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Appendix A

**UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT**

No. 17-2247

SPRINT COMMUNICATIONS COMPANY, L.P.,
Plaintiff-Appellee,

v.

TIME WARNER CABLE, INC., TIME WARNER
CABLE, LLC, TIME WARNER ENTERTAINMENT CO., L.P.,
TIME WARNER ENTERTAINMENT-ADVANCE/NEWHOUSE
PARTNERSHIP, TWC COMMUNICATIONS, LLC,
TIME WARNER CABLE INFORMATION
SERVICES (KANSAS), LLC,
Defendants-Appellants.

Opinion Issued: Nov. 30, 2018
Opinion Modified: Mar. 18, 2019*

Before Chen, Mayer, and Bryson, *Circuit Judges.*

OPINION

* This opinion has been modified and reissued following a petition for en banc rehearing filed by appellants.

BRYSON, *Circuit Judge*.

This patent infringement case was brought by Sprint Communications Company, L.P. (“Sprint”) against Time Warner Cable, Inc., and several of its affiliates (collectively, “Time Warner”) in the United States District Court for the District of Kansas. Sprint is the owner of the five patents-in-suit: U.S. Patent Nos. 6,298,064 (“the ’064 patent”); 6,343,084 (“the ’084 patent”); 6,463,052 (“the ’052 patent”); 6,473,429 (“the ’429 patent”); and 6,633,561 (“the ’561 patent”). Following trial, the jury found all five patents infringed and returned a verdict of approximately \$140 million in Sprint’s favor. We affirm.

I

The technology at issue in this case involves methods for linking circuit-switched and packet-switched networks within a telecommunications system. The invention at the heart of the patents in suit is a method for using a packet-switched network to transport telephone calls and data to and from the existing circuit-switched network for telephone communications known as the Public Switched Telephone Network (“PSTN”). The inventions allowed telephone calls and data to be transmitted between those two different networks seamlessly.

The traditional PSTN used circuit switching to set up an end-to-end path for each call. In a circuit-switched network, a user’s telephone connects to a switch, and the switch determines, based on the dialed number, which switch will be selected as the next switch in the path. That process continues switch-by-switch until the switch that is connected to the called party is reached. The signaling between the switches

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establishes a fixed circuit for the entire call, and the call occupies the entire bandwidth of that circuit for the duration of the call.

The traditional circuit-switched technology works well for voice communications, but less well for data communication. Because data communication tends to come in bursts rather than as a continuous transmission of information, the use of a fixed circuit for data transmission can be wasteful of bandwidth during periods in which data is not being transmitted but the circuit remains active. Accordingly, communications companies developed packet-based solutions to increase the efficiency of data communications. Two types of packet-based technology that are pertinent to this case emerged: (1) asynchronous transfer mode technology (“ATM”), which used “virtual circuits” that established fixed routes for communications but enabled multiple users to share the circuits at the same time; and (2) internet protocol (“IP”) technology, in which each IP router in an IP network would make an individual routing decision for each packet based on the ultimate destination of the packet. In the IP system, individual packets that are part of a single communication can travel different paths to the same destination.

The patents at issue in this case fall into two groups: the “call control” patents (the ’052 and ’561 patents) and the “broadband” patents (the ’064, ’084, and ’429 patents). The call control patents describe methods for telecommunication control of calls to and from the packet-switched communication network. The broadband patents address the interface between circuit-switched (or “narrowband”) networks and

packet-switched (or “broadband”) networks. Sprint accused Time Warner of infringing the call control and broadband patents by using a Voice over Internet Protocol (“VoIP”) service, which converted calls into packet data, transmitted the call over an IP network, and provided for connectivity to the PSTN.

II

A. The Admission Of The Vonage Verdict

Time Warner’s first contention on appeal is that the district court improperly permitted Sprint to introduce evidence relating to the jury verdict in an earlier, related case brought by Sprint against Vonage, another carrier offering VoIP service. That case involved the same technology that was at issue in this case and resulted in a damages award against Vonage. Time Warner contends that the admission of the evidence relating to the Vonage verdict prejudiced it and requires that it be granted a new trial.

The district court ruled that the Vonage evidence was relevant to the jury’s assessment of reasonable royalty damages under a hypothetical negotiation theory. The court gave the jury an instruction limiting the use of that evidence to the jury’s consideration of the issues of damages and willfulness.

Although Time Warner argues that the introduction of evidence of a jury verdict from another case is invariably improper, that is not the rule that this court has applied. Instead, the court has held that such evidence can be admissible if it is relevant for some legitimate purpose.

In *Applied Medical Resources Corp. v. U.S. Surgical Corp.*, 435 F.3d 1356 (Fed. Cir. 2006), this

court affirmed the admission of evidence regarding a prior verdict between the parties on the ground that the evidence of that verdict was relevant to the hypothetical negotiation between the same parties, which bore on the amount of the damages to be awarded under a reasonable royalty theory of damages, as well as the issue of willfulness. *Id.* at 1365-66. As to the relevance of the prior verdict on the issue of damages, the court held that the verdict “was relevant to the reasonable royalty analysis because the hypothetical negotiation in 1997 took place on the heels of the [prior] jury verdict.” *Id.* at 1366. The court added that the appellant failed to show that the probative value of the evidence was outweighed by the danger of unfair prejudice. *Id.*

The *Applied Medical Resources* case applied a flexible approach to the admission of evidence of prior verdicts or other proceedings.¹ While such evidence can be prejudicial and must be treated with great care, it is admissible if it is relevant to a material issue in the case and its use is limited to the purpose for which it is relevant. *See Mendenhall v. Cedarapids, Inc.*, 5 F.3d 1557, 1573-74 (Fed. Cir. 1993) (evidence of prior litigation “must pass muster, like any other evidence,

¹ In its effort to distinguish *Applied Medical Resources*, Time Warner alludes to the fact that the earlier verdict in that case was against the same defendant. But that factor would seem to make the risk of prejudice stronger, not weaker, as the court explained in *Coleman Motor Co. v. Chrysler Corp.*, 525 F.2d 1338, 1351 (3d Cir. 1975), a case on which Time Warner heavily relies.

as relevant and probative of an issue in the second case”).²

In this case, the court admitted the prior verdict evidence as relevant to willfulness, to Time Warner’s equitable defenses, and “to the extent that it informs Sprint’s executives concerning what [they] might expect as a reasonable royalty.” Thus, as the court explained, the verdict would be a factor of which the parties would have been aware at the time of their hypothetical negotiation in 2010, and a reasonable jury could well conclude that the verdict and the amount of damages awarded in a similar prior litigation would have influenced the outcome of a hypothetical negotiation in the case at bar.

Importantly, the district court gave the jury limiting instructions that the Vonage evidence was to be considered only on the issues of damages and willfulness. The court gave such an instruction at Time Warner’s request both times evidence of the

² While Time Warner cites several cases that have disapproved of the admission of evidence regarding the outcome of earlier cases, none of those cases is persuasive authority as applied to the circumstances of this case. In *Engquist v. Oregon Department of Agriculture*, 478 F.3d 985, 1008-09 (9th Cir. 2007), the court held that the district court did not abuse its discretion by *excluding* evidence of the outcome of a prior proceeding, while noting that such evidence is admissible if it is relevant to an issue in the later case and is not unfairly prejudicial. In *Olitsky v. Spencer Gifts, Inc.*, 964 F.2d 1471, 1475-76 (5th Cir. 1992), the court held that the evidence of the outcome of prior litigation was relevant and that any prejudice was cured by an appropriate limiting instruction. Finally, as noted, in *Coleman Motor Co.*, the prior verdict was against the same defendant, and the court observed that a jury “is likely to give a prior verdict against the same defendant more weight than it warrants.” 525 F.2d at 1351.

Vonage verdict was introduced and in the court's final jury charge. While the court might have given an even more restrictive instruction, no request was made for such a further limitation on the instruction given to the jury.

Time Warner argues that the differences between the Vonage case and this case were such that the district court should have excluded the Vonage evidence on relevance grounds. We disagree. While there are some differences between the two proceedings, the core allegations in both were the same. And while Time Warner argues that there were several patents raised in each case that were not raised in the other, Time Warner has not shown in its briefs any reason to believe that the technology asserted in the Vonage case was materially different from the technology raised in this case. Any differences between the two proceedings, moreover, were available to Time Warner to argue to the jury; the differences did not require exclusion of the Vonage verdict.

As for Time Warner's contention that Sprint's counsel made inflammatory use of the prior verdict before the jury, we find that argument to be overstated. The references to the jury verdict about which Time Warner complains were made in the context of a discussion of the hypothetical negotiation. Several of the references were made in Sprint's opening statement. No objection was raised to those remarks as exceeding the limited grounds on which the district court permitted the Vonage evidence to be used. In closing argument, Sprint's counsel again referred to the Vonage verdict as it bore on the

hypothetical negotiation issue and on the issue of willfulness, as the district court had permitted. Having examined each of counsel's references to the prior verdict, as well as the evidence regarding the Vonage verdict that was introduced at trial, we are satisfied that counsel did not make improper or inflammatory use of the Vonage evidence, and that the district court did not commit reversible error in failing to strike that evidence or prohibit it from being offered for any purpose.

B. The Damages Award

The jury assessed damages against Time Warner in the amount of \$1.37 per VoIP subscriber per month. Time Warner complains that the district court erred in several respects in handling the issue of damages.

First, Time Warner contends that, for the same reasons that Time Warner objected to the admission of evidence of the Vonage verdict, the damages award should be overturned because Sprint's damages expert relied on that verdict in calculating a reasonable royalty.

In addition to the previously raised objections to the admission of evidence of the Vonage verdict, Time Warner argues that the use of the Vonage verdict in the expert's damages calculation was improper because the Vonage verdict was legally flawed. Time Warner argues that Sprint's expert in the Vonage case improperly relied in part on the 25 percent "rule of thumb" that was frequently used in reasonable royalty cases prior to this court's decision in *Uniloc USA, Inc. v. Microsoft Corp.*, 632 F.3d 1292, 1315 (Fed. Cir. 2011), which held that "the 25 percent rule of thumb

is a fundamentally flawed tool,” and that the Vonage verdict was therefore tainted.

We have already addressed and rejected Time Warner’s arguments regarding the impropriety of admitting evidence of the Vonage verdict. As for Time Warner’s argument that the Vonage verdict was tainted by the testimony in that case regarding the 25 percent rule, Sprint’s expert made clear that he was not relying on that rule in this case, and the jury in the Vonage case did not return a verdict that was based on the 25 percent rule as the measure of damages.

Both parties’ experts explained that the 25 percent rule of thumb had been rejected by economists and courts. And Time Warner cross-examined Sprint’s damages expert at length about the 25 percent rule in an effort to demonstrate that the Vonage verdict was tainted by the 25 percent rule and was therefore unreliable. In effect, Time Warner is now arguing that the references to the 25 percent rule in the Vonage case made the verdict in that case per se inadmissible. We disagree. Time Warner had ample opportunity at trial to challenge the reliability of the Vonage verdict on that ground. We conclude that Time Warner has failed to show that the references to the 25 percent rule in the Vonage case had such a demonstrable and substantial effect on that case’s verdict as to disqualify the Vonage evidence from consideration by the jury in determining an appropriate damages award in this case.

Time Warner next argues that the Vonage verdict should not have been admitted because the jury in that case awarded a royalty based on all of Vonage’s

VoIP revenues, without determining which portions of the revenues were attributed to patented technology as opposed to unpatented features. But the fact that the jury in the Vonage case awarded a royalty based on total VoIP revenues does not make that verdict inadmissible; the jury in that case was called on to make a determination as to the appropriate royalty for the patented technology—the same technology at issue in this case—and it did so in the form of a lump sum royalty award. The reasonable royalty award in the *Vonage* case was based on the jury's determination of the value of the technology that was taken as a result of Vonage's infringement. By operation of the hypothetical negotiation method of calculating damages, the award compensated Sprint for the incremental value of Sprint's technology, not for the value of unpatented features of Vonage's VoIP system.

The evidence showed that the damages award in the Vonage case of \$1.37 per subscriber per month was approximately five percent of Vonage's total VoIP revenues for the infringement period. The jury settled on the same amount for the damages award in this case as in the Vonage case. The Vonage verdict did not stand alone, however. In addition to the Vonage verdict, the jury had before it two licenses from Sprint to other communications companies for the patented technology, both of which were for approximately five percent of the companies' VoIP revenue. The evidence showed that those licenses, like the Vonage verdict, were based on the value of the patented technology and not the value of other aspects of the companies'

VoIP technology that were not covered by Sprint's patents.³

Time Warner argues that Sprint's damages case was flawed because Sprint did not apportion the damages award to the incremental value that the patented invention added to the end product. *See Ericsson, Inc. v. D-Link Sys., Inc.*, 773 F.3d 1201, 1226 (Fed. Cir. 2014). That argument, however, ignores that the objective of apportionment can be achieved in different ways, one of which is through the jury's determination of an appropriate royalty by applying the so-called *Georgia-Pacific* factors, under proper instructions embodying apportionment principles. *See Exmark Mfg. Co. v. Briggs & Stratton Power Grp., LLC*, 879 F.3d 1332, 1349 (Fed. Cir. 2018) (“[T]he standard *Georgia-Pacific* reasonable royalty analysis takes account of the importance of the inventive contribution in determining the royalty rate that would have emerged from the hypothetical negotiation.” (quoting *AstraZeneca AB v. Apotex Corp.*, 782 F.3d 1324, 1338 (Fed. Cir. 2015))); *Ericsson*, 773 F.3d at 1228 n.5 (“While factors 9 and 13 of the *Georgia-Pacific* factors allude to apportionment concepts, we believe a separate instruction culled from

³ Time Warner contends that each of the other two licenses “covers more than the patents Sprint asserts here,” Reply Br. 20, but the testimony from Sprint's expert indicates that those two licenses were for the “same technology” for the “same patents-in-suit” as in the present case. As in the case of the Vonage verdict, while those agreements covered numerous patents, Time Warner has not shown that the additional patents included technology materially different from the technology covered by the patents-in-suit in this case.

Garretson [*v. Clark*, 111 U.S. 120 (1884)] would be preferable in future cases.”).

Such an analysis often considers rates from comparable licenses, and we have explained that “otherwise comparable licenses are not inadmissible solely because they express the royalty rate as a percentage of total revenues, rather than in terms of the smallest salable unit.” *Commonwealth Sci. & Indus. Research Org. v. Cisco Sys., Inc.*, 809 F.3d 1295, 1303 (Fed. Cir. 2015). The fact that two other licenses were granted for the same technology, together with the Vonage verdict—all of which were for the same royalty rate as the rate utilized in the Vonage case to yield the \$1.37 per VoIP subscriber per month damages assessment—provides strong support for Sprint’s argument that the damages award in this case reflected the incremental value of the inventions and thus satisfied the requirement of apportionment. *See Ericsson*, 773 F.3d at 1227-28 (damages testimony regarding real-world relevant licenses “takes into account the very types of apportionment principles contemplated in *Garretson*.”).

Contrary to Time Warner’s contention, the jury’s damages award was based on the value of what was taken from Sprint, not the value of unpatented features of Time Warner’s VoIP system. Sprint’s damages expert addressed apportionment at some length during his testimony, explaining that his damages calculations were designed to determine “the incremental profits that are attributable to the patents in suit.” And the jury was specifically instructed on apportionment. The court directed that the reasonable royalty “must be based on the

incremental value that the patented invention adds to the end product. When the infringing products have both patented and unpatented features, measuring this value requires a determination of the value added by the patented features.” Time Warner did not propose alternative instructions on damages, so the issue is simply whether the evidence was sufficient to support the jury’s award. In light of the Vonage verdict and the other two licenses, as well as testimony from Sprint’s expert as to the cost to Sprint and the benefit to Time Warner from Time Warner’s decision to operate the VoIP system itself rather than contracting that work out to Sprint, the jury had an adequate basis from which to find that damages should be awarded in the amount of \$1.37 per VoIP subscriber per month.

Finally, Sprint introduced evidence from which the jury could conclude that Time Warner did not have available to it any reasonable non-infringing alternatives to Sprint’s patented technology for connecting PSTN networks to IP networks. That factor also bears on the amount of the royalty that a jury could find would emerge from a hypothetical negotiation, as the absence of non-infringing alternatives would strengthen the patentee’s hand in such a negotiation. *See Carnegie Mellon Univ. v. Marvell Tech. Grp., Ltd.*, 807 F.3d 1283, 1304 (Fed. Cir. 2005) (The hypothetical negotiation seeks to determine “what it would have been worth to the defendant, as it saw things at the time, to obtain the authority to use the patented technology, considering the benefits it would expect to receive from using the technology and the alternatives it might have pursued.”). In light of all the evidence bearing on the

damages award, we conclude that the jury's verdict was supported by sufficient evidence and did not contravene the principles of apportionment set forth by this court.

C. The Written Description Requirement

Time Warner next argues that both the call control patents and the broadband patents were shown to be invalid for failure to satisfy the written description requirement set forth in 35 U.S.C. § 112, ¶ 1 (now 35 U.S.C. § 112(1)). In particular, Time Warner contends that the specifications of each group of patents describe the invention as a method of transmitting signals between a PSTN network and a packet-switched system that employed Asynchronous Transfer Mode ("ATM") technology, which used virtual circuits. The specifications, Time Warner argues, do not describe the invention as including the transmission of signals from a PSTN network to a packet-switched network using IP technology. According to Time Warner, the references to "broadband" and "packet" in the specifications disclose only ATM systems and not IP systems.

Compliance with the written description requirement presents a question of fact. *Ariad Pharms., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1355 (Fed. Cir. 2010) (en banc). The written description issue was submitted to the jury on instructions that are not objected to on appeal. Through its verdict, the jury found that the written description requirement was satisfied with respect to both the call control patents and the broadband patents. As to both sets of patents, the issue is therefore whether the evidence at trial was sufficient to satisfy the written description

requirement. Because the common specifications for each of the two sets of patents differ significantly, we treat the two invalidity arguments separately.

1. The Call Control Patents

Time Warner acknowledges that the claims of the call control patents cover both ATM and IP communication technology. However, Time Warner contends that the common specification of the call control patents is confined to ATM technology, and that the claims of the call control patents are invalid because, as applied to IP technology, they are not supported by the specification. Sprint responds that the specification is not confined to ATM technology, but is broad enough to cover IP technology as well.

IP technology is not expressly excluded from the call control specification. Instead, the specification refers to “[b]roadband systems, such as Asynchronous Transfer Mode (ATM),” ’561 patent, col. 2, ll. 28-30, a formulation that strongly suggests that the patents are not limited to ATM technology. The specification adds that the network on which the invention operates “could be any type of telecommunications network that operates using network elements, signaling, and connections.” *Id.*, col. 8, ll. 38-43. Importantly, the call control patents disclose means for routing communications between a point on a narrowband network, such as the PSTN, and a point on a broadband network, without specifying whether the point on the broadband network is part of a fixed end-to-end path for a single call (as in an ATM-based system) or part of a path that is established on a packet-by-packet basis by each separate router (as in

an IP-based system). *See* '561 patent, col. 3, ll. 10-20; *id.*, col. 9, line 62, through col. 10, line 39.

Sprint's technical expert, Dr. Stephen Wicker, testified that a person of skill in the art at the time of the application would have understood the use of the term "broadband" to include IP as well as ATM technology. He testified that such a person, reading the common specification of the call control patents, would conclude that the inventor "was clearly thinking about broadband technologies that used routing to individual elements like IP addresses or used connections as in ATM." Dr. Wicker pointed out, for example, that the call control patents state that the communication control processor in the system "processes the signaling and selects at least one network characteristic in response to the signaling. Network characteristics might be network elements, connections, network codes, applications, or control instructions to name a few examples." '561 patent, col. 6, ll. 12-16.

Dr. Wicker explained that the reference to "connections" was a reference to ATM technology, while the reference to "network elements" would encompass IP technology. Those references, according to Dr. Wicker, showed that the call control patents were directed to "something more general in the world of broadband networks than just ATM."

Dr. Wicker focused on the passage from the call control patents' specification that notes that in one embodiment the "selection of a network characteristic will include the selection of a network code," and that "network codes are the logical addresses of network elements." *Id.*, col. 12, ll. 47-56. That passage, he

testified, indicates that the specification contemplated the use of IP technology in addition to ATM technology, since IP addresses are the logical addresses of network elements.

Dr. Wicker also pointed to a passage in the call control specification providing that the call control processor may select only network elements and not the connections, and that the elements would select the connections to use. *Id.*, col. 6, line 62, through col. 7, line 9; *see also id.*, col. 7, ll. 22-24 (“The [call control processor] might select all the network elements, a portion of the network elements, or none of the network elements leaving the switches to select the remainder.”); *id.*, col. 15, ll. 32-34. Based on the specification, Dr. Wicker inferred that the inventor was referring to “broadband technologies that used routing to individual elements like IP addresses or used connections as in ATM. He’s looking at both.” In light of the evidence before the jury on the issue, we cannot conclude that Time Warner has shown by clear and convincing evidence that the call control specification lacks an adequate written description to support the asserted claims.

2. The Broadband Patents

The common specification of the broadband patents incorporates the specification of the call control patents by reference. For the reasons explained with respect to the call control patents, the written description in the broadband patents therefore includes IP technology as well as ATM technology. That is so even though the broadband specification itself is principally focused on the

operation of the invention within ATM communication systems.

In addition to noting that the broadband patents incorporate the specification of the call control patents, Dr. Wicker pointed to particular portions of the broadband specification to support his opinion that the broadband specification was not limited to ATM technology with regard to its discussion of the “identifier,” “routing,” and “asynchronous communication” elements. As for the identifier, Dr. Wicker testified that a person of ordinary skill reading the broadband specification would have concluded that the identifier “could be like an IP address pointing to a destination, it could be like a VPI/VCI pair pointing to a virtual connection. [It is] more general than just saying ATM.” The identifier, he concluded, “could cover any broadband identifier,” including an IP address. As for “routing,” Dr. Wicker testified that routing refers to moving packets toward their destination, with “no limitation on how that’s done. . . . [T]he route or routing could be any broadband routing including IP.” As for asynchronous communication, Dr. Wicker testified that a person of skill in the art would understand that term, as used in the broadband specification, “to be more general than just a particular technology. They would understand it in the context of the patents to be a broadband packet switching technology but nothing more specific.” In summary, Dr. Wicker concluded that the broadband specification was not limited to a “fixed path” communication system, such as ATM.

We are not persuaded by Time Warner’s argument that the district court’s construction of the

phrase “interworking unit” renders the broadband patent claims invalid. The district court construed “interworking unit,” which appears in all asserted claims of the broadband patents, to mean an “ATM interworking multiplexer.” Time Warner argues that because other claim elements, discussed in the paragraph above, are broad enough to encompass technologies other than ATM that are “incongruous with the claimed ATM interworking multiplexer,” the claims lack written description support. However, Sprint’s expert testified, with a reference to technical literature, that ATM and IP are actually interoperable such that IP datagrams can be transmitted over ATM. Time Warner’s expert agreed that it was technically possible to run IP over an ATM network. Based on this testimony, a reasonable jury could reject Time Warner’s argument that it would be “nonsensical” to use IP with an “ATM interworking multiplexer.”

Although the broadband patents focus on ATM technology, we cannot agree, in light of the record at trial, that Time Warner has met its burden of showing by clear and convincing evidence that the common specification of the broadband patents lacks an adequate written description of claimed subject matter in those patents.

D. Infringement Of The Broadband Patents Under The Doctrine Of Equivalents

Time Warner’s final argument is that the evidence was insufficient to support the jury’s verdict that the broadband patents were infringed under the doctrine of equivalents. The district court construed the term “interworking unit” in the broadband patents

to mean an “ATM interworking multiplexer.”⁴ Presumably for that reason, the jury found that none of the claims of the broadband patents were directly infringed. However, the jury found that those patents were infringed under the doctrine of equivalents.

At trial, Sprint introduced evidence that Time Warner’s MGX8880 media gateway, which uses an IP card to convert data to IP packets, was interchangeable with an ATM interworking multiplexer, and therefore satisfied the “interworking unit” limitation under the doctrine of equivalents. *See Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 36 (1997) (“The known interchangeability of substitutes for an element of a patent is one of the express objective factors . . . bearing upon whether the accused device is substantially the same as the patented invention.”).

The evidence of interchangeability was sufficient to sustain the jury’s verdict. Dr. Wicker testified that the MGX8880 was designed with interchangeable cards that allowed the medial gateway to handle either ATM or IP packets. The fact that swapping cards was possible and was contemplated by skilled artisans supports the jury’s conclusion that the IP-based system was equivalent to the ATM-based system for purposes of the doctrine of equivalents. *See Interactive Pictures Corp. v. Infinite Pictures, Inc.*, 274 F.3d 1371, 1383-84 (Fed. Cir. 2001).

⁴ On appeal, Time Warner does not challenge the trial court’s construction of the broadband patent claims or the court’s instructions on the doctrine of equivalents.

To be sure, the evidence showed that converting Time Warner's established network from IP to ATM technology would have entailed substantial work and expense. However, the fact that the choice of one of two technologies would be expensive to reverse, once the choice was made and resources were invested in that choice, does not mean that the two competing choices were not equivalent in the first instance. Sprint introduced evidence that at the outset the choice between ATM and IP technology, as related to the invention set forth in the broadband patents, was simply a design choice. That evidence supports the jury's verdict of equivalency.

In addition, Dr. Wicker testified at length regarding how Time Warner's IP system satisfied the function-wayresult test for equivalency for each of the asserted broadband claims. *See Sofamor Danek Grp., Inc. v. DePuy- Motech, Inc.*, 74 F.3d 1216, 1221-22 (Fed. Cir. 1996). He explained that the MGX8880 performed the same function as the interworking unit recited in the claims, that it did so in the same way as the claimed unit, and that it achieved the same result.

Based on the evidence of equivalency adduced at trial, we hold that Time Warner has failed to show that the evidence was insufficient to support the jury's verdict.

AFFIRMED

MAYER, *Circuit Judge*, dissenting.

This case involves a remarkable mismatch between the narrow patent disclosures and the exceedingly broad claims. The patents asserted by Sprint Communications Company, L.P. (“Sprint”) are invalid as a matter of law because their specifications provide no written description support for the full breadth of the asserted claims. I therefore respectfully dissent.

The specifications of Sprint’s patents describe ways to address the problems that arise when trying to connect Asynchronous Transfer Mode (“ATM”) systems with the traditional Public Switched Telephone Network (“PSTN”). J.A. 185-88; *see also* J.A. 5166-69. The specifications do not mention Internet Protocol (“IP”) communications or contain any suggestion that methods of establishing interconnections between IP networks and the PSTN are within the scope of the claimed invention.

The common specification of Sprint’s Call Control Patents, U.S. Patent Nos. 6,463,052 and 6,633,561, describes a purportedly novel way of linking ATM networks with the PSTN. It discusses establishing fixed end-to-end communications paths for calls using PSTN circuits and ATM virtual circuits. *See, e.g.*, J.A. 185 (2:28-37), 187 (5:16-21), 190 (12:35-46). It further discloses a “Communication Control Processor,” which interfaces with the switches to set up a fixed end-to-end path for a call. J.A. 187 (5:30), 190 (11:58-12:4); *see also* J.A. 177-180.

Importantly, however, the specification contains no disclosure of IP technology, which operates in a fundamentally different way than ATM technology.

Unlike an ATM network, an IP network does not use circuits or virtual circuits and does not set up a fixed path for a call. *See* J.A. 3872-73, 4414-15. To the contrary, each packet with data for a call is routed using an identifier in the packet known as an “IP address.” *See* J.A. 3872-73. As an expert for Time Warner Cable, Inc. and related parties explained, ATM is “like being on a train track where you have to follow the tracks,” but IP is like “driving a car from Point A to [Point] B, where you’re free to take different roads.” J.A. 4827-28; *see also* J.A. 4413-15. The common specification of the Call Control Patents does not contain any disclosure of IP technology, which is unsurprising given that it is directed to setting up fixed end-to-end communications paths and IP routing does not rely on such paths.

Sprint argues that its “Call Control Patents disclose inventions for routing communications between a point on a narrowband network and a point on a broadband network, without regard for whether the point in a broadband network is part of a fixed path or is established on a call-by-call basis.” Br. of Plaintiff-Appellee at 56. In support, it contends that the common specification of the Call Control Patents “describe[s] a flexible processing system that may select ‘all,’ ‘a portion,’ or ‘none’ of the network elements, as well as ‘all,’ ‘a portion,’ or ‘none’ of the connections, in performing the steps of the claims.” *Id.* (quoting J.A. 188 (7:22-29)). In essence, Sprint argues that the specification does not require the selection of all of the network elements and connections in a communications path. This argument fails. The common specification makes clear that the Communication Control Processor and the switches

will function together to select *all* of the network elements and connections. *See* J.A. 188 (7:20-29) (“One skilled in the art will recognize that the selection process can be distributed among the [Communication Control Processor] and the elements. The [Communication Control Processor] might select all the network elements, a portion of the network elements, or none of the network elements *leaving the switches to select the remainder.*” (emphasis added)). Over and over again, the specification refers to establishing a communications path. *See, e.g.*, J.A. 185 (1:37-46), 186 (3:15-18), 190 (11:35-36). It contains nothing even arguably suggesting that a fixed communications path will not be established, as would be the case if the claimed invention encompassed IP technology.

Like its Call Control Patents, Sprint’s Broadband Patents, U.S. Patent Nos. 6,343,084, 6,473,429, and 6,298,064, lack written description support. The purported invention described in the common specification of the Broadband Patents is an alternative technique for including both PSTN circuits and virtual circuits in the same communications path. *See* J.A. 303-05. The specification’s disclosure makes sense only in the context of ATM technology. The common specification does not disclose any packet identifiers other than ATM VPI/VCI identifiers, any routing other than ATM routing, or any form of asynchronous communication other than ATM. *See* J.A. 242-53. Importantly, moreover, all of the claims of the Broadband Patents, as construed by the district court, require an “ATM interworking multiplexer.” J.A. 352-55. There is no dispute that an ATM interworking multiplexer converts calls between

PSTN and ATM formats, allowing the two types of networks to be bridged. J.A. 3689; *see also* J.A. 3863, 4485-86, 5280-81. Nothing in the common specification suggests or even hints that converting to and from IP or routing over an IP network is within the scope of the claimed invention.

Sprint attempts to salvage the verdict of no invalidity by arguing that the jury was entitled to rely on the testimony of its expert, Dr. Steven Wicker, who stated that the asserted patents met the written description requirement. *See* J.A. 5638-43, 5647-50, 5670-76. This argument is unpersuasive. Wicker's statements were conclusory and unsupported by any persuasive citation to the patent disclosures or other record evidence. *See, e.g., ActiveVideo Networks, Inc. v. Verizon Commc'ns, Inc.*, 694 F.3d 1312, 1327 (Fed. Cir. 2012) (declining to credit expert testimony that "was conclusory and factually unsupported").

Wicker argued that IP networks are within the scope of the claimed invention because there are technologies that can "force" an IP network to set up and use a fixed communications path. *See* J.A. 5738-39, 5651-56. This argument is premised on a misapprehension of the adequate written description requirement. The salient question "is whether the disclosure . . . reasonably conveys to those skilled in the art that the inventor had possession of the claimed subject matter as of the filing date," *Ariad Pharm., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010) (en banc), not whether an undisclosed technology can be "forced" to operate within the disclosed system. *See Lockwood v. Am. Airlines, Inc.*, 107 F.3d 1565, 1572 (Fed. Cir. 1997) ("It is not

sufficient for purposes of the written description requirement of § 112 that the disclosure, when combined with the knowledge in the art, would lead one to speculate as to [the] modifications that the inventor might have envisioned, but failed to disclose.”).

“[T]he purpose of the written description requirement is to ensure that the scope of the right to exclude, as set forth in the claims, does not overreach the scope of the inventor’s contribution to the field of art as described in the patent specification.” *Ariad*, 598 F.3d at 1353-54 (citations and internal quotation marks omitted). Sprint overreaches here. It seeks broad monopoly rights over interconnections between narrowband and broadband networks. Nothing in the patent specifications, however, is sufficient to sweep non-path technologies like IP within the scope of the claimed invention. *See Gentry Gallery, Inc. v. Berkline Corp.*, 134 F.3d 1473, 1480 (Fed. Cir. 1998) (explaining that “claims may be no broader than the supporting disclosure”). I would reverse.

App-27

Appendix B

**UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT**

No. 17-2247

SPRINT COMMUNICATIONS COMPANY, L.P.,
Plaintiff-Appellee,

v.

TIME WARNER CABLE, INC., TIME WARNER
CABLE, LLC, TIME WARNER ENTERTAINMENT CO., L.P.,
TIME WARNER ENTERTAINMENT-ADVANCE/NEWHOUSE
PARTNERSHIP, TWC COMMUNICATIONS, LLC,
TIME WARNER CABLE INFORMATION
SERVICES (KANSAS), LLC,
Defendants-Appellants.

Decided: Nov. 30, 2018

Before Chen, Mayer, and Bryson, *Circuit Judges.*

OPINION

BRYSON, *Circuit Judge.*

This patent infringement case was brought by Sprint Communications Company, L.P. (“Sprint”) against Time Warner Cable, Inc., and several of its affiliates (collectively, “Time Warner”) in the United States District Court for the District of Kansas. Sprint

is the owner of the five patents-in-suit: U.S. Patent Nos. 6,298,064 (“the ’064 patent”); 6,343,084 (“the ’084 patent”); 6,463,052 (“the ’052 patent”); 6,473,429 (“the ’429 patent”); and 6,633,561 (“the ’561 patent”). Following trial, the jury found all five patents infringed and returned a verdict of approximately \$140 million in Sprint’s favor. We affirm.

I

The technology at issue in this case involves methods for linking circuit-switched and packet-switched networks within a telecommunications system. The invention at the heart of the patents in suit is a method for using a packet-switched network to transport telephone calls and data to and from the existing circuit-switched network for telephone communications known as the Public Switched Telephone Network (“PSTN”). The inventions allowed telephone calls and data to be transmitted between those two different networks seamlessly.

The traditional PSTN used circuit switching to set up an end-to-end path for each call. In a circuit-switched network, a user’s telephone connects to a switch, and the switch determines, based on the dialed number, which switch will be selected as the next switch in the path. That process continues switch-by-switch until the switch that is connected to the called party is reached. The signaling between the switches establishes a fixed circuit for the entire call, and the call occupies the entire bandwidth of that circuit for the duration of the call.

The traditional circuit-switched technology works well for voice communications, but less well for data communication. Because data communication tends to

come in bursts rather than as a continuous transmission of information, the use of a fixed circuit for data transmission can be wasteful of bandwidth during periods in which data is not being transmitted but the circuit remains active. Accordingly, communications companies developed packet-based solutions to increase the efficiency of data communications. Two types of packet-based technology that are pertinent to this case emerged: (1) asynchronous transfer mode technology (“ATM”), which used “virtual circuits” that established fixed routes for communications but enabled multiple users to share the circuits at the same time; and (2) internet protocol (“IP”) technology, in which each IP router in an IP network would make an individual routing decision for each packet based on the ultimate destination of the packet. In the IP system, individual packets that are part of a single communication can travel different paths to the same destination.

The patents at issue in this case fall into two groups: the “call control” patents (the ’052 and ’561 patents) and the “broadband” patents (the ’064, ’084, and ’429 patents). The call control patents describe methods for telecommunication control of calls to and from the packet-switched communication network. The broadband patents address the interface between circuit-switched (or “narrowband”) networks and packet-switched (or “broadband”) networks. Sprint accused Time Warner of infringing the call control and broadband patents by using a Voice over Internet Protocol (“VoIP”) service, which converted calls into packet data, transmitted the call over an IP network, and provided for connectivity to the PSTN.

II

A. The Admission Of The Vonage Verdict

Time Warner's first contention on appeal is that the district court improperly permitted Sprint to introduce evidence relating to the jury verdict in an earlier, related case brought by Sprint against Vonage, another carrier offering VoIP service. That case involved the same technology that was at issue in this case and resulted in a damages award against Vonage. Time Warner contends that the admission of the evidence relating to the Vonage verdict prejudiced it and requires that it be granted a new trial.

The district court ruled that the Vonage evidence was relevant to the jury's assessment of reasonable royalty damages under a hypothetical negotiation theory. The court gave the jury an instruction limiting the use of that evidence to the jury's consideration of the issues of damages and willfulness.

Although Time Warner argues that the introduction of evidence of a jury verdict from another case is invariably improper, that is not the rule that this court has applied. Instead, the court has held that such evidence can be admissible if it is relevant for some legitimate purpose.

In *Applied Medical Resources Corp. v. U.S. Surgical Corp.*, 435 F.3d 1356 (Fed. Cir. 2006), this court affirmed the admission of evidence regarding a prior verdict between the parties on the ground that the evidence of that verdict was relevant to the hypothetical negotiation between the same parties, which bore on the amount of the damages to be awarded under a reasonable royalty theory of damages, as well as the issue of willfulness. *Id.* at

1365-66. As to the relevance of the prior verdict on the issue of damages, the court held that the verdict “was relevant to the reasonable royalty analysis because the hypothetical negotiation in 1997 took place on the heels of the [prior] jury verdict.” *Id.* at 1366. The court added that the appellant failed to show that the probative value of the evidence was outweighed by the danger of unfair prejudice. *Id.*

The *Applied Medical Resources* case applied a flexible approach to the admission of evidence of prior verdicts or other proceedings.¹ While such evidence can be prejudicial and must be treated with great care, it is admissible if it is relevant to a material issue in the case and its use is limited to the purpose for which it is relevant, *see Mendenhall v. Cedarapids, Inc.*, 5 F.3d 1557, 1573-74 (Fed. Cir. 1993) (evidence of prior litigation “must pass muster, like any other evidence, as relevant and probative of an issue in the second case”).²

¹ In its effort to distinguish *Applied Medical Resources*, Time Warner alludes to the fact that the earlier verdict in that case was against the same defendant. But that factor would seem to make the risk of prejudice stronger, not weaker, as the court explained in *Coleman Motor Co. v. Chrysler Corp.*, 525 F.2d 1338, 1351 (3d Cir. 1975), a case on which Time Warner heavily relies.

² While Time Warner cites several cases that have disapproved of the admission of evidence regarding the outcome of earlier cases, none of those cases is persuasive authority as applied to the circumstances of this case. In *Engquist v. Oregon Department of Agriculture*, 478 F.3d 985, 1008-09 (9th Cir. 2007), the court held that the district court did not abuse its discretion by *excluding* evidence of the outcome of a prior proceeding, while noting that such evidence is admissible if it is relevant to an issue in the later case and is not unfairly prejudicial. In *Olitsky v. Spencer Gifts, Inc.*, 964 F.2d 1471, 1475-76 (5th Cir. 1992), the

In this case, the court admitted the prior verdict evidence as relevant to willfulness, to Time Warner's equitable defenses, and "to the extent that it informs Sprint's executives concerning what [they] might expect as a reasonable royalty." Thus, as the court explained, the verdict would be a factor of which the parties would have been aware at the time of their hypothetical negotiation in 2010, and a reasonable jury could well conclude that the verdict and the amount of damages awarded in a similar prior litigation would have influenced the outcome of a hypothetical negotiation in the case at bar.

Importantly, the district court gave the jury limiting instructions that the Vonage evidence was to be considered only on the issues of damages and willfulness. The court gave such an instruction at Time Warner's request both times evidence of the Vonage verdict was introduced and in the court's final jury charge. While the court might have given an even more restrictive instruction, no request was made for such a further limitation on the instruction given to the jury.

Time Warner argues that the differences between the Vonage case and this case were such that the district court should have excluded the Vonage evidence on relevance grounds. We disagree. While there are some differences between the two

court held that the evidence of the outcome of prior litigation was relevant and that any prejudice was cured by an appropriate limiting instruction. Finally, as noted, in *Coleman Motor Co.*, the prior verdict was against the same defendant, and the court observed that a jury "is likely to give a prior verdict against the same defendant more weight than it warrants." 525 F.2d at 1351.

proceedings, the core allegations in both were the same. And while Time Warner argues that there were several patents raised in each case that were not raised in the other, Time Warner has not shown in its briefs any reason to believe that the technology asserted in the Vonage case was materially different from the technology raised in this case. Any differences between the two proceedings, moreover, were available to Time Warner to argue to the jury; the differences did not require exclusion of the Vonage verdict.

As for Time Warner's contention that Sprint's counsel made inflammatory use of the prior verdict before the jury, we find that argument to be overstated. The references to the jury verdict about which Time Warner complains were made in the context of a discussion of the hypothetical negotiation. Several of the references were made in Sprint's opening statement. No objection was raised to those remarks as exceeding the limited grounds on which the district court permitted the Vonage evidence to be used. In closing argument, Sprint's counsel again referred to the Vonage verdict as it bore on the hypothetical negotiation issue and on the issue of willfulness, as the district court had permitted. Having examined each of counsel's references to the prior verdict, as well as the evidence regarding the Vonage verdict that was introduced at trial, we are satisfied that counsel did not make improper or inflammatory use of the Vonage evidence, and that the district court did not commit reversible error in failing to strike that evidence or prohibit it from being offered for any purpose.

B. The Damages Award

The jury assessed damages against Time Warner in the amount of \$1.37 per VoIP subscriber per month. Time Warner complains that the district court erred in several respects in handling the issue of damages.

First, Time Warner contends that, for the same reasons that Time Warner objected to the admission of evidence of the Vonage verdict, the damages award should be overturned because Sprint's damages expert relied on that verdict in calculating a reasonable royalty.

In addition to the previously raised objections to the admission of evidence of the Vonage verdict, Time Warner argues that the use of the Vonage verdict in the expert's damages calculation was improper because the Vonage verdict was legally flawed. Time Warner argues that Sprint's expert in the Vonage case improperly relied in part on the 25 percent "rule of thumb" that was frequently used in reasonable royalty cases prior to this court's decision in *Uniloc USA, Inc. v. Microsoft Corp.*, 632 F.3d 1292, 1315 (Fed. Cir. 2011), which held that "the 25 percent rule of thumb is a fundamentally flawed tool," and that the Vonage verdict was therefore tainted.

We have already addressed and rejected Time Warner's arguments regarding the impropriety of admitting evidence of the Vonage verdict. As for Time Warner's argument that the Vonage verdict was tainted by the testimony in that case regarding the 25 percent rule, Sprint's expert made clear that he was not relying on that rule in this case, and the jury in the Vonage case did not return a verdict that was

based on the 25 percent rule as the measure of damages.

Both parties' experts explained that the 25 percent rule of thumb had been rejected by economists and courts. And Time Warner cross-examined Sprint's damages expert at length about the 25 percent rule in an effort to demonstrate that the Vonage verdict was tainted by the 25 percent rule and was therefore unreliable. In effect, Time Warner is now arguing that the references to the 25 percent rule in the Vonage case made the verdict in that case per se inadmissible. We disagree. Time Warner had ample opportunity at trial to challenge the reliability of the Vonage verdict on that ground. We conclude that Time Warner has failed to show that the references to the 25 percent rule in the Vonage case had such a demonstrable and substantial effect on that case's verdict as to disqualify the Vonage evidence from consideration by the jury in determining an appropriate damages award in this case.

Time Warner next argues that the Vonage verdict should not have been admitted because the jury in that case awarded a royalty based on all of Vonage's VoIP revenues, without determining which portions of the revenues were attributed to patented technology as opposed to unpatented features. But the fact that the jury in the Vonage case awarded a royalty based on total VoIP revenues does not make that verdict inadmissible; the jury in that case was called on to make a determination as to the appropriate royalty for the patented technology—the same technology at issue in this case—and it did so in the form of a lump sum royalty award. The reasonable royalty award in

the *Vonage* case was based on the jury's determination of the value of the technology that was taken as a result of Vonage's infringement. By operation of the hypothetical negotiation method of calculating damages, the award compensated Sprint for the incremental value of Sprint's technology, not for the value of unpatented features of Vonage's VoIP system.

The evidence showed that the damages award in the Vonage case of \$1.37 per subscriber per month was approximately five percent of Vonage's total VoIP revenues for the infringement period. The jury settled on the same amount for the damages award in this case as in the Vonage case. The Vonage verdict did not stand alone, however. In addition to the Vonage verdict, the jury had before it two licenses from Sprint to other communications companies for the patented technology, both of which were for approximately five percent of the companies' VoIP revenue. The evidence showed that those licenses, like the Vonage verdict, were based on the value of the patented technology and not the value of other aspects of the companies' VoIP technology that were not covered by Sprint's patents.³

Time Warner argues that Sprint's damages case was flawed because Sprint did not apportion the

³ Time Warner contends that each of the other two licenses "covers more than the patents Sprint asserts here," Reply Br. 20, but the testimony from Sprint's expert indicates that those two licenses were for the "same technology" for the "same patents-in-suit" as in the present case. As in the case of the Vonage verdict, while those agreements covered numerous patents, Time Warner has not shown that the additional patents included technology materially different from the technology covered by the patents-in-suit in this case.

damages award to the incremental value that the patented invention added to the end product. *See Ericsson, Inc. v. D-Link Sys., Inc.*, 773 F.3d 1201, 1226 (Fed. Cir. 2014). That argument, however, ignores that the objective of apportionment can be achieved in different ways, one of which is through the determination of an appropriate royalty by application of the so-called *Georgia-Pacific* factors. *See Exmark Mfg. Co. v. Briggs & Stratton Power Grp., LLC*, 879 F.3d 1332, 1349 (Fed. Cir. 2018) (“[T]he standard *Georgia-Pacific* reasonable royalty analysis takes account of the importance of the inventive contribution in determining the royalty rate that would have emerged from the hypothetical negotiation.”) (quoting *AstraZeneca AB v. Apotex Corp.*, 782 F.3d 1324, 1338 (Fed. Cir. 2015)). Such an analysis often considers rates from comparable licenses, and we have explained that “otherwise comparable licenses are not inadmissible solely because they express the royalty rate as a percentage of total revenues, rather than in terms of the smallest salable unit.” *Commonwealth Sc. & Indus. Research Organisation v. Cisco Sys., Inc.*, 809 F.3d 1295, 1303 (Fed. Cir. 2015). The fact that two other licenses were granted for the same technology, together with the Vonage verdict—all of which were for the same royalty rate as the rate utilized in the Vonage case to yield the \$1.37 per VoIP subscriber per month damages assessment—provides strong support for Sprint’s argument that the damages award in this case reflected the incremental value of the inventions and thus satisfied the requirement of apportionment. *See Ericsson*, 773 F.3d at 1227-28 (damages testimony regarding real-world relevant licenses “takes into

account the very types of apportionment principles contemplated in *Garretson* [v. *Clark*, 111 U.S. 120 (1884)].”

Contrary to Time Warner’s contention, the evidence indicates that the jury’s damages award was based on the value of what was taken from Sprint, not the value of unpatented features of Time Warner’s VoIP system. Time Warner did not propose alternative jury instructions on the issue of damages, so the issue is simply whether the evidence was sufficient to support the jury’s award. In light of the Vonage verdict and the other two licenses, as well as testimony from Sprint’s expert as to the cost to Sprint and the benefit to Time Warner from Time Warner’s decision to operate the VoIP system itself rather than contracting that work out to Sprint, the jury had an adequate basis from which to find that damages should be awarded in the amount of \$1.37 per VoIP subscriber per month.

Finally, Sprint introduced evidence from which the jury could conclude that Time Warner did not have available to it any reasonable non-infringing alternatives to Sprint’s patented technology for connecting PSTN networks to IP networks. That factor also bears on the amount of the royalty that a jury could find would emerge from a hypothetical negotiation, as the absence of non-infringing alternatives would strengthen the patentee’s hand in such a negotiation. See *Carnegie Mellon Univ. v. Marvell Tech. Grp., Ltd.*, 807 F.3d 1283, 1304 (Fed. Cir. 2005) (The hypothetical negotiation seeks to determine “what it would have been worth to the defendant, as it saw things at the time, to obtain the

authority to use the patented technology, considering the benefits it would expect to receive from using the technology and the alternatives it might have pursued.”). In light of all the evidence bearing on the damages award, we conclude that the jury’s verdict was supported by sufficient evidence and did not contravene the principles of apportionment set forth by this court.

C. The Written Description Requirement

Time Warner next argues that both the call control patents and the broadband patents were shown to be invalid for failure to satisfy the written description requirement set forth in 35 U.S.C. § 112, ¶ 1 (now 35 U.S.C. § 112(1)). In particular, Time Warner contends that the specifications of each group of patents describe the invention as a method of transmitting signals between a PSTN network and a packet-switched system that employed Asynchronous Transfer Mode (“ATM”) technology, which used virtual circuits. The specifications, Time Warner argues, do not describe the invention as including the transmission of signals from a PSTN network to a packet-switched network using IP technology. According to Time Warner, the references to “broadband” and “packet” in the specifications disclose only ATM systems and not IP systems.

Compliance with the written description requirement presents a question of fact. *Ariad Pharms., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1355 (Fed. Cir. 2010) (en banc). The written description issue was submitted to the jury on instructions that are not objected to on appeal. Through its verdict, the jury found that the written description requirement

was satisfied with respect to both the call control patents and the broadband patents. As to both sets of patents, the issue is therefore whether the evidence at trial was sufficient to satisfy the written description requirement. Because the common specifications for each of the two sets of patents differ significantly, we treat the two invalidity arguments separately.

1. The Call Control Patents

Time Warner acknowledges that the claims of the call control patents cover both ATM and IP communication technology. However, Time Warner contends that the common specification of the call control patents is confined to ATM technology, and that the claims of the call control patents are invalid because, as applied to IP technology, they are not supported by the specification. Sprint responds that the specification is not confined to ATM technology, but is broad enough to cover IP technology as well.

IP technology is not expressly excluded from the call control specification. Instead, the specification refers to “[b]roadband systems, such as Asynchronous Transfer Mode (ATM),” ’561 patent, col. 2, ll. 28-30, a formulation that strongly suggests that the patents are not limited to ATM technology. The specification adds that the network on which the invention operates “could be any type of telecommunications network that operates using network elements, signaling, and connections.” *Id.*, col. 8, ll. 38-43. Importantly, the call control patents disclose means for routing communications between a point on a narrowband network, such as the PSTN, and a point on a broadband network, without specifying whether the point on the broadband network is part of a fixed end-

to-end path for a single call (as in an ATM-based system) or part of a path that is established on a packet-by-packet basis by each separate router (as in an IP-based system). *See* '561 patent, col. 3, ll. 10-20; *id.*, col. 9, line 62, through col. 10, line 39.

Sprint's technical expert, Dr. Stephen Wicker, testified that a person of skill in the art at the time of the application would have understood the use of the term "broadband" to include IP as well as ATM technology. He testified that such a person, reading the common specification of the call control patents, would conclude that the inventor "was clearly thinking about broadband technologies that used routing to individual elements like IP addresses or used connections as in ATM." Dr. Wicker pointed out, for example, that the call control patents state that the communication control processor in the system "processes the signaling and selects at least one network characteristic in response to the signaling. Network characteristics might be network elements, connections, network codes, applications, or control instructions to name a few examples." '561 patent, col. 6, ll. 12-16.

Dr. Wicker explained that the reference to "connections" was a reference to ATM technology, while the reference to "network elements" would encompass IP technology. Those references, according to Dr. Wicker, showed that the call control patents were directed to "something more general in the world of broadband networks than just ATM."

Dr. Wicker focused on the passage from the call control patents' specification that notes that in one embodiment the "selection of a network characteristic

will include the selection of a network code,” and that “network codes are the logical addresses of network elements.” *Id.*, col. 12, ll. 47-56. That passage, he testified, indicates that the specification contemplated the use of IP technology in addition to ATM technology, since IP addresses are the logical addresses of network elements.

Dr. Wicker also pointed to a passage in the call control specification providing that the call control processor may select only network elements and not the connections, and that the elements would select the connections to use. *Id.*, col. 6, line 62, through col. 7, line 9; *see also id.*, col. 7, ll. 22-24 (“The [call control processor] might select all the network elements, a portion of the network elements, or none of the network elements leaving the switches to select the remainder.”); *id.*, col. 15, ll. 32-34. Based on the specification, Dr. Wicker inferred that the inventor was referring to “broadband technologies that used routing to individual elements like IP addresses or used connections as in ATM. He’s looking at both.” In light of the evidence before the jury on the issue, we cannot conclude that Time Warner has shown by clear and convincing evidence that the call control specification lacks an adequate written description to support the asserted claims.

2. The Broadband Patents

The common specification of the broadband patents incorporates the specification of the call control patents by reference. For the reasons explained with respect to the call control patents, the written description in the broadband patents therefore includes IP technology as well as ATM

technology. That is so even though the broadband specification itself is principally focused on the operation of the invention within ATM communication systems.

In addition to noting that the broadband patents incorporate the specification of the call control patents, Dr. Wicker pointed to particular portions of the broadband specification to support his opinion that the broadband specification was not limited to ATM technology with regard to its discussion of the “identifier,” “routing,” and “asynchronous communication” elements. As for the identifier, Dr. Wicker testified that a person of ordinary skill reading the broadband specification would have concluded that the identifier “could be like an IP address pointing to a destination, it could be like a VPI/VCI pair pointing to a virtual connection. [It is] more general than just saying ATM.” The identifier, he concluded, “could cover any broadband identifier,” including an IP address. As for “routing,” Dr. Wicker testified that routing refers to moving packets toward their destination, with “no limitation on how that’s done. . . . [T]he route or routing could be any broadband routing including IP.” As for asynchronous communication, Dr. Wicker testified that a person of skill in the art would understand that term, as used in the broadband specification, “to be more general than just a particular technology. They would understand it in the context of the patents to be a broadband packet switching technology but nothing more specific.” In summary, Dr. Wicker concluded that the broadband specification was not limited to a “fixed path” communication system, such as ATM.

We are not persuaded by Time Warner's argument that the district court's construction of the phrase "interworking unit" renders the broadband patent claims invalid. The district court construed "interworking unit," which appears in all asserted claims of the broadband patents, to mean an "ATM interworking multiplexer." Time Warner argues that because other claim elements, discussed in the paragraph above, are broad enough to encompass technologies other than ATM that are "incongruous with the claimed ATM interworking multiplexer," the claims lack written description support. However, Sprint's expert testified, with a reference to technical literature, that ATM and IP are actually interoperable such that IP datagrams can be transmitted over ATM. Time Warner's expert agreed that it was technically possible to run IP over an ATM network. Based on this testimony, a reasonable jury could reject Time Warner's argument that it would be "nonsensical" to use IP with an "ATM interworking multiplexer."

Although the broadband patents focus on ATM technology, we cannot agree, in light of the record at trial, that Time Warner has met its burden of showing by clear and convincing evidence that the common specification of the broadband patents lacks an adequate written description of claimed subject matter in those patents.

**D. Infringement Of The Broadband Patents
Under The Doctrine Of Equivalents**

Time Warner's final argument is that the evidence was insufficient to support the jury's verdict that the broadband patents were infringed under the doctrine of equivalents. The district court construed

the term “interworking unit” in the broadband patents to mean an “ATM interworking multiplexer.”⁴ Presumably for that reason, the jury found that none of the claims of the broadband patents were directly infringed. However, the jury found that those patents were infringed under the doctrine of equivalents.

At trial, Sprint introduced evidence that Time Warner’s MGX8880 media gateway, which uses an IP card to convert data to IP packets, was interchangeable with an ATM interworking multiplexer, and therefore satisfied the “interworking unit” limitation under the doctrine of equivalents. *See Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 36 (1997) (“The known interchangeability of substitutes for an element of a patent is one of the express objective factors . . . bearing upon whether the accused device is substantially the same as the patented invention.”).

The evidence of interchangeability was sufficient to sustain the jury’s verdict. Dr. Wicker testified that the MGX8880 was designed with interchangeable cards that allowed the medial gateway to handle either ATM or IP packets. The fact that swapping cards was possible and was contemplated by skilled artisans supports the jury’s conclusion that the IP-based system was equivalent to the ATM-based system for purposes of the doctrine of equivalents. *See Interactive Pictures Corp. v. Infinite Pictures, Inc.*, 274 F.3d 1371, 1383-84 (Fed. Cir. 2001).

⁴ On appeal, Time Warner does not challenge the trial court’s construction of the broadband patent claims or the court’s instructions on the doctrine of equivalents.

To be sure, the evidence showed that converting Time Warner's established network from IP to ATM technology would have entailed substantial work and expense. However, the fact that the choice of one of two technologies would be expensive to reverse, once the choice was made and resources were invested in that choice, does not mean that the two competing choices were not equivalent in the first instance. Sprint introduced evidence that at the outset the choice between ATM and IP technology, as related to the invention set forth in the broadband patents, was simply a design choice. That evidence supports the jury's verdict of equivalency.

In addition, Dr. Wicker testified at length regarding how Time Warner's IP system satisfied the function-way-result test for equivalency for each of the asserted broadband claims. *See Sofamor Danek Grp., Inc. v. DePuy-Motech, Inc.*, 74 F.3d 1216, 1221-22 (Fed. Cir. 1996). He explained that the MGX8880 performed the same function as the interworking unit recited in the claims, that it did so in the same way as the claimed unit, and that it achieved the same result.

Based on the evidence of equivalency adduced at trial, we hold that Time Warner has failed to show that the evidence was insufficient to support the jury's verdict.

AFFIRMED

MAYER, *Circuit Judge*, dissenting.

This case involves a remarkable mismatch between the narrow patent disclosures and the exceedingly broad claims. The patents asserted by Sprint Communications Company, L.P. (“Sprint”) are invalid as a matter of law because their specifications provide no written description support for the full breadth of the asserted claims. I therefore respectfully dissent.

The specifications of Sprint’s patents describe ways to address the problems that arise when trying to connect Asynchronous Transfer Mode (“ATM”) systems with the traditional Public Switched Telephone Network (“PSTN”). J.A. 185-88; *see also* J.A. 5166-69. The specifications do not mention Internet Protocol (“IP”) communications or contain any suggestion that methods of establishing interconnections between IP networks and the PSTN are within the scope of the claimed invention.

The common specification of Sprint’s Call Control Patents, U.S. Patent Nos. 6,463,052 and 6,633,561, describes a purportedly novel way of linking ATM networks with the PSTN. It discusses establishing fixed end-to-end communications paths for calls using PSTN circuits and ATM virtual circuits. *See, e.g.*, J.A. 185 (2:28-37), 187 (5:16-21), 190 (12:35-46). It further discloses a “Communication Control Processor,” which interfaces with the switches to set up a fixed end-to-end path for a call. J.A. 187 (5:30), 190 (11:58-12:4); *see also* J.A. 177-180.

Importantly, however, the specification contains no disclosure of IP technology, which operates in a fundamentally different way than ATM technology.

Unlike an ATM network, an IP network does not use circuits or virtual circuits and does not set up a fixed path for a call. *See* J.A. 3872-73, 4414-15. To the contrary, each packet with data for a call is routed using an identifier in the packet known as an “IP address.” *See* J.A. 3872-73. As an expert for Time Warner Cable, Inc. and related parties explained, ATM is “like being on a train track where you have to follow the tracks,” but IP is like “driving a car from Point A to [Point] B, where you’re free to take different roads.” J.A. 4827-28; *see also* J.A. 4413-15. The common specification of the Call Control Patents does not contain any disclosure of IP technology, which is unsurprising given that it is directed to setting up fixed end-to-end communications paths and IP routing does not rely on such paths.

Sprint argues that its “Call Control Patents disclose inventions for routing communications between a point on a narrowband network and a point on a broadband network, without regard for whether the point in a broadband network is part of a fixed path or is established on a call-by-call basis.” Br. of Plaintiff-Appellee at 56. In support, it contends that the common specification of the Call Control Patents “describe[s] a flexible processing system that may select ‘all,’ ‘a portion,’ or ‘none’ of the network elements, as well as ‘all,’ ‘a portion,’ or ‘none’ of the connections, in performing the steps of the claims.” *Id.* (quoting J.A. 188 (7:22-29)). In essence, Sprint argues that the specification does not require the selection of all of the network elements and connections in a communications path. This argument fails. The common specification makes clear that the Communication Control Processor and the switches

will function together to select *all* of the network elements and connections. *See* J.A. 188 (7:20-29) (“One skilled in the art will recognize that the selection process can be distributed among the [Communication Control Processor] and the elements. The [Communication Control Processor] might select all the network elements, a portion of the network elements, or none of the network elements *leaving the switches to select the remainder.*” (emphasis added)). Over and over again, the specification refers to establishing a communications path. *See, e.g.*, J.A. 185 (1:37-46), 186 (3:15-18), 190 (11:35-36). It contains nothing even arguably suggesting that a fixed communications path will not be established, as would be the case if the claimed invention encompassed IP technology.

Like its Call Control Patents, Sprint’s Broadband Patents, U.S. Patent Nos. 6,343,084, 6,473,429, and 6,298,064, lack written description support. The purported invention described in the common specification of the Broadband Patents is an alternative technique for including both PSTN circuits and virtual circuits in the same communications path. *See* J.A. 303-05. The specification’s disclosure makes sense only in the context of ATM technology. The common specification does not disclose any packet identifiers other than ATM VPI/VCI identifiers, any routing other than ATM routing, or any form of asynchronous communication other than ATM. *See* J.A. 242-53. Importantly, moreover, all of the claims of the Broadband Patents, as construed by the district court, require an “ATM interworking multiplexer.” J.A. 352-55. There is no dispute that an ATM interworking multiplexer converts calls between

PSTN and ATM formats, allowing the two types of networks to be bridged. J.A. 3689; *see also* J.A. 3863, 4485-86, 5280-81. Nothing in the common specification suggests or even hints that converting to and from IP or routing over an IP network is within the scope of the claimed invention.

Sprint attempts to salvage the verdict of no invalidity by arguing that the jury was entitled to rely on the testimony of its expert, Dr. Steven Wicker, who stated that the asserted patents met the written description requirement. *See* J.A. 5638-43, 5647-50, 5670-76. This argument is unpersuasive. Wicker's statements were conclusory and unsupported by any persuasive citation to the patent disclosures or other record evidence. *See, e.g., ActiveVideo Networks, Inc. v. Verizon Commc'ns, Inc.*, 694 F.3d 1312, 1327 (Fed. Cir. 2012) (declining to credit expert testimony that "was conclusory and factually unsupported").

Wicker argued that IP networks are within the scope of the claimed invention because there are technologies that can "force" an IP network to set up and use a fixed communications path. *See* J.A. 5738-39, 5651-56. This argument is premised on a misapprehension of the adequate written description requirement. The salient question "is whether the disclosure . . . reasonably conveys to those skilled in the art that the inventor had possession of the claimed subject matter as of the filing date," *Ariad Pharm., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010) (en banc), not whether an undisclosed technology can be "forced" to operate within the disclosed system. *See Lockwood v. Am. Airlines, Inc.*, 107 F.3d 1565, 1572 (Fed. Cir. 1997) ("It is not

sufficient for purposes of the written description requirement of § 112 that the disclosure, when combined with the knowledge in the art, would lead one to speculate as to [the] modifications that the inventor might have envisioned, but failed to disclose.”).

“[T]he purpose of the written description requirement is to ensure that the scope of the right to exclude, as set forth in the claims, does not overreach the scope of the inventor’s contribution to the field of art as described in the patent specification.” *Ariad*, 598 F.3d at 1353-54 (citations and internal quotation marks omitted). Sprint overreaches here. It seeks broad monopoly rights over interconnections between narrowband and broadband networks. Nothing in the patent specifications, however, is sufficient to sweep non-path technologies like IP within the scope of the claimed invention. *See Gentry Gallery, Inc. v. Berkline Corp.*, 134 F.3d 1473, 1480 (Fed. Cir. 1998) (explaining that “claims may be no broader than the supporting disclosure”). I would reverse.

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Appendix C

**UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT**

No. 17-2247

SPRINT COMMUNICATIONS COMPANY, L.P.,
Plaintiff-Appellee,

v.

TIME WARNER CABLE, INC., TIME WARNER
CABLE, LLC, TIME WARNER ENTERTAINMENT CO., L.P.,
TIME WARNER ENTERTAINMENT-ADVANCE/NEWHOUSE
PARTNERSHIP, TWC COMMUNICATIONS, LLC,
TIME WARNER CABLE INFORMATION
SERVICES (KANSAS), LLC,
Defendants-Appellants.

Mar. 18, 2019

Before Prost, *Chief Judge*, Newman, Lourie, Dyk,
O'Malley, Reyna, Wallach, Taranto, Chen, and
Hughes, *Circuit Judges*.*

ON PETITION FOR REHEARING EN BANC

ORDER

* Circuit Judges Moore and Stoll did not participate.

Per Curiam.

Appellants Time Warner Cable Information Services (Kansas), LLC, Time Warner Cable, Inc., Time Warner Cable, LLC, Time Warner Entertainment Company, L.P., Time Warner Entertainment-Advance/Newhouse Partnership and TWC Communications, LLC filed a petition for rehearing en banc. A response to the petition was invited by the court and filed by Appellee Sprint Communications Company, L.P. The petition was first referred to the panel that heard the appeal. The panel denied the petition except as described in the accompanying panel order.

Upon consideration thereof,

IT IS ORDERED THAT:

- (1) The petition for rehearing en banc is denied.
- (2) The mandate of this court will issue on April 24, 2019.

March 18, 2019
Date

FOR THE COURT
/s/ Peter R. Marksteiner
Peter R. Marksteiner
Clerk of Court

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Appendix D

**UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT**

No. 17-2247

SPRINT COMMUNICATIONS COMPANY, L.P.,
Plaintiff-Appellee,

v.

TIME WARNER CABLE, INC., TIME WARNER
CABLE, LLC, TIME WARNER ENTERTAINMENT CO., L.P.,
TIME WARNER ENTERTAINMENT-ADVANCE/NEWHOUSE
PARTNERSHIP, TWC COMMUNICATIONS, LLC,
TIME WARNER CABLE INFORMATION
SERVICES (KANSAS), LLC,
Defendants-Appellants.

Mar. 18, 2019

Before Chen, Mayer, and Bryson, *Circuit Judges.*

ON PETITION FOR PANEL REHEARING

ORDER

Per Curiam.

Appellants Time Warner Cable Information
Services (Kansas), LLC, Time Warner Cable, Inc.,
Time Warner Cable, LLC, Time Warner

Entertainment Company, L.P., Time Warner Entertainment-Advance/Newhouse Partnership and TWC Communications, LLC filed a petition for rehearing en banc. A response to the petition was invited by the court and filed by Appellee Sprint Communications Company, L.P. The petition was first referred to the panel.

Upon consideration thereof,

IT IS ORDERED THAT:

- (1) The petition for panel rehearing is denied except as described in paragraph (2) below.
- (2) The previous nonprecedential opinion and judgment in this appeal, issued November 30, 2018, are withdrawn and replaced with the modified nonprecedential opinion and judgment accompanying this order.

FOR THE COURT

March 18, 2019

Date

/s/ Peter R. Marksteiner

Peter R. Marksteiner

Clerk of Court

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Appendix E

**UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF KANSAS**

No. 11-2686

SPRINT COMMUNICATIONS COMPANY, L.P.,
Plaintiff,

v.

TIME WARNER CABLE, INC., et al.,
Defendants.

Decided: May 30, 2017

MEMORANDUM AND ORDER

This patent infringement case was tried to a jury in this Court from February 13, 2017, through March 3, 2017. By its verdict, the jury found the following: that Time Warner Cable¹ infringed each of the asserted claims of the five Sprint patents at issue; that none of those claims is invalid; that Sprint proved reasonable royalty damages in the amount of \$139,800,000; and that Time Warner Cable's infringement was willful. By Memorandum and Order of March 14, 2017, the Court issued findings of fact and conclusions of law, by which it rejected Time

¹ The Court refers to plaintiff as "Sprint" and to defendants collectively as "Time Warner Cable."

Warner Cable's equitable defenses and denied Sprint's claim for enhanced damages. *See Sprint Communications Co. L.P. v. Time Warner Cable, Inc.*, 2017 WL 978107 (D. Kan. Mar. 14, 2017) (Lungstrum, J.). Also on March 14, 2017, the Court entered judgment in Sprint's favor in the amount of the jury verdict (plus postjudgment interest and costs).

This matter presently comes before the Court on Time Warner Cable's posttrial motion for judgment as a matter of law pursuant to Fed. R. Civ. P. 50(b) (Doc. # 485). For the reasons set forth below, the Court **denies** the motion.²

This matter also comes before the Court on Sprint's motion for an amendment of the judgment, pursuant to Fed. R. Civ. P. 59, to add an award of prejudgment interest (Doc. # 483). The Court **grants** the motion in part, and it awards Sprint prejudgment interest in the amount of \$6,183,548.00. The Court will issue an amended judgment accordingly.

I. Time Warner Cable's Motion for Judgment as a Matter of Law

A. Governing Standard

Judgment as a matter of law under Fed. R. Civ. P. 50(b) is improper "unless the proof is all one way or so overwhelmingly preponderant in favor of the movant

² By the same filing, Time Warner Cable has also moved in the alternative for a new trial pursuant to Fed. R. Civ. P. 59(a) with respect to the issues of damages, infringement, and invalidity. Time Warner Cable has not identified any trial error, however, or asserted any separate basis for a new trial with respect to any issue. The Court therefore summarily denies the alternative motion for a new trial.

as to permit no other rational conclusion.” See *Crumpacker v. Kansas Dept. of Human Resources*, 474 F.3d 747, 751 (10th Cir. 2007). In determining whether judgment as a matter of law is proper, a court may not weigh the evidence, consider the credibility of witnesses, or substitute its judgment for that of the jury. See *Sims v. Great American Life Ins. Co.*, 469 F.3d 870, 891 (10th Cir. 2006). In essence, a court must affirm a jury verdict if, viewing the record in the light most favorable to the nonmoving party, the record contains evidence upon which the jury could properly return a verdict for the nonmoving party. See *Bartee v. Michelin North America, Inc.*, 374 F.3d 906, 914 (10th Cir. 2004). Conversely, the court must enter judgment as a matter of law in favor of the moving party if “there is no legally sufficient evidentiary basis for a reasonable jury to find for the issue against that party.” See *Sims*, 469 F.3d at 891.

B. Damages

1. Time Warner Cable requests judgment as a matter of law on Sprint’s claim for damages. Time Warner Cable renews the “Catch-22” argument that it made in motions at the close of Sprint’s case and after the submission of all evidence. The argument proceeds as follows: Sprint presented evidence of a reasonable royalty only through its damages expert, Dr. Mohan Rao. Dr. Rao declined to apportion damages among the patents at issue, based on his assumption (from Sprint’s technical expert, Dr. Stephen Wicker) that the patents were “blocking patents,” meaning that any VoIP-PSTN connection would infringe at least one of Sprint’s patents. Thus, Sprint was required to prove the assumption that the patents were blocking

patents. If there was no such evidence, then there was no basis for Dr. Rao's royalty opinion, and Sprint's damages claim must fail. If, on the other hand, Sprint's patents *were* blocking patents, then Time Warner Cable must also have infringed prior to the accused Go-It-Alone system, which was launched in 2010. In that case, in which Time Warner Cable infringed going back as far as 2003, 2010 would not be an appropriate date for the hypothetical license negotiation that informs the royalty determination. Dr. Rao considered only a 2010 hypothetical negotiation; thus, if the use of that date was improper, Dr. Rao would have no royalty opinion. Either way, argues Time Warner Cable, Dr. Rao's royalty opinion lacks support.

The Court concludes, however, that there is no Catch-22 here as argued by Time Warner Cable. The issue is whether there was sufficient evidence to support Dr. Rao's assumption of blocking patents. In its answer to a special verdict interrogatory, the jury found that Sprint had proved that the appropriate date for the hypothetical negotiation was 2010. The jury had been instructed (in an instruction that Time Warner Cable has not challenged) that "[a] reasonable royalty is the amount of royalty payment that [the parties] would have agreed to in a hypothetical negotiation taking place at a time prior to when the infringing use first began." As the Court has previously noted, if the prior infringement was by a different product, the date of the hypothetical negotiation date would be at the start of the present infringement and not at the start of the prior infringement. *See Sprint Communications Co. L.P. v. Comcast Cable Communications LLC*, 2016 WL

7079522, at *14 (D. Kan. Dec. 5, 2016) (Lungstrum, J.) (hereafter *Daubert Order*) (citing *Fujifilm Corp. v. Motorola Mobility LLC*, 2015 WL 1265009, at *3 (N.D. Cal. Mar. 19, 2015)). Time Warner Cable has not challenged the jury's finding that 2010 was the appropriate negotiation date. Moreover, that finding is supported by evidence that Time Warner Cable's Go-It-Alone product was a distinct product launched in 2010 that used differed equipment or architecture. Thus, the fact that the jury found 2010 to be the appropriate date for the hypothetical negotiation does not mean that Time Warner Cable's pre-2010 activities did or did not infringe Sprint's patents. Indeed, as the Court noted at trial, there is no competent evidence from which the jury could have made such a determination, as neither party's expert offered such an opinion concerning Time Warner Cable's pre-2010 products. Accordingly, the jury's finding and Dr. Rao's use of a 2010 date does not mean that the patents could not be blocking patents, which in turn means that Sprint's positions are not irreconcilable and there is no Catch-22.

Addressing the relevant question, the Court concludes that there was evidence presented at trial to support Dr. Rao's assumption that Sprint's patents were blocking patents. As noted above, Dr. Rao relied on Dr. Wicker for that assumption, and Dr. Wicker testified that there were no non-infringing alternatives for Time Warner Cable's system in 2010. Time Warner Cable argues that Dr. Wicker did not testify that there were *no* non-infringing alternatives, but that he addressed only particular alternatives proposed by Time Warner Cable's experts in discovery. At the conclusion of that testimony, however, Dr.

Wicker testified that he did not find any acceptable non-infringing alternatives “in general.” Viewed in the light most favorable to Sprint, the non-moving party, this testimony provides evidence that there were no non-infringing alternatives. Time Warner Cable argues that Dr. Wicker failed to consider Time Warner Cable’s pre-2010 systems as alternatives, but Time Warner Cable was free to raise that issue in cross-examining Dr. Wicker or through its own expert, and it did neither. Thus, Dr. Wicker’s testimony that there were no non-infringing alternatives stood unrebutted. Moreover, under Time Warner Cable’s central argument, those pre-2010 activities also infringed and thus they would not have been non-infringing alternatives.

Time Warner Cable also argues that the lack of non-infringing alternatives does not mean that the patents were blocking patents as assumed by Dr. Rao. Time Warner Cable argues that the standard for non-infringing alternatives is narrower, in that such alternatives must be available and acceptable. In fact, the jury was instructed (in an instruction not challenged by Time Warner Cable) that it could consider evidence concerning the availability of a non-infringing alternative, which must be an acceptable product (with no mention of availability). A reasonable interpretation of blocking patents as used by Dr. Rao would be that any acceptable product would infringe Sprint’s patents. Thus, considered in the light most favorable to Sprint, the evidence was sufficient to allow the jury to find reasonably that Dr. Rao’s assumption had been proved and thus to accept Dr. Rao’s royalty opinion. The Court therefore denies

Time Warner Cable's motion for judgment on this basis.

2. Time Warner Cable also renews its argument—which the Court has repeatedly rejected—that Dr. Rao's royalty opinion was improper and represented “junk science” because it was based on the verdict in the *Vonage* case, in which Sprint's damages expert employed a 25-percent rule that the Federal Circuit has since ruled unreliable. As the Court has previously explained, Dr. Rao did not use the 25-percent rule in forming his royalty opinion in this case; in *Vonage*, the jury heard different damages opinions, and it did not find damages in accord with the opinion of Sprint's damages expert; and the verdict represents a piece of information that the parties might have considered in a hypothetical license negotiation. *See, e.g., Daubert Order*, 2016 WL 7079522, at *9-10. Time Warner Cable has not provided authority that suggests that the verdict could not be used here. Nor has Time Warner Cable addressed the Court's reasoning in consistently rejecting this argument. Therefore, the Court rejects this argument once again, and it denies the motion for judgment on this basis.

3. Finally, in a footnote, Time Warner Cable reasserts various failed arguments from its *Daubert* motion and its motions in limine. Time Warner Cable has not provided any basis for reconsideration of those earlier rulings, however (the footnote is devoid of argument), and therefore the Court summarily denies any such request for relief.

C. Infringement

Time Warner Cable moves for judgment as a matter of law on Sprint's claims for patent

infringement. The jury found that Time Warner Cable infringed five Sprint patents. Time Warner Cable argues that Sprint failed in its proof with respect to nine particular claim limitations, which the Court addresses in turn.

1. Time Warner Cable asserts that Sprint failed to prove satisfaction of the “in response to” limitation found in four of the patents. In general, that limitation requires conversion or transfer of a voice communication “in response to” receiving a particular message. Time Warner Cable essentially argues that the conversion or transfer in its system is not “in response to” the receipt of the message because other steps are required after receipt for the conversion or transfer to occur. The Court rejects this argument.

In its claim construction order, the Court rejected Time Warner Cable’s proposed construction that would require the action taken “in response to” something be taken immediately; it noted that the term requires only some concept of causation, not immediacy; and it declined to construe the term. *See Sprint Communications Co. L.P. v. Comcast Cable Communications LLC*, 2014 WL 5089402, at *25 (D. Kan. Oct. 9, 2014) (Lungstrum, J.) (hereafter *Markman Order*). Thus, there is no additional limitation requiring that the conversion or transfer be “in response to” the receipt of the message without any intervening steps or without any additional causes. Under the plain meaning of the term, the conversion or transfer could be “in response to” the receipt of the message even if other steps are also required for that conversion or transfer. Dr. Wicker provided specific testimony that this limitation as found in the four

patents was satisfied by the accused system, and that testimony must be credited for purposes of this motion and provides a sufficient basis for the jury's verdict.

2. Time Warner Cable asserts that Sprint failed to prove satisfaction of the "asynchronous communication" term in three patents. In the claim construction process, the Court was not asked to construe this term; and in declining to construe the term "asynchronous communication system," the Court noted that the plain meaning of "asynchronous communication" was a communication in which the transmitting and receiving devices do not share a common clock. *See Markman Order*, 2014 WL 5089402, at *20. At trial, Sprint provided sufficient evidence that this term was satisfied in the accused system, as Dr. Wicker testified that the relevant communications were asynchronous because there was no strict timing relationship in Time Warner Cable's managed IP network.³

Time Warner Cable argues that the communications were not asynchronous because they also passed through the DOCSIS network in Time Warner Cable's system, which network used shared clocks. That argument goes to the weight of Dr. Wicker's opinion only. Time Warner Cable did make that argument at trial, but the jury rejected it by its verdict. The Court cannot conclude as a matter of law

³ The Court rejects Time Warner Cable's argument, raised in its reply brief, that this testimony by Dr. Wicker was merely conclusory. Dr. Wicker did not simply opine at trial that this limitation was satisfied; rather, he explained what asynchronous communications were and why Time Warner Cable's system included such communications.

that this limitation was not satisfied, as Sprint did provide evidence to the contrary. Accordingly, the Court rejects this argument for judgment as a matter of law.

3. Time Warner Cable asserts that Sprint failed to prove satisfaction of the “processing . . . to select” limitation in three patents. In its claim construction order, the Court rejected Time Warner Cable’s proposed limitation that would have required the processing element actually to make the selection, and it instead construed this term to mean “processing . . . to participate in the selecting.” See *Markman Order*, 2014 WL 5089402, at *14-15. Time Warner Cable now argues that other elements, not the processing element, actually make the selection of the network code or identifier in the accused system. Time Warner Cable has not explained, however, why the processing element does not *participate* in the selecting, in accordance with the Court’s construction. Sprint offered evidence, in the form of testimony by Dr. Wicker, that this limitation was satisfied in Time Warner Cable’s system. Thus, the Court rejects this argument for judgment as a matter of law.⁴

4. Time Warner Cable asserts that Sprint failed to prove satisfaction of the “interworking unit” limitation

⁴ Time Warner Cable does not raise the issue as a separate non-infringement argument in its brief, but it argues in a footnote that the selected “network code” must include a port number and not merely an IP address. Time Warner Cable argues that Sprint failed to present evidence on that “claim limitation.” The claims do not limit “network code” in that way, however, and the Court was not asked to construe “network code” in that manner either at the claim construction stage or at trial. Thus, Sprint was not required to prove satisfaction of any such proposed limitation.

found in three patents, which the Court construed to mean an “ATM interworking multiplexer.” *See id.* at *15-17. The jury found that the relevant claims were not literally infringed but were infringed under the doctrine of equivalents. The Court instructed the jury with respect to equivalence as follows:

You may find that an element or step is equivalent to a requirement of a claim that is not met literally if a person having ordinary skill in the field of technology of the patent would have considered the differences between them to be “insubstantial” or would have found that the structure or action: (1) performs substantially the same function and (2) works in substantially the same way (3) to achieve substantially the same result as the requirement of the claim.

The known interchangeability of substitutes for an element of a patent claim also is a factor that bears upon whether an accused structure or action is substantially the same as the claimed structure or action. In order for the structure or action to be considered interchangeable, the structure or action must have been known at the time of the alleged infringement to a person having ordinary skill in the field of technology of the patent.

Time Warner Cable argues that Sprint did not present sufficient evidence that the accused media gateway was equivalent to an ATM interworking multiplexer. The Court disagrees. First, Dr. Wicker testified that the gateway satisfied the function-way-result test referenced in the instruction. The Court does not agree

with Time Warner Cable that that testimony was impermissibly conclusory, as Dr. Wicker explained why he believed the two devices' functions and results were identical and the ways were not substantially different. Dr. Wicker also testified that there was known interchangeability because different cards could be swapped into the gateway. Time Warner Cable cites its own contrary evidence concerning the cards, but that dispute was properly addressed to the jury, which found equivalence here. The Court concludes that Sprint's evidence on this issue was sufficient, and it therefore denies this basis for judgment as a matter of law.

5. Time Warner Cable asserts that Sprint failed to prove satisfaction of the "identifier" term in two patents. Time Warner Cable argues that the identifiers here must be VPI/VCI connections and that Sprint has not shown that the accused system had ATM identifiers. The Court rejects this argument, as the Court did not construe this term to add such a limitation. Time Warner Cable repeats its argument that because ATM technology is required by the claims (by virtue of the "interworking unit" construction), other elements must be ATM as well. In its claim construction order, the Court explained why it refused to construe "identifier" (which term is generally absent from the patents' specification) to add such a limitation. *See id.* at *18. The Court again rejected this argument at the summary judgment stage, as follows:

Thus, under the Court's constructions, the scope of the claims match the patents' specifications, as a term is limited to ATM technology only if the specification has done

so. The specification does not make clear that the inventions are limited to ATM technology, other than by limiting the inventions to the use of an ATM interworking multiplexer.

See Sprint Communications Co. L.P. v. Comcast Cable Communications LLC, 2016 WL 7052055, at *4 (D. Kan. Dec. 5, 2016) (Lungstrum, J.) (hereafter *Summary Judgment Order*). Thus, the fact that Sprint did not prove satisfaction of an additional limitation contrary to the Court's claim constructions does not provide a basis for judgment for Time Warner Cable.

6. Time Warner Cable asserts that Sprint failed to prove satisfaction of the "narrowband system" limitation in two patents. Time Warner Cable argues that the pertinent signaling passes through a Syniverse device, which is not a narrowband system. Dr. Wicker specifically addressed and rejected this argument at trial, however, as did the jury in finding for Sprint. Dr. Wicker's testimony is sufficient to support the jury's verdict with respect to this issue.

7. Time Warner Cable asserts that Sprint failed to prove satisfaction of the "egress" limitation in two patents. The relevant claims refer to the user communication's egress "from the packet communication system." With respect to this limitation, Time Warner Cable argues that Sprint has failed to show that the communication egresses to another network. Time Warner Cable cites the patents' specification for that requirement of egress to another network. The patent claims contain no such requirement, however, and it is too late for Time Warner Cable propose a new construction based on the specification. Time Warner Cable failed to propose

such a construction at the claim construction stage or at trial, and thus Sprint was not required to show satisfaction of any additional limitation. The Court therefore rejects this basis for judgment argued by Time Warner Cable.

8. Time Warner Cable asserts that Sprint failed to prove satisfaction of the '064 Patent's step of "converting the asynchronous communication into a user communication." Time Warner Cable argues that Sprint has failed to show a conversion from something that was not a user communication to something that was. Dr. Wicker testified, however, that in the accused system IP packets (the asynchronous communications) are converted into TDM (a form for the PSTN) (the user communication). That testimony is sufficient to meet the plain language of the claim, and the Court therefore rejects this argument for judgment.

9. Time Warner Cable asserts that Sprint failed to prove satisfaction of the limitation in the two patents requiring transfer to the packet communication system (PCS). Time Warner Cable argues that because the transferring element is contained within the PCS, there can be no transfer *to* the PCS. Time Warner Cable made the same argument at the claim construction stage. In its ruling at that time, the Court, in construing the terms "transmitting", "receiving", and "transferring", declined to impose a limitation that would prohibit one of the two elements involved in the transfer from being part of the other. *See Markman Order*, 2014 WL 5089402, at *27-28. In so ruling, the Court noted that the relevant specification did not support such a limitation, as the

specification indicated that the processing system (the transferring element) could be integrated into the packet-based network (the receiving element). *See id.* at *28. Time Warner Cable has not addressed that language from the specification in arguing again that the transferring element cannot be part of the receiving element. Moreover, the Court further stated in its claim construction ruling that it could not impose the limitation urged by Time Warner Cable without a specific argument based on the particular transferring and receiving elements. *See id.* Although Comcast made such a specific argument in another case with respect to a different patent at the summary judgment stage, Time Warner Cable did not do so with respect to these two patents in this case prior to or at trial. Accordingly, the Court confirms its prior ruling that, under their plain language, these patent claims do not include the additional limitation urged by Time Warner Cable, and the Court therefore rejects this argument for judgment as a matter of law.

D. Invalidity – Written Description Requirement

At trial, Time Warner Cable asserted that each patent claim at issue was invalid for failure to satisfy the written description requirement of 35 U.S.C. § 112. With respect to each claim, the jury found that Time Warner Cable had failed to meet its burden to show such invalidity by clear and convincing evidence. Time Warner Cable now argues that it is entitled to judgment as a matter of law on this invalidity defense.

1. Time Warner Cable argues that the so-called Call Control Patents (the '561 Patent and the '052 Patent) are invalid because the relevant specification

discloses an ATM switch that did not exist at the time of the patent applications. During trial, the Court excluded testimony from one witness relating to the existence of such a switch, but Time Warner Cable's technical expert, Dr. Paul Min, was subsequently permitted to testify that such a switch did not exist and that the inventor therefore did not possess his invention as required.

The Court rejects this argument. Time Warner Cable has not cited any authority indicating that a patent is invalid if something disclosed in the specification did not exist. Rather, the authority on which Time Warner Cable relies indicates that the specification must show possession of the invention claimed in the patent. *See, e.g., Novozymes A/S v. DuPont Nutrition Biosciences APS*, 723 F.3d 1336, 1344 (Fed. Cir. 2013). As the Court pointed out in its ruling excluding testimony from one fact witness, the patent claims here do not require the use of an ATM switch. Thus, the fact that no such switch existed is not dispositive.

Time Warner Cable argues in its reply that the claims do require a packet communication system and that the only disclosed embodiment of such a system in the specification uses an ATM switch. Again, however, Time Warner Cable has not supported that argument with relevant authority. At trial, the Court instructed the jury on the relevant law as follows:

A patent must contain a written description of the system or method claimed in the patent. In order to satisfy the written description requirement, the patent specification must describe each and every

limitation of a patent claim, although the exact words found in the claim need not be used.

The written description requirement is satisfied if a person of ordinary skill in the field, reading the patent application as originally filed, would recognize that the patent application described the invention as finally claimed in the patent.

The written description requirement may be satisfied by any combination of the words, structures, figures, diagrams, formulas, etc., contained in the patent application. The full scope of a claim or any particular requirement in a claim need not be expressly disclosed in the original patent application if a person having ordinary skill in the field of technology of the patent at the time of filing would have understood that the full scope or missing requirement is in the written description in the patent application. The specification need not describe in detail all possible examples to satisfy the written description requirement.

Time Warner Cable has not argued that the Court erred in giving this instruction. Thus, the jury was properly instructed that the full scope of the claim need not be expressly disclosed in the specification, so long as a person skilled in the art would have understood the scope of the claim. Nor must the specification describe all possible examples. Therefore, the fact that the embodiments do not include a system without an ATM switch is not

dispositive and does not require judgment as a matter of law in Time Warner Cable's favor.⁵

2. Time Warner Cable next argues that the Call Control Patents should be deemed invalid as a matter of law because, although the patent claims are broad enough to cover an IP network without fixed end-to-end paths or separate signaling networks, the specification does not describe such an IP network. The Court rejects this argument as well. Time Warner Cable bore the burden to prove this defense by clear and convincing evidence, and the jury was entitled to reject this defense. Sprint cross-examined Dr. Min at some length, and the jury was entitled not to credit his expert testimony. Moreover, Dr. Wicker addressed and refuted these specific opinions by Dr. Min, and such evidence is sufficient to support the jury's decision to reject this defense.

Time Warner Cable is essentially arguing that the specification had to disclose and describe all possibilities covered by the patent claims, but it has not cited any authority suggesting that the written description requirement must be applied in that way. Rather, under the law as explained to the jury, the specification must describe the invention claimed by the inventor, and the issue is whether one skilled in the art would recognize that the invention as claimed has been described. At trial, the parties offered contrary expert opinions, as Dr. Wicker testified that one skilled in the art would recognize from the

⁵ Dr. Min did make this argument concerning the non-existence of the ATM switch, but the jury was not required to credit that testimony (and it rejected that testimony by finding against Time Warner Cable).

specification that the claimed invention was not limited to the use of a fixed end-to-end path or the use of a separate signaling network. A reasonable jury could have credited that testimony over Dr. Min's opinions. Therefore, the Court denies the motion for judgment as a matter of law on the issue of the written description requirement as applied to the Call Control Patents.

3. Time Warner Cable also argues as a matter of law that the so-called Broadband Patents (the '064 Patent, the '084 Patent, and the '429 Patent) are invalid for failure to satisfy the written description requirement. Time Warner Cable notes that under the Court's claim constructions, the elements of "identifier", "routing", and "asynchronous communication" are not limited to ATM, and it argues that the specification discloses only ATM examples for those elements. The Court rejects this argument. Again, as the jury was instructed, the specification need not describe every possible covered example, as long as one skilled in the art would recognize from the specification that the invention is not so limited. Sprint did present evidence on this issue that supports the jury's decision to reject this defense, as Dr. Wicker testified that one skilled in the art would understand that those elements are not limited to ATM.

Time Warner Cable argues that Sprint has improperly relied on the Broadband Patent specification's incorporation of the Call Control Patent specification. The cases cited by Time Warner Cable, however, do not prohibit such incorporation of one specification by another. Rather, the requirement is that the incorporating document identify clearly the

particular material incorporated. *See Hollmer v. Harari*, 681 F.3d 1351, 1357 (Fed. Cir. 2012). With respect to the written description requirement, the question of incorporation is viewed from the position of one skilled in the art. *See id.* As conceded by Time Warner Cable, the Broadband specification explicitly incorporates the Call Control specification. Moreover, both Dr. Min and Dr. Wicker testified to such incorporation. Thus, there is no basis to preclude consideration of the Call Control specification in determining the validity of the Broadband Patents.

Time Warner Cable notes that the Court sustained an objection at trial to testimony by Dr. Wicker concerning his reliance on the incorporation of the Call Control specification. In that instance, the Court excluded one piece of testimony because that particular opinion had not been disclosed in Dr. Wicker's expert reports. The Court did not strike any other testimony, however, in which Dr. Wicker had offered opinions without objection. Indeed, prior to the one objection made by Time Warner Cable, Dr. Wicker had testified without objection about how, in light of the incorporation, both specifications could be considered in determining the Broadband Patents' satisfaction of the written description requirement. Dr. Min also conceded on cross-examination, without objection by Time Warner Cable, that both specifications applied to the Broadband Patents. Thus, despite the Court's sustaining one objection, there was still sufficient evidence admitted at trial, including Dr. Wicker's testimony that both specifications generally were not limited to ATM, to support the jury's rejection of this argument by Time Warner Cable.

Finally, even if Dr. Wicker had been prohibited from relying on the Call Control specification, the result would not change, as Dr. Wicker specifically testified that the Broadband specification was not limited to ATM for these three particular elements.

Accordingly, Time Warner Cable is not entitled to judgment as a matter of law simply because the Broadband specification shows ATM versions of these elements. As the Court has ruled repeatedly, because the specification limits the invention to ATM only with respect to the interworking unit, other elements are not construed as limited to ATM. Thus, the jury's implicit finding that the specification does not limit those elements to ATM is consistent and reasonable. Ultimately, Time Warner Cable's defense presented a question of fact concerning how one skilled in the art would have understood the specification. Dr. Min's opinions on that question were challenged in cross-examination and in Dr. Wicker's contrary testimony, and the jury was entitled to reject Dr. Min's testimony and find that Time Warner Cable had not sustained its heightened burden of proof. The Court therefore denies the motion for judgment as a matter of law on this defense as applied to the Broadband Patents.

E. Invalidity – Anticipation or Obviousness

At trial, Time Warner Cable asserted that each patent claim at issue was invalid as obvious in light of two pieces of prior art, and it further asserted that most of the patent claims were invalid as anticipated in light of one of those pieces of prior art. The jury found in favor of Sprint on each of those assertions. In rather cursory fashion (in less than one page in its initial brief), Time Warner Cable now seeks judgment

as a matter of law on those invalidity defenses, arguing that no reasonable jury could have found in favor of Sprint. The Court rejects that argument. Time Warner Cable concedes that it had the burden at trial to prove these invalidity defenses by clear and convincing evidence. Time Warner Cable points to its own evidence on these issues, but that evidence was not un rebutted, as Dr. Wicker testified at some length that the disclosures in the asserted prior art were insufficient.⁶ In light of that evidence, the Court concludes that the jury could reasonably have found that Time Warner Cable failed to sustain its heightened burden of proof on these issues.

F. Willfulness

Finally, Time Warner Cable moves for judgment as a matter of law with respect to the issue of willfulness, which the jury found in Sprint's favor. Time Warner Cable has not explained why the Court should address this issue, however, which has become moot in light of the Court's denial of Sprint's claim for enhanced damages. *See Presidio Components, Inc. v. American Tech. Ceramics Corp.*, 2016 WL 4377096, at *10 (S.D. Cal. Aug. 17, 2016) (noting that the defendant's posttrial motion for judgment as a matter of law on the issue of willfulness was essentially moot

⁶ In its brief, Time Warner Cable argues that Dr. Wicker offered only conclusory testimony to contradict its own expert, but to support that argument Time Warner Cable cites only two pages of Dr. Wicker's testimony on cross-examination, while failing to address Dr. Wicker's direct testimony, over many pages, in rebuttal to Time Warner Cable's expert. Time Warner Cable's argument that Dr. Wicker's testimony is merely conclusory is entirely meritless.

in light of the court's decision not to award enhanced damages), *appeal filed* (Fed. Cir. Aug. 17, 2016).

Moreover, sufficient evidence of willful infringement was presented at trial. With respect to willfulness, the Court instructed the jury in relevant part as follows:

In order to prove willful infringement, Sprint must prove, by a preponderance of the evidence, that Time Warner Cable knew or believed, or it was so obvious that it should have known, that there was a high likelihood that it was infringing a valid patent. In making that determination, you should consider all facts relating to Time Warner Cable's knowledge at the time it performed acts of infringement.

With respect to this question of willfulness, you are instructed that, under the law, Time Warner Cable had no duty to obtain any opinions of counsel.⁷

As discussed above, sufficient evidence supports the jury's findings of infringement and validity. The jury also heard evidence that Time Warner Cable was aware of Sprint's patents. For instance, as noted by the Court in its posttrial findings and conclusions, Sprint presented credible evidence that the parties discussed Sprint's patents, that Time Warner Cable

⁷ In a footnote in its brief, Time Warner Cable repeats the objection that it made at trial to this instruction. Time Warner Cable has not moved for a new trial on the issue of willfulness, however—likely because the Court denied the claim for enhanced damages. Thus, the Court need not repeat its reasoning in giving this instruction.

monitored Sprint's infringement suit against Vonage, and that Time Warner Cable subsequently investigated Sprint's patents. *See Sprint v. Time Warner Cable*, 2017 WL 978107, at *4-7. Thus, the jury reasonably could have found that Time Warner Cable should have known of a high likelihood that it was infringing a valid patent. *See i4i Ltd. Partnership v. Microsoft Corp.*, 598 F.3d 831, 860 (Fed. Cir. 2010) (evidence that the defendant knew about the patent and the plaintiff's product that practiced the patent supported the jury's finding on this *Seagate* prong), *aff'd on other grounds*, 564 U.S. 91 (2011). Accordingly, the Court denies the motion for judgment as a matter of law on the issue of willfulness.

II. Sprint's Motion for Prejudgment Interest

Sprint moves to amend the judgment pursuant to Fed. R. Civ. P. 59(e) to add an award of prejudgment interest. 28 U.S.C. § 284 provides that a court should award damages for patent infringement "together with interest and costs as fixed by the court." *See id.* The Supreme Court has set forth the relevant standard:

The standard governing the award of prejudgment interest under § 284 should be consistent with Congress' overriding purpose of affording patent owners complete compensation. In light of that purpose, we conclude that prejudgment interest should ordinarily be awarded. In the typical case an award of prejudgment interest is necessary to ensure that the patent owner is placed in as good a position as he would have been in had the infringer entered into a reasonable

royalty agreement. An award of interest from the time that the royalty payments would have been received merely serves to make the patent owner whole, since his damages consist not only of the value of the royalty payments but also the foregone use of the money between the time of infringement and the date of the judgment.

See General Motors Corp. v. Devex Corp., 461 U.S. 648, 655-56 (1983) (footnote omitted). As Time Warner Cable notes, the Supreme Court further stated in *General Motors* that an award of prejudgment interest is not required whenever infringement is found; that the court has some discretion in awarding interest; and that it may be appropriate to limit or deny interest, as when the patent owner has unduly delayed in prosecuting the lawsuit. *See id.* at 656-57. Thus, “prejudgment interest should be awarded under § 284 absent some justification for withholding such an award.” *See id.* at 657.

Time Warner Cable makes two arguments for a denial of interest in this case. First, Time Warner Cable cites the Court’s statement, in its ruling denying enhanced damages, that the jury’s award adequately compensates Sprint for the infringement. *See Time Warner Cable*, 2017 WL 978107, at *14. The Court denied enhanced damages, however, because it concluded that this case was not egregious, *see id.*, and its purpose was to state that the jury’s verdict represented adequate compensation purely for the royalty it should have received in 2010. The Court did not, by that statement, address whether Sprint also lost the use of that money after that date. In fact, as

in the typical case, a 2017 award would not fully compensate Sprint unless it received compensation for that time value. Second, Time Warner Cable argues that the Court should consider that Sprint did not initiate this suit until 14 months after the infringement began when Time Warner Cable's Go-It-Alone system was launched on October 1, 2010. As it did in its posttrial findings, however, the Court finds that Sprint did not delay unreasonably in initiating this suit. *See id.* at *8-10; *see also General Motors*, 461 U.S. at 657 n.11 (determination whether the plaintiff unduly delayed prosecution of the suit is committed to the discretion of the district court). Accordingly, the Court, in its discretion, rules that there is no basis for departing from the usual rule here and that an award of prejudgment interest is therefore appropriate in this case.

Sprint requests prejudgment interest from October 1, 2010, when the accused system was launched. Without citation to any authority, Time Warner Cable suggests that interest should run only from the filing of this action. In *General Motors*, however, the Supreme Court specifically referred to an award of interest from the time of infringement to the date of judgment, and it noted that the purpose of such interest is to place the patent owner in the position it would have been in under a reasonable royalty agreement. *See General Motors*, 461 U.S. at 655-56. As the Court instructed the jury in this case, damages are set by reference to a hypothetical license negotiation occurring just prior to the date of infringement. Thus, the Court will award prejudgment interest running from October 1, 2010, as requested by Sprint.

“Because there is no federal statutory interest rate on prejudgment interest, the rate imposed [is] left to the trial court’s discretion.” *See Kleier Advertising, Inc. v. Premier Pontiac, Inc.*, 921 F.2d 1036, 1042 n.4 (10th Cir. 1990).⁸ Sprint proposes that the Court award interest at a prime interest rate ranging from 3.25 to 3.59 percent over the interest period. Sprint argues that such a rate is appropriate because it borrowed heavily during the interest period and could have avoided some of that borrowing if it had received money under a licensing agreement. In the alternative, Sprint seeks an award at the applicable postjudgment interest rate of 1.06 percent. Time Warner Cable argues that the postjudgment rate should be used.

The Court applies its discretion here, but it takes its cue from statements by the Tenth Circuit in *Kleier*. That court stated that the rate was left to the trial court’s discretion, but it nevertheless noted that the Seventh Circuit had in one case suggested use of the prime rate, while the Ninth Circuit had in another case suggested using the 52-week Treasury bill rate. *See id.* In its case, however, the Seventh Circuit chose the prime rate over the postjudgment Treasury rate to account for the risk of default. *See Gorenstein Enters., Inc. v. Quality Care-USA, Inc.*, 874 F.2d 431, 436-37 (7th Cir. 1989) (cited in *Kleier*). In the other case cited in *Kleier*, the Ninth Circuit, in ordering that the Treasury rate be applied (unless the district court concluded that the equities demanded a different

⁸ Because the rate is not set by or unique to patent law, the law of the appropriate regional circuit applies. *See Transmatic, Inc. v. Gulton Indus., Inc.*, 180 F.3d 1343 (Fed. Cir. 1999).

rate), noted the award's purpose in not allowing the defendant to keep the income earned on the money it effectively withheld from the plaintiff. *See Frank Music Corp. v. Metro-Goldwyn-Mayer Inc.*, 886 F.2d 1545, 1552 (9th Cir. 1989) (cited in *Kleier*). There does not appear to be any risk of default by Time Warner Cable in this case; thus, the rate selected by the Ninth Circuit seems more appropriate here.

Moreover, as this Court noted in a recent case, courts in this district "have consistently applied the federal postjudgment interest rate set by 28 U.S.C. § 1961 in awarding prejudgment interest on federal claims." *See Marten Transport, Ltd. v. PlattForm Advertising, Inc.*, 2016 WL 4000927, at *19 (D. Kan. July 26, 2016) (Lungstrum, J.) (citing cases), *appeal filed* (10th Cir. Aug. 23, 2016). Sprint notes that the Court applied the postjudgment rate in *Marten* because the plaintiff had not provided any reason for not applying that rate there, *see id.*, and it argues that there is such a reason here, namely Sprint's borrowing during the interest period. The Court is unwilling to wade into and assess Sprint's financial condition during that period, however. The Court concludes that application of an earning rate and not a borrowing rate is more appropriate here. Thus, the Court will apply the postjudgment rate also in awarding prejudgment interest in this case.

The parties agree that a rate of 1.06 percent (the rate used in the original judgment entered in this case) is the appropriate postjudgment interest rate. Applying that rate, Sprint (by way of an affidavit by its damages expert, Dr. Rao) calculates prejudgment interest in the amount of \$6,183,548.00 on damages

from October 1, 2010, to the date of the original judgment, March 14, 2017. Time Warner Cable does not take issue with that calculation. Thus, the Court in its discretion awards Sprint prejudgment interest in that amount, and it will issue an amended judgment *nunc pro tunc* in the total amount of \$145,983,548.00.

Sprint also argues that any postjudgment interest should be calculated on the total judgment that includes the award of prejudgment interest. Time Warner Cable has not opposed this request, and the Court agrees that it is appropriate to determine postjudgment interest in that fashion, as will be made apparent in the amended judgment.⁹

IT IS THEREFORE ORDERED BY THE COURT THAT defendants' posttrial motion for judgment as a matter of law pursuant to Fed. R. Civ. P. 50(b) or for a new trial (Doc. # 485) is hereby **denied**.

IT IS FURTHER ORDERED BY THE COURT THAT plaintiff's motion for an amendment of the judgment, pursuant to Fed. R. Civ. P. 59, to add an award of prejudgment interest (Doc. # 483) is hereby **granted in part**. The Court awards prejudgment interest to plaintiff in the amount of \$6,183,548.00, and the Court will issue an amended judgment accordingly.

⁹ As Sprint points out, under the applicable statute, postjudgment interest is compounded annually, *see* 28 U.S.C. § 1961(b), even if that fact is not noted explicitly in the judgment. The Court declines Sprint's invitation to calculate yearly postjudgment interest amounts for the amended judgment.

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IT IS SO ORDERED.

Dated this 30th day of May, 2017, in Kansas City,
Kansas.

s/ John W. Lungstrum
John W. Lungstrum
United States District Judge