004, 50:19–20; *see also* Ex. 1008 ¶ 44. Patent Owner does not contest that the feature data generation unit is part of the information input generation apparatus. *See* Ex. 1003, Fig. 2 (showing a feature data generation unit as part of an information input generation apparatus).

For the above reasons, Patent Owner's arguments do not undermine the showing by Petitioner that Numazaki in view of the knowledge of a PHOSITA teaches all of the aspects of the computer means claim element.

(3) Conclusion

After review of the arguments and evidence, and further in view of the above discussion, we determine that Petitioner has shown, by a preponderance of the evidence, that claim 7 is unpatentable over Numazaki in view of the knowledge of a PHOSITA.

d) Claims 11 and 13

Dependent claim 11 recites "Apparatus according to claim 7, further including means for transmitting information." Ex. 1001, 26:12–13. As noted previously, Petitioner argues that the "means for transmitting information" is subject to 35 U.S.C. § 112 ¶ 6, and that the structure corresponding to the claimed function is "at least a wireless cellular transceiver." Pet. 11–12 (citing Ex. 1001, 12:59–13:3). "Patent Owner does not contest" Petitioner's construction. PO Resp. 6.

***14** Dependent claim 13 recites "Apparatus according to claim 7, wherein said apparatus is a cellular phone." Ex. 1001, 26:16–17.

Petitioner argues that Numazaki's fifth embodiment teaches a "conference record system" or TV telephone and that "a PHOSITA would have been motivated to implement this transmission functionality in the portable device described in Numazaki's eighth embodiment." Pet. at 32–33 (citing Ex. 1003, 38:6–16, 40:16–49; Ex. 1008 ¶¶ 50–52, 58): *id.* at 33–34. The Petition also argues "that Numazaki's focus on lower communications costs is a concern applicable to cellular phones." *Id.* at 34.

The Petition fails to show how Numazaki teaches or suggests either of claim 11 or 13. First, Petitioner admits that Numazaki does not "state that its TV telephone is a cellular phone." *Id.* at 34. Further, the portable device described in Numazaki's eighth embodiment is also not disclosed as being a wireless cellular transceiver or a cellular phone, and the Petition makes no assertions that it is either. The Petition includes no analysis regarding whether the transmission functionality included in Numazaki's "conference record system" or TV telephone is an equivalent of "a wireless cellular transceiver" or a cell phone. *See* Pet. 32–34; *see also* PO Resp. 19–20, 22–23.

In response to Patent Owner's arguments, Petitioner argues that "Dr. Bederson explains that these 'videoconference telephones were also known as cellular videophones.' " Reply 15 (citing Ex. 1008, ¶ 58). Petitioner appears to be implying that Numazaki necessarily teaches that its fifth embodiment is a cell phone. However, this is in conflict with Petitioner's admission in the Petition that Numazaki does not "state that its TV telephone is a cellular phone." Pet. 34.

Further, Dr. Bederson's supporting evidence does not support his allegation. Dr. Bederson cites to a newspaper article discussing "the global efforts preceding the launch of a market leading cellular videophone" that does not discuss videoconference telephones or equate videoconference telephones with cellular videophones. Ex. 1008, ¶ 58 (citing Ex. 1013). Thus, Dr. Bederson's broad assertion that "videoconference telephones were also known as cellular videophones" is unsupported.

For these reasons, we determine that Petitioner fails to show how Numazaki in view of the knowledge of a PHOSITA teaches or suggests all of the limitations of claims 11 or 13.

a) Claim 12

Dependent claim 12 recites "Apparatus according to claim 7, further including a light source for illuminating said object." Ex. 1001, 26:14–15. As noted previously, we determine that the added limitation in claim 12 should be read according to its plain and ordinary meaning. In other words, "a light source for illuminating said object," simply means exactly what it says "a light source for illuminating said object."

Petitioner argues that claim 12 is taught by Numazaki's "light and camera arrangement" in "Numazaki's handheld device." Pet. 33 (citing Ex. 1003, 11:9–23, 52:12–14).

Patent Owner does not contest Petitioner's position in the Petition, other than to argue that the combination does not teach the claim limitation under Patent Owner's construction. PO Resp. 20–21. Patent Owner further admits that Numazaki teaches a lighting unit used to illuminate an object. *Id.* at 21. As we previously rejected Patent Owner's attempt to read limitations from the Specification into the claims, Patent Owner's arguments here do not apply to the requirements of claim 12.

***15** We have reviewed Petitioner's assertions with respect to the claim 12 and the supporting evidence, and determine that

Petitioner has established by a preponderance of the evidence that claim 12 is unpatentable.

b) Independent Claim 14

Independent claim 14 is directed to a method for controlling a handheld computing device and is very similar to method claim 1. *Compare* Ex. 1001, 26:18–28 *with id.* at 25:40–50. As such, the Petition relies on the same teachings of Numazaki discussed above with respect to claim 1 for the features of claim 14, which we agree with for purposes of this Decision for the reasons explained above. *See* Pet. 35.

Similarly, Patent Owner argues that the Petition fails to teach or suggest the claim elements of claims 14 for the same reasons as claims 1 and 7, reiterating some of the same arguments discussed above. PO Resp. 23–26. Patent Owner does not provide any additional argument other than what has already been addressed with respect to claims 1 and 7 above.

We have reviewed Petitioner's assertions with respect to the claim 14 and the supporting evidence, and determine that Petitioner has established by a preponderance of the evidence that claim 14 is unpatentable.

c) Claims 2–4, 8, 9, 12, 13, 15–22, 25, 26, 28

Petitioner argues that Numazaki in view of the knowledge of a PHOSITA renders obvious dependent claims 2–4, 8, 9, 12, 13, 15–22, 25, 26, and 28. Pet. 21–26, 31–34, 36–40. Patent Owner does not contest Petitioner's assertions regarding these claims other than to point to the independent claims. PO Resp. 13, 19, 27.

We have reviewed Petitioner's assertions with respect to these claims and the supporting evidence, and determine that Petitioner has established by a preponderance of the evidence that claims 2–4, 8, 9, 12, 13, 15–22, 25, 26, and 28 are unpatentable.

5. Obviousness over Numazaki and DeLeeuw, Numazaki and DeLuca, and Numazaki and, Peters

Petitioner argues that the combination of Numazaki and DeLeeuw renders obvious dependent claims 5, 6, and 29. Pet. 41–48. Petitioner argues that the combination of Numazaki and DeLuca renders obvious dependent claims 10, 23, 24, and 27. *Id.* at 48–57. Petitioner argues that the combination of Numazaki and Peters renders obvious dependent claims 30 and 31. *Id.* at 57–61. Patent Owner does not contest Petitioner's assertions regarding these claims other than to point to the independent claims. PO Resp. 28–29.

We have reviewed Petitioner's assertions with respect to these claims and the supporting evidence, and determine that Petitioner has established by a preponderance of the evidence that claims 5, 6, 10, 23, 24, 27, and 29–31 are unpatentable.

C. Jurisdiction over Expired Patents

Patent Owner argues that the USPTO does not have jurisdiction over expired patents. PO Resp. 1–2. Rather, Patent Owner argues, the USPTO only has jurisdiction over patents with claims that can be amended or cancelled. *Id.* Patent Owner states that, as explained by the Supreme Court, "Congress [has] significant latitude to assign [the] adjudication of public rights to entities other than Article III courts," including for the USPTO to "reexamine—and perhaps cancel—a patent claim in an inter partes review." *Id.* (quoting *Oil States Energy Servs., LLC v. Greene's Energy Grp., LLC*, 138 S. Ct. 1365, 1368, 1374 (2018). However, Patent Owner argues that this authority does not extend to expired patents because the public franchise associated with an issued patent no longer exists after expiration. *Id.* at 2. Thus, it is argued, the USPTO no longer has jurisdiction, even though the patent owner "may be entitled to collect damages" for patent infringement, because "the patent owner[ ] no longer has the right to exclude others" and the USPTO has nothing to cancel or amend. *Id.*

***16** Patent Owner reasons that:

> Expiration removes the patent from the [US]PTO's jurisdiction and returns it to the sole jurisdiction of the Article III courts, which have exclusive authority to govern claims for damages. If this were not so, the [US]PTO would purport to have authority to retroactively modify a public franchise that no longer exists, in a setting where the expired public franchise does not enjoy any presumption of validity and in which amendment of claims is no longer permitted.

Id.

Inter partes review of patents, whether expired or not, fits within the USPTO's mandate "for the granting and issuing of patents" (35 U.S.C. § 2(a)(1)), for as the Supreme Court has stated, "[i]nter partes review is 'a second look at an earlier administrative grant of a patent' " (*Oil States Energy Servs.*, 138 S. Ct. at 1374 (quoting *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2144 (2016)). Our rules have also made clear that *inter partes* review covers expired patents. 37 C.F.R. 42.100(b) (2012); *see also, e.g.*, 83 Fed. Reg. 51341 (Oct. 11, 2018) (Changes to the Claim Construction Standard for Interpreting Claims in Trial Proceedings Before the Patent Trial and Appeal Board)[15] ("The claim construction standard adopted in this final rule also is consistent with the same standard that the Office has applied in interpreting claims of expired patents and soon-to-be expired patents. *See, e.g.*, *Wasica Fin. GmbH v. Cont'l Auto. Sys., Inc.*, 853 F.3d 1272, 1279 (Fed. Cir. 2017) (noting that '[t]he Board construes claims of an expired patent in accordance with *Phillips* ... [and] [u]nder that standard, words of a claim are generally given their ordinary and customary meaning').").

Further, the statutes governing *inter partes* review do not limit them to non-expired patents. For example, 35 U.S.C. § 311(b), which sets forth the scope of *inter partes* review merely refers to patents, with no mention of the expiration date. Further, 35 U.S.C. § 311(c) entitled "Filing Deadline" makes no mention of the expiration date of the patent. Elsewhere, 35 U.S.C. § 315 does limit the filing of IPRs based on civil actions and the serving of complaints, but again makes no mention of the expiration date of the patent. Patent Owner does not identify any statute or legal precedent that expressly limits *inter partes* review to non-expired patents.

Patent Owner fails to adequately explain why the Patent Office's authority to take a second look at an earlier administrative grant of a patent ends when the patent term expires even though the rights granted by the patent are not yet exhausted.

For all of these reasons, we do not agree that the Board lacks jurisdiction over expired patents.

III. CONCLUSION

For the reasons discussed above, we determine that Petitioner has proven, by a preponderance of the evidence, that some of the challenged claims are unpatentable, as summarized in the following table:

Claims	35 U.S.C. §	Reference(s)/Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
1–4, 7–9, 11–22, 25, 26, 28	103(a)	Numazaki, Knowledge of a PHOSITA	1–4, 7–9, 12, 14–22, 25, 26, 28	11, 13
5, 6, 29	103(a)	Numazaki, DeLeeuw	5, 6, 29	
10, 23, 24, 27	103(a)	Numazaki, DeLuca	10, 23, 24, 27	
30, 31	103(a)	Numazaki, Peters	30, 31	
Overall Outcome			1–10, 12, 14– 31	11, 13

IV. ORDER

***17** In consideration of the foregoing, it is hereby:

ORDERED that claims 1–10, 12, 14–31 of U.S. Patent 7,933,431 B2 have been shown to be unpatentable;

FURTHERED ORDERED that claims 11 and 13 of U.S. Patent 7,933,431 B2 have not been shown to be unpatentable; and

FURTHERED ORDERED that, because this is a Final Written Decision, parties to the proceeding seeking judicial review of the Decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

Footnotes

[1] IPR2022-00091 (LG Electronics, Inc. and LG Electronics U.S.A., Inc.) and IPR2022-00359 (Google LLC) have been joined with this proceeding.

[2] Apple, Inc., LG Electronics, Inc., LG Electronics U.S.A., Inc., and Google LLC are collectively referred to herein as "Petitioner."

[3] Petitioner also filed a Preliminary Reply. Paper 9.

5 U.S. Patent 6,144,366, issued Nov. 7, 2000 ("Numazaki") (Ex. 1003).

4 The Leahy-Smith America Invents Act ("AIA"), Pub. L. No. 112-29, 125 Stat. 284, 285–88 (2011), revised 35 U.S.C. § 103 effective March 16, 2013. Because the challenged patent was filed before March 16, 2013, we refer to the pre-AIA versions.

6 A person having ordinary skill in the art ("PHOSITA").

7 U.S. Patent 6,088,018, issued July 11, 2000 ("DeLeeuw") (Ex. 1004).

8 U.S. Patent 6,064,354, issued May 16, 2000 ("DeLuca") (Ex. 1005).

9 U.S. Patent 6,243,683 B1, issued June 5, 2001 ("Peters") (Ex. 1006).

[10] In related IPR2021-00917 the petitioner there offered a slightly different construction. *See* IPR2021-00917, Paper 31, 11–12. The parties do not address the slight differences and we determine that the outcome here is not construction dependent.

[11] In related IPR2021-00917 consistent with the District Court, we construed the term slightly differently than what Petitioner proposes here. *See* IPR2021-00917, Paper 31,13–14; *see also* Dec. 7 (inviting the parties to address the District Court Claim Construction Memorandum and Order (Ex. 2001)). The parties do not address the slight differences and we determine that the outcome here is not construction dependent.

[12] Numazaki also teaches that "CMOS sensors are used as the photodetection means" in the eighth embodiment. Ex. 1003, 53:7–18. The '431 patent similarly teaches that "CMOS cameras" can be used to obtain images. Ex. 1001, 5:50–57.

[13] Numazaki also teaches that "CMOS sensors are used as the photodetection means" in the eighth embodiment. Ex. 1003, 53:7–18. The '431 patent similarly teaches that "CMOS cameras" can be used to obtain images. Ex. 1001, 5:50–57.

[14] Patent Owner also makes an argument that "[i]f Petitioner attempts to argue that the subtraction of the images satisfies the analysis portion of claim element [7(c)], that argument also fails." PO Resp. 17. However, as summarized from the Petition above (*see* Pet. 29–30), this is not a position taken by Petitioner; and thus, this argument is not relevant to any position taken by Petitioner.

[15] Available at https://www.federalregister.gov/d/2018-22006/p-13.

End of Document