

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

INTEL CORPORATION,
Petitioner,

v.

AX WIRELESS, LLC,
Patent Owner.

IPR2023-01146
Patent 11,212,146 B2

Before TERRENCE W. McMILLIN, JOHN D. HAMANN, and
MICHAEL T. CYGAN, *Administrative Patent Judges*.

CYGAN, *Administrative Patent Judge*.

DECISION
Denying Institution of *Inter Partes* Review
35 U.S.C. § 314

I. INTRODUCTION

A. *Background and Summary*

Intel Corporation (“Petitioner”) filed a Petition requesting an *inter partes* review of claims 1–10 of U.S. Patent No. 11,212,146 B2 (Ex. 1001, “the ’146 patent”). Paper 2 (“Pet.”). AX Wireless, LLC (“Patent Owner”) filed a Preliminary Response to the Petition. Paper 7 (“Prelim. Resp.”). The Petition is supported by a declaration from Dr. Thomas LaPorta. Ex. 1003 (“LaPorta Declaration”). The Preliminary Response is supported by a declaration by Dr. Zygmunt Haas. Ex. 2001 (“Haas Declaration”).

Applying the standard set forth in 35 U.S.C. § 314(a), which requires demonstration of a reasonable likelihood that Petitioner would prevail with respect to at least one challenged claim, we deny the Petition and do not institute an *inter partes* review.

A. *Real Parties in Interest*

Petitioner identifies itself, Intel Corporation, Dell, Inc., Dell Technologies, Inc., and Lenovo Group Ltd. as real parties-in-interest. Pet. 78. Patent Owner identifies AX Wireless, Inc., and its corporate parent, IdeaHub, Inc., as real parties-in-interest. Paper 5, 1.

B. *Related Matters*

The parties represent that the ’146 patent is involved in *AX Wireless LLC, v. Dell Inc., and Dell Technologies Inc.*, 2:22-cv-00277 (EDTX); *AX Wireless LLC, v. Lenovo Group Ltd.*, 2:22-cv-00280 (EDTX); *AX Wireless LLC, v. HP Inc.*, 2:22-cv-00279 (EDTX); *AX Wireless LLC, v. Acer Inc.*, 2:23-cv-00041 (EDTX). Pet. 79; Paper 5, 1.

Patent Owner represents that Petitioner has also filed IPRs challenging other patents asserted in the district court cases, namely U.S.

Patent Nos. 9,584,262 (“’262 patent”), 9,614,566 (“’566 patent”), 10,079,707 (“’707 patent”), 10,291,449 (“’449 patent”), 10,554,459 (“’459 patent”), 10,917,272 (“’272 patent”), and 9,973,361 (“’361 patent”). Paper 5, 1–2.

C. The ’146 Patent

The ’146 patent is titled “Header Repetition in Packet-Based Systems.” Ex. 1001, code (54). The ’146 patent issued from Application No. 17/136,801, filed on December 29, 2020, and claims priority, via continuation applications and a national stage entry, to Provisional Application No. 61/235,909, filed on August 21, 2009. *Id.* at codes (21), (22), (60), (63).

The ’146 patent relates to communications system using a shared channel based on Orthogonal Frequency Division Multiplexing (“OFDM”). *Id.* at 1:40–45. OFDM divides the transmission frequency band into multiple subcarriers, with each subcarrier individually modulating one or more bits. *Id.* at 1:49–54. OFDM may involve a packet, which is “usually formed by a preamble, header, and payload, and transmitted using time-sharing or contention-based media access methods.” *Id.* at 1:45–47. The ’146 patent describes IEEE 802.11 (Wireless LAN) as an example of such a system. *Id.* at 1:47–49.

Because the header contains important information for decoding the payload, it is essential to decode the header reliably. *Id.* at 1:55–58. The ’146 patent describes “various ways of communicating a header repetition scheme in a system so that various nodes are aware of the scheme used.” Prelim. Resp. 3 (citing Ex. 1001, 2:51–3:67). One described method

modulates header bits onto two OFDM symbols, in a different order. Ex. 1001, 7:63–67.

D. Illustrative Claim

Claim 1 is illustrative, and recites as follows:¹

[1Pre] A wireless communication device, comprising:

[1A] a wireless receiver configured to receive a wireless packet through a communication channel, formats of the wireless packet including a first packet format and a second packet format, the first packet format comprising a first header field carried by a first orthogonal frequency division multiplexing (OFDM) symbol, the second packet format comprising both the first header field carried by the first OFDM symbol and a second header field carried by a second OFDM symbol which follows the first OFDM symbol, and the second header field being a repetition of the first header field; and

[1B] a demodulator configured to demodulate the received wireless packet,

[1C] wherein the wireless receiver distinguishes the second packet format from the first packet format by detecting from the received wireless packet, the second header field which repeats the first header field.

E. Evidence

Petitioner relies on the following patent document evidence:

Name	Patent Document	Exhibit
Huang	US 10,637,706 B2	1005
Sun	US 10,122,563 B1	1006

F. Asserted Grounds

Petitioner asserts the following grounds of unpatentability:

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1–10	103	Huang
1–10	103	Sun

¹ Bracketed numbering added as per the Petition.

II. ANALYSIS

A. *Legal Standards*

Petitioner bears the burden to demonstrate unpatentability. *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015). For purposes of institution, Petition bears the burden to establish, by a reasonable likelihood that at least one of the challenged claims would have been obvious over the cited art. *See* 35 U.S.C. § 314(a). Where unpatentability rests on a document that is prior art to a challenged patent but for that patent’s priority claim to an earlier effective filing date, such a priority claim is not presumed valid. *PowerOasis, Inc. v. T-Mobile USA, Inc.*, 522 F.3d 1299, 1305 (Fed. Cir. 2008) (noting that the USPTO does not routinely determine whether such priority claims meet the requirements of 35 U.S.C. § 120).

To be entitled to the priority date of an earlier-filed patent document, Patent Owner must show that it discloses what the ’146 patent claims, according to the written description requirement of pre-AIA 35 U.S.C. § 112 ¶ 1 or AIA 35 U.S.C. § 112(a). *See In re Katz Interactive Call Processing Patent Litig.*, 639 F.3d 1303, 1322 (Fed. Cir. 2011); *In re NTP, Inc.*, 654 F.3d 1268, 1276 (Fed. Cir. 2011) (stating, “for a patent’s claims to be entitled to an earlier priority date, the patentee must demonstrate that the claims meet the requirements of 35 U.S.C. § 120”). Once Patent Owner has provided sufficient evidence and argument to show that the earlier-filed applications contain a written description that supports all of the limitations of the claim, the burden of going forward again shifts to Petitioner to persuade the Board that Patent Owner is not entitled to the benefit of the

earlier filing date. *See Technology Licensing Corp. v. Videotek, Inc.*, 545 F.3d 1316, 1327–28 (Fed. Cir. 2008).

The test for written description is “whether the disclosure of the [earlier] application relied upon reasonably conveys to those skilled in the art that the inventor had possession of the claimed subject matter.” *Ariad Pharm., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010) (en banc). The issue of whether a claimed invention satisfies the written description requirement is a question of fact. *Id.* at 1351.

We apply these principles to the Petition’s challenges.

B. Level of Ordinary Skill in the Art

We review the grounds of unpatentability in view of the understanding of a person of ordinary skill in the art at the time of the invention. *Id.* at 13, 17. Petitioner asserts that a person of ordinary skill in the art

would have had at least a Master’s degree in electrical engineering or a similar discipline, and/or at least two to three years of experience working or conducting research in wireless communication protocols, or an equivalent combination of education and experience.

Pet. 6 (citing Ex. 1003 ¶¶ 71, 72). Patent Owner does not contest Petitioner’s assertion as to the level of ordinary skill in the art. Prelim. Resp. 6. We are persuaded, on the present record, that Petitioner’s proposal is consistent with the problems and solutions in the ’146 patent and prior art of record. We adopt Petitioner’s definition of the level of skill for the purposes of this Decision.

C. Claim Construction

In *inter partes* review, we construe claims using the same claim construction standard that would be used to construe the claim in a civil

action under 35 U.S.C. § 282(b), including construing the claim in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent. 37 C.F.R. § 42.100(b) (2022). The Board is required to construe “only those terms . . . that are in controversy, and only to the extent necessary to resolve the controversy.” *Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

Petitioner and Patent Owner, in extended briefing, contest the construction of the phrase “detecting, from the received wireless packet, the second header field which repeats the first header field,” as it appears in claim 1. Pet. 9; Prelim. Resp. 1; Pet. Reply 3; PO Sur-Reply 3. However, both parties appear to agree that the plain and ordinary meaning of the term should apply. *See* Pet. 6; Prelim. Resp. 15. Further, Petitioner has clarified that its statements as to the scope of the term are directed to its assertions that the ’146 patent lacks support for the claimed subject matter in its parent applications. Pet. Reply. 5–6. Consequently, we address claim construction arguments in their context of the parties’ priority contentions. *See infra* at II.D.1.

D. Analysis of the Challenged Claims

Petitioner argues that dependent claims 1–10 are obvious over either Huang or Sun, both of which admittedly have a filing date after the earliest priority date claimed on the ’146 patent. Pet. 2. Petitioner asserts a prior art date of April 28, 2020 for Huang and November 6, 2018 for Sun. *Id.* The ’146 patent was filed on December 29, 2020 and claims the benefit, through a chain of prior applications, as a continuation of U.S. application No.

13/376,856, filed on August 20, 2010, which claims the benefit of U.S. provisional Application No. 61/235,909. Ex. 1001 code (63). Petitioner challenges this claim to priority, arguing that features of the challenged claims do not have written description support in “any of the ’146 patent’s alleged priority applications.” Pet. 18 (citing Ex. 1003 ¶ 85).

Patent Owner disagrees, arguing that the claims have written description support in each prior application, and consequently, that Huang and Sun are not prior art. Prelim. Resp. 8. With respect to the claimed detection of header repetition, Patent Owner points to an embodiment in the ’146 patent, which states:

the receiver distinguishes between packet formats by “decoding one OFDM header symbol,” which if successful, “then the receiver knows how many more OFDM symbols (D-1) are carrying header information for a given frame.” . . . But even where the receiver is unable to determine the value of D header field, it can still detect and decode additional OFDM header symbols.

Prelim. Resp. 13 (citing 3:1–11; Ex. 2001 ¶ 35). Patent Owner emphasizes that the ’146 patent expressly states that detection encompasses decoding in that embodiment. *Id.* at 14. Patent Owner points to additional embodiments, including those where packet formats may be decoded “without knowing D [the number of OFDM symbols] a priori (i.e. prior to decoding the packet header).” *Id.* at 3–4 (citing Ex. 1001, 2:51–64). Patent Owner asserts that these embodiments were described in the earliest application in the priority chain, and that the receiver’s use of D to determine the presence of a second header field is present in all patent applications in the priority chain. *Id.* at 14–15 (citing Ex. 1008, 5–6), 18.

Where a Petitioner asserts unpatentability based upon references that are asserted as prior art and facially bear dates that would qualify them as prior art to the asserted claims of the challenged patent, Patent Owner may attempt to disqualify those references by providing evidence that the challenged patent is entitled to the benefit of its claims to prior applications. *See In re Katz*, 639 F.3d at 1322; *In re NTP*, at 1276. Here, the '146 patent was filed on December 29, 2020, and Petitioner has asserted unpatentability over Huang, stating an effective date of April 28, 2020, and over Sun, stating an effective date of November 6, 2018. Pet. 2.² Thus, Patent Owner bears a burden of production to show written description support in its prior applications that predates those prior art dates.

Patent Owner has shown sufficient written description support for the claims, including the disputed “detecting” limitation. The “decode-to-learn-‘D’” description in the specification of the '146 patent and in the provisional application to which the '146 patent claims priority describe a specific procedure for the claimed “detecting, from the received wireless packet, the second header field which repeats the first header field.”³ *See* Ex. 1001,

² Petitioner specifically asserts that Huang qualifies under 35 U.S.C. §102(b). Pet. 2, 19 (“by more than a year”). However, Huang’s patent issuance date of April 28, 2020 does not qualify under § 102(b) because it is less than one year before the December 29, 2020 filing date of the '146 patent. Nevertheless, Petitioner has made an effective showing that Sun would qualify as prior art sufficient to shift the burden of production to Patent Owner.

³ Patent Owner does not explicitly show support for each of the applications in the priority chain. Patent Owner also cites to a Pre-Grant Publication rather than the underlying application despite the fact that such a Publication may include amendments to the originally filed application that would not evidence written description. *See* 37 C.F.R. § 1.215 (a); MANUAL OF PATENT EXAMINING PROCEDURE §1121; Ex. 2003, 7 (showing amendments

3:1–11; Ex. 2001 ¶ 35; Ex. 1008, 5–6; PO Sur-Reply 6. The “D” information is received in the wireless packet, and the receiver determines therefrom whether there is a second header field that repeats the first header field. *See* Ex. 1008, 5–6; PO Sur-Reply 6. The written description further includes descriptions of other embodiments for receiver detection with variable repetition, including detection “without knowing D a priori.” Ex. 1001, 2:18–3:59.

Petitioner ultimately does not disagree that such disclosure provides written description for the claimed header repetition detection. In its Petition, Petitioner argues that “none of the alleged priority applications disclose a receiver that distinguishes packet formats based on detecting the repetition of a header field in received packets (i.e., ‘detecting ... the second header field which repeats the first header field’).” Pet. 9. Petitioner bases its “detecting” argument on the plain language of the claim, and on language in the dependent claims that specifies further actions to be taken upon detection or non-detection. *Id.* at 11–12. Petitioner argues that the ‘146 patent’s described receiver does not actually detect a repeated header field, but instead, receives a “D” value that explicitly communicates if the header field is repeated. *Id.* at 15–16. Petitioner argues that the claims require an “inference,” not an “explicit[] communicat[ion],” to determine whether a header field is repeated. *Id.* at 17 (stating, “there would be no need for the receiver to *detect* repeated header fields in cases where the number of header repetitions D is explicitly communicated by the transmitter in the packet

to originally filed claims). However, both parties agree that the disclosures of those applications are identical with respect to the description at issue. Prelim. Resp. 18; Pet. 9 n.2.

header”)(citing Ex. 1003 ¶ 84). Petitioner further argues that claim 4 illustrates that “detecting” is not the same as “decoding.” *Id.* at 18.

However, in its authorized additional briefing on claim construction, Petitioner reverses course, stating, “Petitioner is not arguing that written description support is missing because the explicit decode-to-learn-‘D’ embodiments fall outside the reach of the claims.” Pet. Reply 4–5. According to Patent Owner, that is a concession that “should end . . . the inquiry.” PO Sur-Reply 4.

We agree. Patent Owner has met its burden of production to show support for claim 1 in its priority applications. This support includes multiple embodiments, and is not confined to the decode-to-learn “D” embodiment. Because Patent Owner has provided sufficient evidence and argument to show that the earlier-filed applications contain a written description that supports all of the limitations of the claim, “the burden of going forward again shifts” to Petitioner to persuade the Board that Patent Owner is not entitled to the benefit of the earlier filing date. *Technology Licensing Corp.* 545 F.3d at 1327–28.

Petitioner requested, and was granted, a Reply to Patent Owner’s Preliminary Response on “Inconsistent Claim Construction Positions,” arguing that Patent Owner made claim construction positions in its Preliminary Response that are inconsistent with positions taken in the district court. Pet. Reply 1, 4–5; Ex. 3001. In its Reply, Petitioner asserts that Patent Owner has “advanced a broader claim scope in district court to cover detecting a repeated header field by inference”; specifically,

the receiver “detecting” claimed in the ’146 Patent involves **“recognizing the packet format, from the received wireless packet, based on a determination of whether a**

second header field that repeats the first header field is present (i.e., second packet format) or absent (i.e., first packet format).” See INTEL-1044 at 13 (emphasis added). PO further explained that “[t]he format of the wireless packet may thus be determined based on the presence of the second header field carried by a second OFDM symbol, which is absent from the first packet format.” *Id.* at 14.

Pet. Reply 4–5 (citing “INTEL-1044,” described as “Markman proceedings”).⁴ Petitioner summarizes its argument as “the missing written description support is for detecting a repeated header field by inference *without* decoding to learn “D.” *Id.* at 5.

Patent Owner argues that the focus of Petitioner’s Reply has changed; i.e., that Petitioner now argues the claims lack written description for part of their scope whereas the Petition merely argued that the claims lacked written description entirely. PO Sur-Reply 3–4. Patent Owner further argues that the disclosure of decoding to learn “D,” present in the ’909 provisional application, provides sufficient written description support for the “determining” limitation of the claims. *Id.* at 6. Moreover, Patent Owner argues that “the claim construction briefing [in the litigation] *did not* involve written description issues, period.” *Id.* at 4.

We determine that Petitioner has not shown any inconsistency in Patent Owner’s statements. In both proceedings, Patent Owner argues that claim 1 encompasses embodiments in which a repeated header field is detected by decoding the “D” value in a header, and embodiments in which the receiver could detect the packet format without knowing “D.” In its

⁴ There is no “INTEL-1044” exhibit in the record of this proceeding. Nor is there an Exhibit 1044. Petitioner’s exhibit list (Pet. Reply i–ii) does not correspond with the documents of record. The quoted language may, however, be found in Exhibit 1018 at the same page numbers (13, 14).

opening construction brief in the litigation, Patent Owner described “the scope of the term as recited in the disputed claims” by pointing to description in the specification that is “replete with teachings on detecting and distinguishing the packet format of a received packet based on the presence or absence of a repeated header field.” Ex. 1018, 16. Specifically, that

“a receiving node . . . should be able to decode packets sent by the transmitter without knowing D a priori (i.e., prior to decoding the packet header).” . . . In other words, using these techniques, a receiver could detect the packet format and decode the packets without knowing D, the number of OFDM symbols carrying the header fields, disclosed in the packet header. The specification also teaches alternative embodiments in which the “transmitter . . . carr[ies], insert[s], or otherwise communicate[s] the value of D in the header so that all nodes know how many OFDM symbols are carrying header information.”

Ex. 1018, 16 (quoting Ex. 1001, 2:61–3:1)).

Patent Owner provides a nearly identical representation in its Preliminary Response, pointing to the same descriptions in the specification. Prelim. Resp. 13 (citing Ex. 2:51–3:11). Addressing the scope, Patent Owner further stated, “nothing in the plain language of the claims expressly excludes the decoding of a header field as one way to detect a second header field, and thereby distinguish between packet formats,” and consequently, “the ‘detecting’ term should be given its full scope,” which “would not exclude identifying the existence of the second header field by decoding the value D.” Prelim. Resp. 11–12.

Thus, although Patent Owner’s preliminary infringement contentions assert that the repetitive header detection mechanism of IEEE 802.11ax-2021 infringes claim 1, Patent Owner in both proceedings advances a broad

scope for claim 1. Because Petitioner does not point to any contradictory statement of Patent Owner, we are not persuaded that Patent Owner attempts to argue a different scope for claim 1 in this IPR proceeding than in the related litigation.

Moreover, Petitioner's argument in its Reply that the parent applications of the '146 patent describe the "D"-based detecting but not an inference-based detecting as in Patent Owner's litigation assertions is not persuasive. First, this argument is untimely because it was not made in the Petition. The Petition discusses Patent Owner's litigation assertions not to argue that the scope of the claim exceeded its written description only for the litigation assertions, but only that no written description existed even considering the decode-to-learn "D" description. Pet. 15 ("The '146 patent does not provide any disclosure of detecting the presence or absence of a repeated header field to distinguish packet formats.").

Second, neither the Petition nor the Reply addresses why the knowledge of one skilled in the art, in view of the level of predictability in the field, would not have considered the type of detecting set forth in Patent Owner's litigation assertions to be disclosed by a genus represented by the species of different embodiments set forth in the relevant parent applications of the '146 patent. *See Bilstad v. Wakalopoulos*, 386 F.3d 1116, 1124 (Fed. Cir. 2004) (explaining that the scope of the written description of a genus "is based upon what would be reasonably conveyed to a person skilled in the art at the time of the original disclosure"). Petitioner's attempt to rely solely on the absence of an explicit embodiment to show lack of written description is not sufficient. *Id.* (quoting *In re Rasmussen*, 650 F.2d 1212, 1215 (CCPA

1981) (“[T]hat a claim may be broader than the specific embodiment disclosed in a specification is in itself of no moment.”)).

For the above described reasons, Petitioner has not shown that the ’146 patent may not receive the benefit of the filing date of any of its parent applications. Thus, Petitioner has not shown that either Huang or Sun is prior art to claims 1–10 of the ’146 patent, and consequently, that any of claims 1–10 is obvious over either Huang or Sun.

III. CONCLUSION

For the foregoing reasons, we have determined that there is not a reasonable likelihood that the Petitioner would prevail with respect to at least one claim challenged in the Petition. We, therefore, do not institute trial as to any claim or any ground set forth in the Petition.

IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that no *inter partes* review of U.S. Patent 11,212,146 B2 is instituted on the basis of the Petition filed in this proceeding.

IPR2023-01146
Patent 11,212,146 B2

PETITIONER:

Lori Gordon
Jonathan Carter
Matthew Hindman
PERKINS COIE LLP
gordon-ptab@perkinscoie.com
carter-ptab@perkinscoie.com
hindman-ptab@perkinscoie.com

PATENT OWNER:

Giri Pathmanaban
Jonathan Strang
Jacob Vannette
LATHAM & WATKINS LLP
giri.pathmanaban@lw.com
jonathan.strang@lw.com
jake.vannette@lw.com