

760 Fed.Appx. 977

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United States Court of Appeals, Federal Circuit.

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

v.

TIME WARNER CABLE, INC., Time Warner Cable, LLC, Time Warner Entertainment Company, L.P., Time Warner Entertainment-Advance/Newhouse Partnership, TWC Communications, LLC, Time Warner Cable Information Services (Kansas), LLC, Defendants-Appellants

2017-2247

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Opinion Issued: November 30, 2018

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Opinion Modified: March 18, 2019 *

Synopsis

Background: In action alleging infringement of patents directed toward 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), judgment was entered in favor of patent owner in amount of jury verdict, and competitor filed post-trial motion for judgment as a matter of law, and patent owner moved for prejudgment interest. The United States District Court for the District of Kansas, No. 2:11-cv-02686-JWL, [John W. Lungstrum, J.](#), 255 F.Supp.3d 1134, denied competitor's motion for judgment as a matter of law, and granted owner's motion for prejudgment interest. Competitor appealed.

Holdings: The Court of Appeals, [Bryson](#), Circuit Judge, held that:

admission of evidence of prior verdict in related case between parties did not prejudice competitor;

jury verdict awarding \$1.37 per Voice over Internet Protocol (VoIP) subscriber per month was supported by sufficient evidence;

specification had adequate written description; and

evidence was sufficient to support finding that patents were infringed under doctrine of equivalents.

Affirmed.

[Mayer](#), Circuit Judge, filed a dissenting opinion.

Opinion, 754 Fed.Appx. 975, superseded.

*978 Appeal from the United States District Court for the District of Kansas in No. 2:11-cv-02686-JWL, Judge John W. Lungstrum.

Attorneys and Law Firms

J. Michael Jakes, Finnegan, Henderson, Farabow, Garrett & Dunner, LLP, Washington, DC, argued for plaintiff-appellee. Also represented by Kathleen Daley, Jason Lee Romrell; Rob Reckers, Shook, Hardy & Bacon, LLP, Houston, TX; Ryan Dykal, John D. Garretson, Basil Trent Webb, Kansas City, MO.

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Before Chen, Mayer, and Bryson, Circuit Judges.

Opinion

Opinion for the court filed by Circuit Judge Bryson.

Bryson, Circuit Judge.

*979 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.

*980 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, *981 like any other evidence, 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 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 re-marks 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 *982 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 over-turned 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 *983 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* [*Corp. v. U.S. Plywood Corp.*, 318 F.Supp. 1116 (S.D.N.Y.1970)] 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 *Garretson* [*v. Clark*, 111 U.S. 120, 4 S.Ct. 291, 28 L.Ed. 371 (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 *984 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. 2015) (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 *985 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 “some-thing 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 [*986](#) 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 para-graph 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 *987 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, 117 S.Ct. 1040, 137 L.Ed.2d 146 (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).

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 out-set 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 *988 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

Dissenting opinion filed by Circuit Judge [Mayer](#).

[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, *989 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 *990 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.

All Citations

760 Fed.Appx. 977

Footnotes

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

**United States Court of Appeals
for the Federal Circuit**

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

v.

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

2017-2247

Appeal from the United States District Court for the
District of Kansas in No. 2:11-cv-02686-JWL United States
District Judge John W. Lungstrum.

JUDGMENT

THIS CAUSE having been considered, it is

ORDERED AND ADJUDGED:

AFFIRMED

ENTERED BY ORDER OF THE COURT

March 18, 2019

/s/ Peter R. Marksteiner

Peter R. Marksteiner
Clerk of Court

NOTE: This disposition is nonprecedential.

**United States Court of Appeals
for the Federal Circuit**

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

v.

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

2017-2247

Appeal from the United States District Court for the
District of Kansas in No. 2:11-cv-02686-JWL, Judge John
W. Lungstrum.

Decided: November 30, 2018

J. MICHAEL JAKES, Finnegan, Henderson, Farabow,
Garrett & Dunner, LLP, Washington, DC, argued for
plaintiff-appellee. Also represented by KATHLEEN DALEY,
JASON LEE ROMRELL; ROB RECKERS, Shook, Hardy &

Bacon, LLP, Houston, TX; RYAN DYKAL, JOHN D. GARRETSON, BASIL TRENT WEBB, Kansas City, MO.

JOHN C. O'QUINN, Kirkland & Ellis LLP, Washington, DC, argued for defendants-appellants. Also represented by MATTHEW PHILIP DOWNER, NATHAN S. MAMMEN, JASON M. WILCOX; DAVID BENYACAR, DANIEL REISNER, Arnold & Porter Kaye Scholer LLP, New York, NY; RON E. SHULMAN, Latham & Watkins LLP, Menlo Park, CA; GABRIEL BELL, LAWRENCE J. GOTTS, Washington, DC.

WILLIAM F. LEE, Wilmer Cutler Pickering Hale and Dorr LLP, Boston, MA, for amici curiae Intel Corporation, Dell Inc. Also represented by CHRISTOPHER D. DODGE, MARK CHRISTOPHER FLEMING, LAUREN B. FLETCHER. Amicus curiae Intel Corporation also represented by MATTHEW JOHN HULT, Intel Corporation, Santa Clara, CA. Amicus curiae Dell Inc. also represented by THOMAS A. BROWN, KRISHNENDU GUPTA, Dell Inc., Hopkington, MA.

Before CHEN, MAYER, and BRYSON, *Circuit Judges*.

Opinion for the court filed by *Circuit Judge* BRYSON.

Dissenting opinion filed by *Circuit Judge* MAYER.

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

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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

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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 prejudi-

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*

cial 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

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

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 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.

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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 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

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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-*

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.

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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

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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.

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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.

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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).

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

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.

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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

NOTE: This disposition is nonprecedential.

**United States Court of Appeals
for the Federal Circuit**

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

v.

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

2017-2247

Appeal from the United States District Court for the
District of Kansas in No. 2:11-cv-02686-JWL, Judge John
W. Lungstrum.

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 unsur-

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prising 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 purport-

ed 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 con-

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veys 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.

**United States Court of Appeals
for the Federal Circuit**

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

v.

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

17-2247

Appeal from the United States District Court for the
District of Kansas in case No. 2:11-cv-02686-JWL, United
States District Judge John W. Lungstrum

JUDGMENT

THIS CAUSE having been considered, it is

ORDERED AND ADJUDGED:

AFFIRMED

ENTERED BY ORDER OF THE COURT

November 30, 2018

/s/ Peter R. Marksteiner

Peter R. Marksteiner
Clerk of Court