NOTE: This disposition is nonprecedential.

United States Court of Appeals for the Federal Circuit

ENOVA TECHNOLOGY CORP.,
Appellant

v.

SEAGATE TECHNOLOGY (US) HOLDINGS INC., SEAGATE TECHNOLOGY LLC,
Appellees

2016-1749, 2016-1751, 2016-2039

Appeals from the United States Patent and Trademark Office, Patent Trial and Appeal Board in Nos. IPR2014-01178, IPR2014-01297, IPR2014-01449.

Decided: September 6, 2017

DARRYL MICHAEL WOO, Vinson & Elkins LLP, San Francisco, CA, argued for appellant. Also represented by CHAO WANG; JEFFREY TA-HWA HAN, JANICE TA, Austin, TX.

DAVID J.F. GROSS, Faegre Baker Daniels LLP, Minneapolis, MN, argued for appellees. Also represented by LUCAS J. TOMSICH, JULIE WAHLSTRAND; CALVIN L. LITSEY, East Palo Alto, CA; RICHARD M. MARSH, JR., Denver, CO.

Before LOURIE, WALLACH, and STOLL, *Circuit Judges*.

LOURIE, *Circuit Judge*.

Enova Technology Corp. ("Enova") appeals from the final written decisions of the U.S. Patent and Trademark Office ("USPTO") Patent Trial and Appeal Board ("the Board") in three *inter partes* review ("IPR") proceedings concluding that claims 1–53 of its U.S. Patent 7,900,057 ("the '057 patent") are unpatentable as obvious. *See Seagate Tech. (US) Holdings, Inc. v. Enova Tech. Corp.*, IPR 2014-01178, 2015 WL 9301786, at *1 (P.T.A.B. Dec. 18, 2015) (evaluating claims 1–32) ("*Opinion*");[1] *Seagate Tech. (US) Holdings, Inc. v. Enova Tech. Corp.*, IPR 2014-01297, 2016 WL 784980, at *1 (P.T.A.B. Feb. 4, 2016) (evaluating claims 33–39); *Seagate Tech. (US) Holdings, Inc. v. Enova Tech. Corp.*, IPR 2014-01449, 2015 WL 9259517, at *1 (P.T.A.B. Dec. 18, 2015) (evaluating claims 40–53). For the following reasons, we *affirm*.

BACKGROUND

Enova owns the '057 patent, which generally describes an apparatus and method for cryptographic processing in a system using the serial Advanced Technology Attachment protocol ("SATA protocol"). *See*, *e.g.*, '057 patent col. 1 ll. 44–40, col. 3 l. 63–col.4 l. 20. The SATA protocol is often used to transmit data to a connected electrical storage device, for example, to a computer hard drive. *See id.* col. 1 ll. 55–56. In the SATA protocol, data is communicated using frame information structures

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[1] As the written decisions treat the issues challenged by Enova substantially identically, and Enova does not challenge any written decision separately from the others, we cite only the written decision in IPR 2014-01178.

("FISes"). *Id.* col. 2 ll. 46–53. An FIS includes two parts: a header, which indicates the FIS type, and a body (or "payload"), which contains data. *Id.* col. 3 ll. 11–14.

There are two general types of FISes: nondata FISes, which carry information for issuing commands to the storage device and indicating the status of those commands, *see id.* col. 3 ll. 15–19, and data FISes, which can contain either user data or additional control information, *id.* col. 7 ll. 30–38. While user data may be encrypted, command and control data should not be encrypted because doing so would prevent the storage device from understanding the command. *Id.* col. 3 ll. 34–50. To determine whether data can be cryptographically processed, the patent indicates that conventional systems would unpack (or "de-encapsulate") the received information, analyze it to determine whether it was user data that could be processed or command data that could not be processed, repack (or "re-encapsulate") the data, and then transmit the data for processing if possible. *Id.* col. 3 ll. 43–48. This process was inefficient due to its complexity and the amount of time it took to perform. *Id.* col. 3 ll. 48–50.

The patent purports to improve on the conventional system by not relying on de-encapsulation and re-encapsulation. *Id.* col. 10 ll. 23–31. Instead, it maintains a list of commands whose FISes should bypass encryption ("the bypass true category") and commands whose FISes should not bypass encryption ("the bypass false category"). *Id.* col. 7 l. 30–col. 8 l. 30. By avoiding the need to de-encapsulate and re-encapsulate the data, the patent contends that "the latency time and complexity . . . are dramatically reduced." *Id.* col. 10 ll. 28–31.

Claim 1 is exemplary:

1. A cryptographic Serial ATA (SATA) apparatus, comprising:

> a SATA protocol stack for communicating with an interface of a device;
>
> a cryptographic engine operatively coupled to the SATA protocol stack for encrypting or decrypting at least a subset of data FISes (Frame Information Structures) communicated to or from the SATA protocol stack; and
>
> a main controller implemented at least partially in hardware, the main controller configured to cause:
>
> > the SATA protocol stack to send at least first payload of a first data FIS to the cryptographic engine *responsive to the first data FIS associated with a pre-defined category of command set*;
> >
> > the cryptographic engine to decrypt at least a portion of the first payload received from the SATA protocol stack; and
> >
> > the SATA protocol stack to process a Register-Device to Host FIS without decryption responsive to receiving the Register-Device to Host FIS from the interface of the device.

Id. col. 13 ll. 6–26 (emphasis added). The requirement that the controller sends a data FIS to the cryptographic engine "responsive to the first data FIS associated with a predefined category of command set" ("pre-defined catego-

ry limitation")[2] reflects the FIS being sent for cryptographic processing, depending on whether the associated command is in the bypass true or bypass false category.

During prosecution before the USPTO, the examiner rejected the then-pending claims as obvious over a combination of U.S. Patent Publication 2004/0054914 ("Sullivan"), which relates to encryption and decryption of data in a serial communication system, *see* Joint Appendix ("J.A.") 576–87, in view of a technical document describing implementation of the SATA protocol ("SATA"), J.A. 588–891. The pre-defined category limitation was added, among others, in response to that rejection, and the examiner then indicated that the claims were ready for allowance with nonsubstantive additions. *See* J.A. 1664–65, 1695–96.

In 2014, Seagate Technology (US) Holdings, Inc. and Seagate Technology LLC (together, "Seagate") filed three petitions for IPR of the '057 patent, alleging in sum that all claims of the '057 patent would have been obvious at the time of the invention over Sullivan and SATA. The Board instituted each IPR. In response to Seagate's petitions, Enova argued that neither Sullivan nor SATA disclosed the pre-defined category limitation, that the combination of Sullivan and SATA would have produced an inoperable result, and that objective indicia of nonobviousness established that the claims would not have been obvious. Enova offered evidence that purportedly established (1) praise for the claimed invention from another company in the industry; (2) commercial success of its own products and Seagate's purportedly infringing

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[2] Although the Board referred to the pre-defined category limitation as the "associated with" limitation, *see Opinion*, 2015 WL 9301786, at *6, we maintain the terminology used by the parties in their briefing before this court.

products; and (3) copying and licensing by other companies.

In its final written decisions, the Board concluded that the claims were unpatentable as obvious. Specifically, the Board reasoned that the combination of Sullivan and SATA disclosed or suggested the pre-defined category limitation because Sullivan disclosed that control data should be treated differently from user data, and SATA provided sufficient description of the commands in the SATA protocol to allow a skilled artisan to implement a system where user data were encrypted and control data were not. *Opinion*, 2015 WL 9301786, at *9–12. The Board determined that Enova's arguments attacked each reference individually, when the proper analysis was whether the combination of references would have rendered the claimed invention obvious at the time of invention. *Id.* at *9. The Board also found that Enova's arguments took an "unduly narrow view of Sullivan's teachings." *Id.* at *10. Although the Board recognized that the combination of Sullivan and SATA may have led to an inoperable result if Sullivan was read as narrowly as Enova argued, it found that a skilled artisan would not have understood the scope of Sullivan to be so narrow. *Id.*

The Board also rejected Enova's evidence of objective indicia on the basis that Enova had not adequately established a nexus between that evidence and the claimed invention. *Id.* at *17–19. Specifically, the Board determined that Enova's evidence of industry praise was not tied to any of the claimed features; that its evidence of commercial success did not establish that Seagate's products infringed and was not linked to any sales to the claimed invention; and that its evidence did not establish that any copying and licensing was due to the claimed invention. *Id.* at *19. Accordingly, the Board concluded that Seagate had proven that all claims of the '057 patent would have been obvious.

Enova timely appealed. We have jurisdiction pursuant to 28 U.S.C. § 1295(a)(4)(A) (2012).

DISCUSSION

We review the Board's factual determinations for substantial evidence and its legal determinations *de novo*. *Belden Inc. v. Berk-Tek LLC*, 805 F.3d 1064, 1073 (Fed. Cir. 2015). A finding is supported by substantial evidence if a reasonable mind might accept the evidence as sufficient to support the finding. *Consol. Edison Co. v. NLRB*, 305 U.S. 197, 229 (1938).

Obviousness is a question of law based on subsidiary findings of fact relating to "the scope and content of the prior art, differences between the prior art and the claims at issue, the level of ordinary skill in the pertinent art, and any objective indicia of non-obviousness." *Randall Mfg. v. Rea*, 733 F.3d 1355, 1362 (Fed. Cir. 2013) (citing *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007) and *Graham v. John Deere Co. of Kan. City*, 383 U.S. 1, 17–18 (1966)). As they are findings of fact, the Board's determinations relating to the scope and content of the prior art and nexus between the objective indicia and the claimed invention are reviewed for substantial evidence. *Redline Detection, LLC v. Star Envirotech, Inc.*, 811 F.3d 435, 449 (Fed. Cir. 2015) (scope and content of the prior art); s*ee Merck & Cie v. Gnosis S.P.A.*, 808 F.3d 829, 838 (Fed. Cir. 2015) (nexus).

I. Content of the Prior Art

Enova first argues that neither Sullivan nor SATA, alone or in combination, disclose the pre-defined category limitation. Enova challenges a number of the Board's underlying findings. We address each in turn.

Enova first argues that because Sullivan treats the payloads of all packets the same, it cannot disclose or suggest the patented method of treating payloads differently depending on the associated command. Enova also

contends that although Sullivan discloses a filter that allows a predetermined set of commands to pass, it still only processes packets with allowed commands in the same manner.

Seagate responds that the Board found that Sullivan does not disclose treating all information the same, and that its expert evidence and Sullivan itself provide substantial evidence to support that finding. Seagate contends that Sullivan discloses that user data and control data should be treated differently, and specifically discloses that data and control information should be treated separately for encryption purposes.

We agree with Seagate that the Board's finding that Sullivan treats user and control data differently is supported by substantial evidence. Sullivan discloses that the described invention relates to "encryption of data in processor-based systems," and in particular to "encryption of data transmitted from a host computer to a target device such as a storage system, where the encryption is carried out in-line with the data channel." J.A. 582 ¶ [0002]. It then states that a system is needed where "data and control information can be treated separately for encryption purposes." *Id.* ¶ [0006]. Sullivan goes on to describe its own system as subjecting "[t]he control information, which may include commands and status information . . . to filtering and rejecting operations by the encryption unit, to pass through only a predetermined set of commands and/or to reject a predetermined set of commands." *Id.* ¶ [0010]. Thus, Sullivan's invention allows for filtering of "any control information that may be included in the packet . . . , whether or not in the header." J.A. 585 ¶ [0055]. This evidence supports the Board's finding that Sullivan discloses a system that does not encrypt all payload data, as it states that control and user data are treated differently for encryption purposes. *See Opinion*, 2015 WL 9301786, at *9. Considering this broad disclosure, the Board's finding that Sullivan dis-

closes that user data can be encrypted and control data should not be encrypted is supported by substantial evidence.

Enova's arguments to the contrary do not convince us otherwise. Sullivan does not disclose that all commands must be treated the same way; instead, it discloses that user data and control data should be treated differently. Enova also contends that Sullivan's system simply drops any commands that are not encrypted. Again, Enova's argument is contradicted by the broader disclosure in Sullivan. For example, Sullivan indicates that the encryption unit "is set up such that the host . . . can transmit and receive control information (including commands, header data, etc.) and data in a normal fashion," and that a command that requests control information "is replied to by the encryption unit . . . in the same manner in which the target device itself would have responded if the encryption unit were not present." J.A. 584–85 ¶¶ [0050], [0051]. Indeed, Seagate's expert, Dr. Long, opined that a skilled artisan would not have understood Sullivan as requiring packets to be dropped, and the Board explicitly found Dr. Long's "description of how a skilled artisan would have understood these teachings to be more credible." *Opinion*, 2015 WL 9301786, at *14. As we give deference to "the Board's findings concerning the credibility of expert witnesses," *Yorkey v. Diab*, 601 F.3d 1279, 1284 (Fed. Cir. 2010), we discern no error in the Board's finding.

Enova next argues that neither Sullivan nor SATA discloses grouping the commands in the SATA protocol into pre-defined categories, or using those categories to determine which payloads to encrypt. Enova contends that the Board only reached its finding by improperly crediting Seagate's expert's conclusion that the common sense of a skilled artisan would have led to the claimed result.

Seagate responds that the Board's finding that the combination of Sullivan and SATA suggests the claimed grouping is supported by substantial evidence. Specifically, Seagate contends that the combination of Sullivan and SATA, and not either reference individually, would have suggested using predefined categories to determine which data should be encrypted.

We agree with Seagate that the Board's finding that the combination of Sullivan and SATA suggests the predefined category limitation is supported by substantial evidence. As explained previously, Sullivan discloses that control data should not be encrypted, and user data may be encrypted. The Board found that SATA describes the general manner in which the SATA protocol uses FISes to transfer data, that different types of FISes may be used for different purposes, and that certain commands are associated with transferring certain types of data. *Opinion*, 2015 WL 9301786, at *6, *11. The Board also credited Dr. Long's testimony during his deposition that implementation of Sullivan's invention using the SATA protocol would require using FISes, and that because Sullivan disclosed that control data should be treated differently from user data, a skilled artisan would therefore treat FISes with control data differently from FISes with user data. *Id.* at *10–11.

Substantial evidence supports those findings. Sullivan describes a flexible system designed to "accommodate[] whatever standard is used" in the particular system in which it is implemented. J.A. 584–85 ¶ [0050]. Moreover, Sullivan discloses that its system can be used in "any of a number of . . . suitable serial channels, *such as serial ATA*." J.A. 584 ¶ [0038] (emphasis added). Sullivan's specific reference to serial ATA, i.e., the SATA protocol, clearly supports the Board's finding that a skilled artisan would have understood Sullivan's system as combinable with SATA.

Enova's argument relating to "common sense" is unpersuasive. The Board did not rely on a common-sense rationale in making its finding. Indeed, the phrase "common sense" does not appear in the Board's final written decision. Rather than finding that a skilled artisan would have reached a missing limitation using common sense, the Board found that the combination of Sullivan and SATA disclosed the pre-defined category limitation. *See Opinion*, 2015 WL 9301786, at *10–11. As we have explained, that finding is supported by substantial evidence.

Enova next argues that even if the combination does disclose the pre-defined category limitation, a skilled artisan would not have been motivated to combine Sullivan and SATA because the combination would have been inoperative. Enova contends that the Board found that the combination would have been inoperative, but used that inoperability as a motivation to modify Sullivan. Seagate responds that the Board did not find that the combination would produce an inoperable device, and that the Board's finding of a motivation to combine the references is supported by substantial evidence.

We agree with Seagate that the Board's finding of a motivation to combine is supported by substantial evidence. The Board did not find that Sullivan and SATA would have produced an inoperable device, but instead recognized that the combination would be inoperable if Sullivan was read as narrowly as Enova urged. *Id.* at *10. The Board determined that that result weighed against reading Sullivan so narrowly, particularly where Sullivan specifically disclosed that it could be used in a SATA system. *Id.* Indeed, we have held that disclosures in a reference that might be read to teach away from combining two references did not overcome "the express teachings" of the reference suggesting combinability. *Bayer Healthcare Pharms., Inc. v. Watson Pharms., Inc.*, 713 F.3d 1369, 1376 (Fed. Cir. 2013). Similarly, Sulli-

van's express teaching that it can be used with the SATA protocol—the very protocol that SATA describes—strongly supports the Board's finding of a motivation to combine. Accordingly, that finding is supported by substantial evidence.

Enova next attacks Seagate's expert evidence as conclusory and infected by hindsight, and argues that it was incomplete because it did not address Enova's evidence of objective indicia of nonobviousness. Enova also argues that the evidence should not be given any deference on review because it was not given live before the Board. Seagate responds that there was nothing improper about the manner in which Dr. Long offered his testimony, and that there is no support for Enova's argument that only live testimony should be entitled to deference.

We agree with Seagate that the Board used Dr. Long's evidence properly. Dr. Long based his conclusions on his own experience and the content of both Sullivan and SATA. *See Opinion*, 2015 WL 9301786, at *8–10; J.A. 1080–85. Moreover, Dr. Long did consider the possibility of objective indicia of nonobviousness in his original report, stating that he was "not aware" of such evidence and reserving the right to update his declaration if such evidence was presented. J.A. 1121. And, in any event, it is "the patentee [who] has the burden of going forward with" evidence tending to rebut a challenger's obviousness case. *Pfizer, Inc. v. Apotex, Inc.*, 480 F.3d 1348, 1360 (Fed. Cir. 2007). Finally, we have never required an expert to give live testimony to be entitled to deference. In *Yorkey*, for example, we gave deference to the Board's weighing of the credibility of two expert declarations. 601 F.3d at 1284–85. Thus, we discern no error in the manner in which Dr. Long offered his opinions, and give those opinions due weight in our review.

Finally, Enova argues that the Board improperly shifted the burden of persuasion to Enova. Seagate

responds that the Board did not shift the burden, and that Seagate's evidence established that the claims would have been obvious.

We agree with Seagate that the Board did not shift the burden of persuasion to Enova. The Board evaluated Seagate's evidence and arguments, and ultimately concluded that Seagate established that the claims would have been obvious. *See Opinion*, 2015 WL 9301786, at *12. Thus, there was no error.

II. Objective Indicia

Enova next challenges the Board's evaluation of its evidence of objective indicia of nonobviousness. Enova introduced evidence that it argues established commercial success, industry praise, and copying and licensing by others. Again, we take each argument in turn.

Enova first argues that its "X-Wall" product line, which it contends embodies the invention claimed in the '057 patent, has experienced considerable commercial success. Enova contends that the Board erred in finding no nexus between the products and the claimed invention because Seagate did not present evidence rebutting its contentions. Enova also argues that Seagate's own products, which it alleges infringe the '057 patent, have experienced similar success. Moreover, Enova argues that Seagate did not provide any evidence to rebut the claimed success. Thus, Enova contends, the Board should have given weight to its evidence of commercial success.

Seagate responds that the Board's findings that Enova did not adequately prove nexus or commercial success are supported by substantial evidence. Seagate contends that Enova's only evidence relating to Seagate's products are general marketing materials, and that Enova did not establish that those products embodied the claimed invention. Seagate also responds that Enova failed to provide any other evidence of commercial suc-

cess; for example, Enova did not provide any sales figures or an economic or market analysis.

We agree with Seagate that the Board's findings are supported by substantial evidence. "[T]he patentee has the burden of going forward with" evidence tending to rebut a challenger's obviousness case. *Pfizer*, 480 F.3d at 1360. Thus, the Board properly began its analysis by determining whether Enova provided sufficient evidence of commercial success. Substantial evidence supports the finding that Enova did not provide sufficient evidence tying the purported success of its own products to the claimed invention. Indeed, the document that Enova argues links the success of its X-Wall products to the claimed invention also lists other benefits—for example, operating system independence—unrelated to the claimed invention's cryptographic processing. *See* J.A. 3409. Moreover, Enova did not present data establishing the commercial success of its own products or Seagate's products. For example, its expert admitted that he did not examine any of Enova's financial statements, sales, costs, units sold, or revenue. J.A. 3091–92. Moreover, and as the Board found, Enova also did not provide evidence of the economics or size of the relevant market. *See Opinion*, 2015 WL 9301786, at *18–19. Thus, the Board's decision is supported by substantial evidence.

Enova next argues that its evidence of industry praise supports a conclusion of nonobviousness because it adequately linked its evidence of praise to the claimed invention. Seagate responds that the Board properly weighed the evidence, and that substantial evidence supports the Board's finding that it was insufficient.

We agree with Seagate that substantial evidence supports the Board's finding that Enova failed to link the evidence of praise to the claimed invention. Enova's evidence of praise only addresses the products at a high level, and Enova's expert offered only conclusory opinions

in support. *See* J.A. 3404–06, 3408–09, 3735–36. Accordingly, the Board's finding was adequately supported.

Finally, Enova argues that the Board should have credited its evidence of copying and licensing. Specifically, Enova contends that because Seagate and Initio Corporation ("Initio") purchased the X-Wall products for incorporation into their own products for several years and then later released products not using Enova technology, they had sufficient access to suggest that they copied the claimed invention. Enova contends that this conclusion is buttressed by a consent decree Enova and Initio entered into in which Initio admitted that it had infringed. Moreover, Enova argues that licensing agreements between it, Initio, Initio's customer Western Digital Corporation ("Western Digital"), and Buffalo, Inc. ("Buffalo") further support a conclusion of nonobviousness.

Seagate responds that the Board's findings relating to copying and licensing are supported by substantial evidence. Specifically, Seagate contends that Enova has not provided any actual evidence of copying, and that Enova's circumstantial evidence is insufficient. Moreover, Seagate contends licenses must be linked to the claimed invention to be given weight when determining whether claims would have been obvious, and Enova did not provide any evidence linking the licenses to the claimed invention.

We agree with Seagate that the Board's findings are supported by substantial evidence. Although we have recognized that knowledge of the patent and products embodying the patent may be relevant in determining whether an invention was copied, we have not held that such knowledge is sufficient to establish copying. *See Transocean Offshore Deepwater Drilling, Inc. v. Maersk Drilling USA, Inc.*, 699 F.3d 1340, 1352 (Fed. Cir. 2012); *Advanced Display Sys., Inc. v. Kent State Univ.*, 212 F.3d 1272, 1285–86 (Fed. Cir. 2000). In *Transocean*, for example, we reversed a district court's grant of judgment as a

matter of law that an invention would have been obvious where the jury found copying based in part on knowledge of the patent and accused products, but also based on testimony from the infringer's employees and an internal memo from the accused infringer indicating an affirmative decision to incorporate the patented features. 699 F.3d at 1352. Similarly, in *Advanced Display Systems* there was evidence that the accused product "was virtually an identical replica of the claimed invention," direct testimony that the accused infringer had copied the patented formula, and evidence that the accused product was built after "disassembling [the patentee's] prototype, photographing its features, and then using the photograph essentially as an instruction manual." 212 F.3d at 1285.

At best, the evidence submitted by Enova establishes that Seagate and Initio knew of the patent and of Enova's products. That evidence does not approach the evidence that we have held sufficient to establish copying. For example, although Initio admitted to infringement in the consent judgment, it did not admit to copying the claimed invention. J.A. 3611–12. Accordingly, the Board's finding is supported by substantial evidence.

Similarly, the Board's findings relating to Enova's evidence of licensing are supported by substantial evidence. We have held that the existence of licenses is insufficient to establish nonobviousness; there must be some nexus between the licenses and the claimed invention. *In re Antor Media Corp.*, 689 F.3d 1282, 1293–94 (Fed. Cir. 2012). Thus, the simple fact that Initio, Western Digital, and Buffalo entered into licensing agreements, without more, is not evidence of nonobviousness. *See id.* As the Board found, the redaction of those licenses makes it difficult to determine the reason that they were agreed to. *See Opinion*, 2015 WL 9301786, at *19. Of the eleven pages of the Initio license agreement, eight are fully redacted and the other three are almost fully redacted.

See J.A. 3574–84. Of the ten pages of the Western Digital license, seven are fully redacted and the other three are also almost fully redacted. J.A. 3585–94. Similarly, the two provided pages of the Buffalo license are almost fully redacted. *See* J.A. 3596, 3602. As the only possibly relevant information that can be gleaned from those licenses is the mere fact that they exist, and not whether there is any connection to the claimed invention, the Board's decision that they were insufficient evidence of nonobviousness is supported by substantial evidence.

CONCLUSION

We have considered the remaining arguments, but find them unpersuasive. For the foregoing reasons, the decision of the Board is affirmed.

AFFIRMED