NOTE: This disposition is nonprecedential.

United States Court of Appeals for the Federal Circuit

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VIVINT, INC.,
Appellant

v.

ALARM.COM INC.,
Appellee

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2017-2076

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Appeal from the United States Patent and Trademark Office, Patent Trial and Appeal Board in No. IPR2015-01977.

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Decided: July 26, 2018

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ROBERT GREENE STERNE, Sterne Kessler Goldstein & Fox, PLLC, Washington, DC, argued for appellant. Also represented by JASON DANIEL EISENBERG, WILLIAM H. MILLIKEN.

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

LOURIE, *Circuit Judge*.

Vivint, Inc. ("Vivint") appeals from the final written decision of the United States Patent and Trademark Office Patent Trial and Appeal Board ("the Board") in an *inter partes* review proceeding determining that claims 1– 9, 14–18, and 22–38 of U.S. Patent 6,924,727 ("the '727 patent") are unpatentable as obvious. *See Alarm.com Inc. v. Vivint, Inc.*, No. IPR2015-01977, 2017 WL 1096522, at *28 (P.T.A.B. Mar. 22, 2017) ("*Decision*"). Because the Board did not err in its decision, we *affirm*.

BACKGROUND

Vivint owns the '727 patent directed to a method that allows a user to remotely control electronic devices located in the user's home. *See* '727 patent col. 1 ll. 7–9. A home-located electronic device may be "a microwave, a rice cooker, a refrigerator, lighting fixtures, an air conditioner, a video recorder, a gas leakage detection device, a water heater and so forth." *Id.* col. 9 ll. 6–10. The user controls these devices from a terminal "such as a portable telephone, a notebook PC, and PDA." *Id.* col. 8 ll. 10–13. The '727 patent discloses a system that supports different terminal models and uses the terminal's model name to format the display according to the terminal's display capabilities. *See id.* col. 8 ll. 10–33, col. 12 ll. 43–49, fig. 8.

To remotely control and monitor multiple home-located devices, prior art methods relied directly upon a home server. *See id.* col. 2 ll. 27–43. In order to support multiple tasks running in parallel, the home server required high processing power, which resulted in high operating costs. *See id.* The '727 patent purports to improve upon the prior art by employing a home network management facility, which is interposed between the

terminal and the home server. *See id.* col. 2 ll. 46–54. By leveraging the management facility, the home server can be a "simple server" where "large processing power" is not required. *See id.* col. 3 ll. 17–28.

Using the patented method, a user can thus turn on the air conditioning in his or her home using a portable telephone, for example. *See id.* col. 19 l. 51–col. 20 l. 14. To do this, the terminal must first establish a connection to the home network management facility, and send its model name to retrieve the display format appropriate for the terminal's display capabilities. *See id.* col. 14 ll. 44–65. Then, after the user completes the authentication process, the network management server in the management facility transmits the status information of the home-located device to the user's terminal, *see id.* col. 16 l. 56–col. 17 l. 4, along with a menu of options for the user to select a different status, *see id.* col. 17 l. 47–col. 18 l. 36. Once the user selects a status, the terminal sends a "decision signal" to the home network management facility. *Id.* col. 19 ll. 61–65, fig. 11 item Sa17. Next, a "modified status information" corresponding to the decision signal is added to the decision signal, resulting in a "control instruction," which is ultimately transmitted to the home server. *See id.* col. 19 l. 66–col. 20 l. 5, fig. 11 items Sa18, Sa19. The home server then "executes [the] driver software of the home-located electronic device[]" based on the user's selection. *See id.* col. 20 ll. 6–13. This causes the air conditioner to switch to the "ON" position. *See id.* col. 20 ll. 13–15.

Independent claim 1 is representative and reads as follows:

> 1. A method for remote control of home-located electronic devices, comprising the steps of:
>
>> receiving, at a management facility, from a terminal via a network, a request signal and *a*

terminal identifier that identifies said terminal;

identifying, in said managing facility a server, said server being identified by a server identifier that corresponds to said terminal identifier;

obtaining, in said management facility, from said server via said network, status information and said server identifier, said status information indicative of the status of home-located electronic devices controlled by said server;

generating display information for said terminal dependent upon the performance of said terminal, wherein said display information includes the status of said home-located electronic devices based on said status information and a prompt for input of a control instruction for said home-located electronic devices, said terminal being identified by said terminal identifier, said terminal identifier corresponding to said server identifier;

transmitting said display information from said management facility to said terminal;

displaying, with said terminal, a screen showing the status of said home-located electronic devices and a screen to prompt for input of *a control instruction* of said home-located electronic devices on the basis of the received display information;

transmitting, by said terminal, said terminal identifier and *first control information*;

generating, by said management facility, *second control information* that directs said serv-

er to perform control of said home-located electronic devices, on the basis of said *first control information*;

transmitting, by said management facility, said *second control information* to said server, said server being identified by said server identifier that corresponds to said terminal identifier, and

controlling, by said server, said home-located electronic devices on the basis of said *second control information*.

Id. col. 34 ll. 2–43 (emphases added).

Alarm.com Inc. ("Alarm.com") filed a petition for *inter partes* review asserting that claims 1–9, 14–18, and 22–38 of the '727 patent would have been obvious over various combinations of prior art references, which all include U.S. Patent 6,580,950 ("Johnson") and U.S. Patent 6,161,140 ("Moriya"). The Board instituted review of all challenged claims and grounds. On appeal, Vivint only challenges the Board's findings with respect to the teachings of Johnson and Moriya. Johnson teaches an internet-based home communications system. *See* Johnson Abstract. It allows a user to monitor and control devices within a home from a remote location by accessing a web page via the internet. *See id.* col. 2 ll. 8–28. Moriya teaches a system that can detect the display capabilities or features of a particular data terminal using its model code. *See* Moriya Abstract. The system then sends data formatted according to the display capabilities of that terminal. *See id.* col. 1 ll. 51–67.

In its final written decision, the Board concluded that all challenged claims were unpatentable as obvious. *See Decision*, 2017 WL 1096522, at *28. The Board began by maintaining its construction of "terminal identifier" from its institution decision, in which it construed the term to

mean "an identifier associated with a terminal that enables the home network management facility to identify or communicate with the terminal." *Id.* at *6. The challenged independent claims 1, 16, 22, and 31 all recite this term. Based on this construction, the Board found that Johnson and Moriya each independently taught "receiving, at a management facility, . . . a terminal identifier" ("the terminal identifier limitation"). '727 patent col. 34 ll. 4–6. The Board found that Johnson inherently taught the terminal identifier limitation, where the terminal identifier is in the form of an IP address, because it comported with its claim construction. *See Decision*, 2017 WL 1096522, at *10. It also credited the testimony of Dr. Rhyne, Alarm.com's expert, who testified that Johnson's disclosure of internet communications between a user computer and a data center inherently discloses an IP address. *See id.* The Board also found that Moriya taught the terminal identifier limitation because Moriya's model code was a terminal identifier. *See id.* at *11. Claims 29 and 37, which depend from claims 22 and 31, respectively, recite "wherein" a terminal identifier "is a manufacturer model identifier." '727 patent col. 38 ll. 35–36, col. 40 ll. 8–9. The Board found that the model code in Moriya was just such a manufacturer model identifier. *See Decision*, 2017 WL 1096522, at *11–12.

The Board also found that Johnson taught the "generating . . . second control information . . . on the basis of said first control information" limitation recited in claims 1 and 16. *Id.* at *14–15. According to the Board, the command instruction disclosed in Johnson, which is transmitted from the terminal to the data center, corresponded to the "first control information"; the command instruction, which was then transmitted from the data center to the control unit, which is analogous to the home server in the '727 patent, corresponded to the "second control information." *Id.* at *15. The Board determined that this sequence of events was "sufficient to teach

generating second control information based on first control information." *Id.* Based in part on these findings, the Board concluded that the challenged claims would have been obvious over the asserted combinations of prior art references.

Vivint timely appealed to this court. We have jurisdiction pursuant to 28 U.S.C. § 1295(a)(4)(A).

DISCUSSION

We review the Board's legal determinations *de novo*, *In re Elsner*, 381 F.3d 1125, 1127 (Fed. Cir. 2004), and the Board's factual findings underlying those determinations for substantial evidence, *In re Gartside*, 203 F.3d 1305, 1316 (Fed. Cir. 2000). A finding is supported by substantial evidence if a reasonable mind might accept the evidence to support the finding. *Consol. Edison Co. v. NLRB*, 305 U.S. 197, 229 (1938). We review the Board's claim constructions *de novo* "and its underlying factual determinations involving extrinsic evidence for substantial evidence." *Microsoft Corp. v. Proxyconn, Inc.*, 789 F.3d 1292, 1297 (Fed. Cir. 2015) (citing *Teva Pharm. USA, Inc. v. Sandoz, Inc.*, 135 S. Ct. 831, 841–42 (2015)). Obviousness is a question of law based on underlying factual findings, including "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)). Whether there are inherent teachings in a prior art reference is a question of fact. *See In re Napier*, 55 F.3d 610, 613 (Fed. Cir. 1995).

Vivint argues that the Board erred in its construction of "terminal identifier" and its findings regarding the teachings of Johnson and Moriya. We address each argument in turn.

Vivint first argues that the Board incorrectly construed "terminal identifier" by departing from the plain meaning of the term. According to Vivint, under the Board's construction, the term would encompass an identifier that enables communication with a terminal, but not allow the terminal to be identified, which contradicts the term's plain meaning. Vivint also argues that the terminal identifier should uniquely identify the terminal, as with a serial number.

Alarm.com responds[*] that the Board's construction is reasonable in light of the claims and specification. Alarm.com also contends that Vivint's attempts to restrict the terminal identifier to certain forms, like the serial number, is not supported by the specification.

We agree with Alarm.com that the Board's claim construction was reasonable. In an *inter partes* review, claims are given their broadest reasonable interpretation. *See Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2142–46 (2016). The specification and the claims describe the terminal identifier as being used to identify the terminal as well as to enable communication with the terminal. *See* '727 patent col. 8 ll. 34–41. For example, independent claim 1 recites "a terminal identifier that identifies said terminal." *Id.* col. 34 ll. 5–6. And independent claim 16 recites "said terminal identifier to determine at least one of a display capability or a communication capability of said terminal." *Id.* col. 36 ll. 14–16. The Board found these claims instructive as to the meaning of "terminal identifier" in that they taught a terminal identifier that is used both to identify and communicate with the terminal. *See Decision*, 2017 WL 1986522, at *5. Contrary to Vivint's contentions, the plain language of the claims does not require that the

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[*]   It is of course the principal and expected function of an alarm to respond.

terminal identifier be unique or be in any specific format, like a serial number. *See id.* The Board's construction simply encompasses both disclosed functions of the terminal identifier.   We therefore conclude that the Board's construction was proper.

Vivint next argues that the Board erred in finding that Johnson inherently discloses the terminal identifier limitation, where the terminal identifier is in the form of an IP address. According to Vivint, if Johnson had a gateway server or NAT router between the user terminal and the data center, then the IP address would not necessarily reach the management facility as required by the claims, and thus does not meet the inherency requirement.

Alarm.com responds that substantial evidence supported the Board's finding that Johnson inherently teaches the terminal identifier limitation.   According to Alarm.com, adding a gateway server or NAT router to Johnson is a modification imagined by Vivint and is not actually disclosed by Johnson. Furthermore, Dr. Rhyne, Alarm.com's expert, testified that Johnson inherently discloses an IP address because it is necessarily used in internet communications between a user computer and a data center.

We agree with Vivint that the Board erred in finding that Johnson inherently teaches the terminal identifier limitation and hence supports a conclusion of obviousness. The inherency doctrine allows for a prior art reference to supply a missing limitation if it is "necessarily present" or "inherent" in that reference. *See Schering Corp. v. Geneva Pharm.*, 339 F.3d 1373, 1377 (Fed. Cir. 2003) (internal citation omitted). Inherency ordinarily applies in an anticipation context where a prior art reference, which does not expressly disclose every limitation of a claim, may still anticipate that claim if the missing limitation is

"necessarily present, or inherent, in the single anticipating reference." *Id.* (internal citation omitted).

While anticipation is proven based on the express and inherent teachings of a single prior art reference, an obviousness analysis reaches beyond the prior art reference and takes into account other considerations such as the level of ordinary skill in the art and any objective indicia of nonobviousness. *See Cohesive Techs., Inc. v. Waters Corp.*, 543 F.3d 1351, 1364 (Fed. Cir. 2008). Use of inherency in an obviousness context must therefore be "carefully circumscribed" because "that which may be inherent is not necessarily known and that which is unknown cannot be obvious." *Honeywell Int'l Inc. v. Mexichem Amanco Holding S.A.*, 865 F.3d 1348, 1354–55 (Fed. Cir. 2017) (internal quotation marks and citations omitted). Thus, while we have recognized that "inherency may supply a missing claim limitation in an obviousness analysis," we have emphasized that "the limitation at issue *necessarily* must be present, or the natural result of the combination of elements explicitly disclosed by the prior art." *Par Pharm., Inc. v. TWi Pharm., Inc.*, 773 F.3d 1186, 1194–96 (Fed. Cir. 2014) (emphasis added).

The Board erred in finding that Johnson inherently discloses the terminal identifier limitation because its finding was not supported by substantial evidence. First, the Board based its finding on the rationale that "a terminal IP address . . . comports with [its] construction of 'terminal identifier.'" *See Decision*, 2017 WL 1096522, at *10. However, inherency requires more than agreement; inherency requires inevitability. *See Schering*, 339 F.3d at 1377; *see also Par Pharm.*, 773 F.3d at 1196. Therefore, the Board's evidence of merely "comport[ing]" with its claim construction, *see Decision*, 2017 WL 1096522, at *10, cannot constitute substantial evidence of the terminal identifier limitation being necessarily present in Johnson.

Second, the Board credited Dr. Rhyne's testimony in supporting its inherency finding. *See id.* Dr. Rhyne, relying upon an Official Notice taken by the examiner during prosecution that data packets sent over the internet contained IP addresses, *see* J.A. 1623–24 (citing J.A. 1192), testified that the use of IP addresses in Johnson "would have been *obvious*" to a person of ordinary skill in the art. J.A. 1624 (emphasis added). However, what would have been obvious to a skilled artisan is not a valid consideration in an inherency analysis. *See W.L. Gore & Assocs., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1555 (Fed. Cir. 1983) ("Inherency and obviousness are distinct concepts.") (citing *In re Spormann*, 363 F.2d 444, 448 (CCPA 1966)). Even the Board acknowledged that the examiner's Official Notice would have been permissible evidence in an "*obviousness* evaluation." *See Decision*, 2017 WL 1096522, at *10 (emphasis added). Thus, Dr. Rhyne's testimony, which was based on the examiner's Official Notice, discussed obviousness and was not substantial evidence to support the Board's inherency finding.

We therefore conclude that the Board's finding that the terminal identifier limitation is inherently disclosed in Johnson was not supported by substantial evidence. However, we also conclude that the Board's error was harmless because the Board found, in the alternative, that Moriya independently taught the claimed terminal identifier and could serve as the basis for an obviousness rejection. We address this next.

Vivint argues that the terminal identifier limitation is not disclosed in Moriya, because the Board incorrectly found Moriya's model code was a terminal identifier. According to Vivint, this cannot be the case, because the '727 patent clearly distinguishes between a terminal identifier and a model name. *Compare* '727 patent fig. 6, *with id.* fig. 8. It follows then, as Vivint contends, that the model name in the '727 patent is analogous to the model code in Moriya, which means that the terminal

identifier in the '727 patent must refer to something else. Additionally, Vivint notes that the model code in Moriya would only allow the terminal to be identified generically, rather than uniquely. And, according to Vivint, the terminal identifier should be unique.

Alarm.com responds that substantial evidence supported the Board's finding that Moriya's model code is a terminal identifier. Alarm.com points to claims 29 and 37 as reciting a terminal identifier that is a "manufacturer model identifier." *See id.* col. 38 ll. 35–36, col. 40 ll. 8–9. Additionally, the model code in Moriya, as Alarm.com explains, indicates a terminal's display capabilities, which is a function that the terminal identifier performs in the '727 patent as well. Finally, Alarm.com argues that Vivint's assertion that the terminal identifier should be unique is not required by the claims or specification.

We agree with Alarm.com that substantial evidence supported the Board's finding that Moriya teaches a terminal identifier. First, as the Board recognized, the claims themselves recite a terminal identifier that is a "manufacturer model identifier." *See Decision*, 2017 WL 1096522, at *12; *see also* '727 patent col. 38 ll. 35–36, col. 40 ll. 8–9. Second, the Board found that the model code in Moriya allows the system to determine the terminal's display capabilities, which is the same functionality that the terminal identifier provides in the '727 patent. *See Decision*, 2017 WL 1096522, at *11. And finally, the Board correctly reasoned that the '727 patent claims and specification do not require that the terminal identifier be unique, contrary to Vivint's assertions. *See id.* at *12. We therefore conclude that the Board's finding that Moriya teaches the terminal identifier was supported by substantial evidence.

Vivint finally argues that Johnson does not teach the "generating . . . second control information" limitation. Vivint contends that the Board erred in giving the second

control information the same meaning as the first control limitation. But the difference in claim terms, according to Vivint, means that the terms require different interpretations. Therefore, as Vivint argues, the first control information must be different from the second control information, and the specification makes clear that the contents of the requests must be different.

Alarm.com responds that the Board's finding that Johnson discloses the "generating . . . second control information" limitation was supported by substantial evidence. According to Alarm.com, the '727 patent does not require that the content of the second control information be different from the content of the first control information. Even if it did, Alarm.com argues that Johnson discloses additional control information that is transmitted with the second control information, which satisfies Vivint's proposed interpretation.

We agree with Alarm.com that the Board's finding that Johnson teaches the "generating . . . second control information" limitation was supported by substantial evidence. The Board found that Johnson's "command instruction" corresponded to the "first control information" when transmitted from the terminal to the data center, and then corresponded to the "second control information" when transmitted from the data center to the control unit. *See id.* at *14–15. Even if different content were required, as Vivint urges, the Board found that Johnson teaches that "numerous operations" are undertaken by the data center after it receives the command instruction and before it retransmits the information to the control unit. *See id.* at *15 (citing Johnson col. 7 l. 67–col. 8 l. 4). We therefore conclude that the Board's finding that Johnson discloses the "generating . . . second control information" limitation was supported by substantial evidence.

On appeal, Vivint does not challenge the Board's findings with respect to the combination of Johnson and Moriya or to the other prior art references. Accordingly, given that we have affirmed the Board's findings that Moriya discloses a terminal identifier and that Johnson discloses "generating . . . second control information," we conclude that the Board did not err in determining that the challenged claims would have been obvious over the asserted prior art combinations, which are all based on Johnson and Moriya.

We have considered Vivint's remaining arguments, but find them unpersuasive.

CONCLUSION

For the foregoing reasons, we affirm the decision of the Board.

AFFIRMED