

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

DISH NETWORK L.L.C., DISH NETWORK SERVICE L.L.C.,
DISH NETWORK CORPORATION, and
DISH NETWORK CALIFORNIA SERVICE CORPORATION,
Petitioners,

v.

ENTROPIC COMMUNICATIONS, LLC,
Patent Owner.

IPR2024-00546
Patent 8,621,539 B1

Before LYNNE H. BROWNE, JON M. JURGOVAN, and
FREDERICK C. LANEY, *Administrative Patent Judges*.

BROWNE, *Administrative Patent Judge*.

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

I. INTRODUCTION

Dish Network L.L.C., Dish Network Service L.L.C., Dish Network Corporation, and Dish Network California Service Corporation (“Petitioner”) filed a Petition (Paper 2 (“Pet.”)), seeking *inter partes* review of claims 1–7 (the “challenged claims”) of U.S. Patent No. 8,621,539 B1 (Ex. 1001 (“the ’539 patent”)). See Pet. 1–3. Entropic Communications, LLC (“Patent Owner”) filed a Preliminary Response. Paper 6 (“Prelim. Resp.”).

Institution of an *inter partes* review is authorized by statute when “the information presented in the petition . . . and any response . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a); see 37 C.F.R. § 42.108. For the reasons stated below, we determine that Petitioner has not established a reasonable likelihood that it would prevail with respect to any claim challenged in the Petition. We therefore deny institution of *inter partes* review.

A. Related Matters

The parties indicate that the ’539 patent is or was involved in the following district court actions:

Entropic Communications, LLC v. DirecTV, LLC f/k/a DirecTV, Inc. et al., 2-23-cv-05253 (C.D. Cal.);

Entropic Communications, LLC v. DISH Network Corporation et al., 2-23-cv-01043 (C.D. Cal.);

Entropic Communications, LLC v. Cox Communications, Inc. et al., 2-23-cv-01047 (C.D. Cal.);

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Entropic Communications, LLC v. Comcast Corporation et al., 2-23-cv-01048 (C.D. Cal); and

Entropic Communications, LLC v. Charter Communications, Inc., 2-23-cv-00050 (E.D. Tex.).

Pet. 70–71; Paper 4, 1.

In addition, Petitioner identifies the following district court litigation as involving the '539 patent:

Entropic Communications, Inc. v. ViXS Systems, Inc. et al., 3-13-cv-01102 (S.D. Cal.).

Pet. 71.

Patent Owner states Petitioner has requested *inter partes* review of the following patents which are being asserted by Patent Owner in district court actions identified above:

U.S. Patent No. 7,594,249 in IPR2024-00373;

U.S. Patent No. 7,295,518 in IPR2024-00393;

U.S. Patent No. 7,889,759 in IPR2024-00462;

U.S. Patent No. 8,320,566 in IPR2024-00555;

U.S. Patent No. 8,631,450 in IPR2024-00560; and

U.S. Patent No. 8,363,681 in IPR2024-00562.

Paper 4, 2–3.

Patent Owner additionally identifies the following patents as related to the '539 patent:

U.S. Patent No. 7,028,082;
U.S. Patent No. 7,555,539;
U.S. Patent No. 7,856,485; and
U.S. Patent No. 9,591,051.

Paper 4, 2.

B. The '539 Patent (Ex. 1001)

The '539 patent, for a “Physical Layer Transmitter for Use in a Broadband Local Area Network,” relates to broadband communication networks utilizing coaxial cable. Ex. 1001, code (54), 1:21–23. “In an example implementation, [a] PHY [(physical layer)] Transmitter, using data from a MAC [(media access control)] layer, may be part of a logical mesh network whereby each node in the network is able to engage in two-way communications with every other node in the network.” *Id.* at 5:7–10; *see also id.* at 4:37–42, 9:5–7, Fig. 4.

Figure 3 shows a functional diagram of communication between the different nodes in a virtual logical mesh network. Figure 3, reproduced below, also shows that the same link between two nodes may behave differently in different directions. Ex. 1001, 5:54–58.

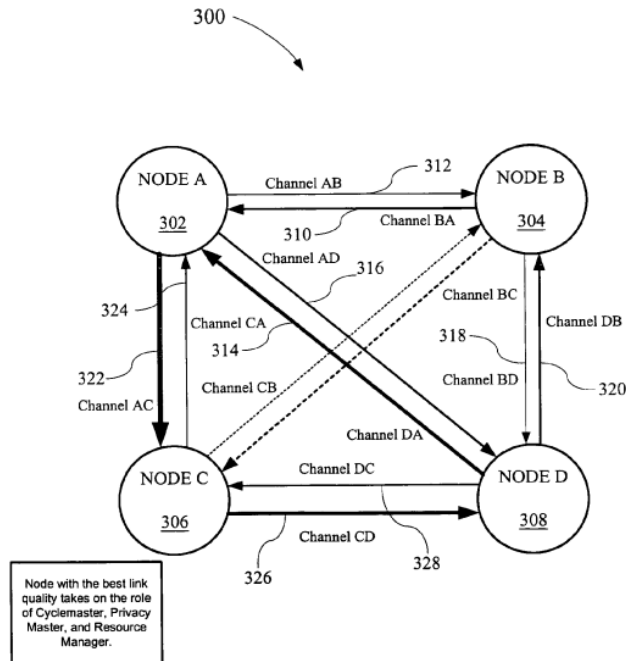


Figure 3 illustrates logical communications between various nodes 302, 304, 306, and 308 of a coaxial home network. *Id.* at 6:48–51. Figure 3 also illustrates various signal paths or channels 310, 312, 314, 316, 318, 320, 322, 324, 326, and 328. *Id.* at 7:1–30.

The '539 patent describes “Probe Packets [that] are used for multiple functions; the main function . . . is to probe the network and its frequency response for inter-node link throughput optimization.” Ex. 1001, 9:46–65. “[T]hree types of probe packets that may be used for network link optimizations and PHY layer calibration and maintenance” including “Echo Profile (‘EP’) Probes whose purpose is to measure node delay spread on the network in order to optimize the preamble and Cyclic Prefix (‘CP’) requirements or other parameters” are described. *Id.*

Figure 4, reproduced below, shows a functional block diagram of a communication protocol stack used in the communications layers above the PHY Transmitter. Ex. 1001, 5:59–61.

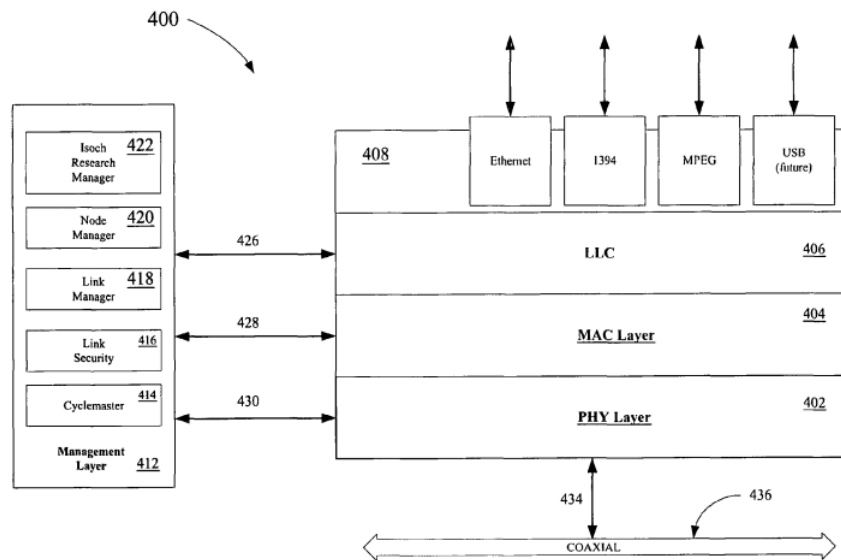


FIG. 4

Figure 4 illustrates a coaxial cable 436, a PHY layer 402, and a MAC layer 404. *Id.* at 8:25–49.

C. Challenged Claims

Petitioner challenges claims 1–7 of the '539 patent. Pet. 1–3. Of the challenged claims, claim 1 is independent. Independent claim 1 is reproduced below with Petitioner's labeling of the limitations for ease of reference.

1. [1pre] A modem for communication to at least one node across at least one channel of a coaxial network, the modem comprising:
 - [1a] a transmitter; and
 - [1b] a MAC layer in signal communication with the transmitter, the MAC layer using at least one probe packet as an echo profile probe to measure node delay spread on the network and the MAC layer optimizing the preamble and cyclic prefix requirements or other parameters in response to the measured node delay spread on the network;

[1c] wherein the transmitter communicates the at least one probe¹ packet.

Ex. 1001, 18:13–25.

D. The Alleged Grounds of Unpatentability

Petitioner asserts the following grounds of unpatentability (Pet. 2–3):

Ground	Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1	1	103(a)	Hou, ² Kenschak ³
2	2–7	103(a)	Hou, Kenschak, Dapper ⁴

E. Evidence

In support of its proposed grounds, Petitioner relies on the Declaration of Roch A. Guerin, Ph.D. (“Dr. Guerin”). Patent Owner does not rely on any declaration testimony in support of its Preliminary Response. In our analysis below, we consider Dr. Guerin’s testimony.

II. ANALYSIS

A. Legal Standards

Petitioner bears the burden to demonstrate unpatentability, and that burden never shifts to Patent Owner. *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015).

¹ A certificate of correction dated July 15, 2014 changed “transmit” in the last line of claim 1 of the issued patent to “probe.”

² U.S. Patent No. 6,898,755 B1, filed August 24, 2001, issued May 24, 2005 (Ex. 1005, “Hou”).

³ European Patent Application EP 1 065 855 A1, published January 3, 2001 (Ex. 1006, “Kenschak”).

⁴ U.S. Patent No. 6,366,585 B1, filed September 15, 1999, issued April 2, 2002 (Ex. 1007, “Dapper”).

A claim is unpatentable for obviousness if “the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.” 35 U.S.C. § 103(a)⁵; *see also KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) when in evidence, objective evidence of nonobviousness.⁶ *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

B. Level of Ordinary Skill in the Art

Petitioner asserts that

a person of ordinary skill in the art (“POSITA”) would have had (i) a bachelor-level degree in electrical engineering, computer engineering, or a related field, and three or more years of experience working in signal processing and/or communications systems/networks; (ii) a master’s degree in electrical engineering, computer engineering, or a related field, and at least one year of experience in signal processing and/or communications systems/networks; or (iii) a doctoral degree in electrical engineering, computer engineering, or a related field, and at least some experience in signal processing and/or

⁵ The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284, 287–88 (2011), amended 35 U.S.C. §§ 102 and 103. Because the ’539 patent issued from an application that was filed before the effective date of the applicable AIA provisions (Ex. 1001, code (22)), the pre-AIA versions of §§ 102 and 103 apply.

⁶ The parties have not directed our attention to any objective evidence of obviousness or non-obviousness.

communications systems/networks. Additional education could substitute for professional experience, or *vice versa*.

Pet. 8–9 (citing Ex. 1003 ¶ 16).

Patent Owner does not offer a definition of a POSITA. *See generally* Prelim. Resp.

For purposes of this Decision, we adopt Petitioner’s proposal as reasonable and consistent with the prior art. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001) (the prior art may reflect an appropriate level of skill in the art).

C. Claim Construction

We apply the same claim construction standard used in district court actions under 35 U.S.C. § 282(b), namely that articulated in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). *See* 37 C.F.R. § 42.100(b). In applying that standard, claim terms generally are given their ordinary and customary meaning as would have been understood by a person of ordinary skill in the art at the time of the invention and in the context of the entire patent disclosure. *Phillips*, 415 F.3d at 1312–13. “In determining the meaning of the disputed claim limitation, we look principally to the intrinsic evidence of record, examining the claim language itself, the written description, and the prosecution history, if in evidence.” *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1014 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312–17).

Petitioner states that “no express constructions are required in this proceeding” and “Petitioner reserves the right to address any construction proposed by Patent Owner or the Board.” Pet. 3.

Patent Owner does not identify any claim terms which require

construction and states Patent Owner “reserves its right to respond to any construction Petitioner later proposes.” Prelim. Resp. 8–9.

We agree with the Parties that at this point in this proceeding, no express construction of any claim term is necessary.

D. Ground One: Alleged Obviousness of Claim 1 in View of the Combined Teachings of Hou and Konschak

Petitioner contends that claim 1 is unpatentable over the combined teachings of Hou and Konschak. Pet. 2. For the reasons discussed below, Petitioner does not demonstrate a reasonable likelihood of prevailing on this ground.

1. Hou (Ex. 1005)

Hou is a U.S. patent for a “Method for Increasing Physical Layer Flexibility in Cable Modem Systems” where signals are transmitted upstream from a cable modem (CM) to a cable modem termination unit (CMTS). Ex. 1005, codes (54), (57). In Hou “when [a] CM performs a bandwidth request to the CMTS, the CMTS determines whether the CM is dynamic burst profile mode capable.” *Id.* at 6:30–45. If the CM is dynamic burst profile mode capable, “then the CMTS assigns a burst profile based on performance measurements on the CM.” *Id.*

Hou describes that “[t]he CMTS should be capable of measuring the following counts on a per CM basis in order to determine appropriate burst profiles to assign: . . . Echo Delay Spread (measurement of Amplitude of echo and its delay).” Ex. 1005, 13:1–14. Hou further describes that “key parameters that relate to robustness of the burst profile [include] . . . the length of the preamble.” *Id.* at 8:23–25.

2. *Konschak (Ex. 1006)*

Konschak is a published European patent application for “Adaptation of cyclic extensions in an OFDM [(Orthogonal Frequency Division Multiplex)] communication system.” Ex. 1006, code (54), ¶ 2. Konschak describes that in wireless telecommunication systems a signal transmitted from one apparatus to another undergoes different phenomena on its transmission path and is spread in the time domain. Ex. 1006 ¶ 2. The signal does not arrive as one data symbol at a certain timepoint at the receiving communication apparatus, but arrives as delayed symbols or echoes thereof at different timepoints which results in interference. *Id.* This problem is solved in conventional systems using cyclic extensions. *Id.* ¶ 4. In Konschak, a delay value is determined and the length of cyclic extensions are set accordingly. *Id.* ¶¶ 14, 15.

3. *Independent Claim 1*

Petitioner asserts that the combined teachings of Hou and Konschak disclose or render obvious all of the limitations of claim 1. Pet. 26–49. As our determination the Petitioner has not demonstrated a reasonable likelihood of prevailing for limitation [1b] is dispositive for claim 1, we focus our discussion on that limitation which requires

a MAC layer in signal communication with the transmitter, the MAC layer using at least one probe packet as an echo profile probe to measure node delay spread on the network and the MAC layer optimizing the preamble and cyclic prefix requirements or other parameters in response to the measured node delay spread on the network.

Ex. 1001, 18:17–23.

For the requirement that the media access control device communicate with the transmitter, Petitioner asserts that each of Hou’s cable modems

“includes ‘a tuner 42, a demodulator 44, a media access control (MAC) device 46, and a modulator 48.’” Pet. 30 (citing Ex. 1005, 3:11–14).

Petitioner asserts further that Hou’s media access control device “is positioned above the upstream and downstream physical layer portions of” its cable modem and that “Hou depicts the ‘data link layer’ above the physical layer. *Id.* (citing Ex. 1005, 3:42–53, 4:7–12, Fig. 4). In addition, Petitioner asserts that a person of ordinary skill in the art “would have understood that the MAC layer was a known part of a Data Link Layer, and would have understood Hou’s disclosure of a ‘MAC’ (or ‘MAC device’) that is positioned above the physical layer of the CM to refer to a MAC layer that is part of the depicted Data Link Layer” and that “Hou’s ‘modulator,’ part of the transmitter used for data sent over the network, is . . . in communication with the MAC layer.” *Id.* at 31–32 (citing Ex. 1003 ¶¶ 99–101; Ex. 1001, 4:38–55; Ex. 1017, 4:31–33; Ex. 1031, 41:17–29; Ex. 1005, 3:11–23, 3:34–52).

Turning to the probe packet requirements of this limitation, Petitioner admits that “[w]hile Hou conducts ‘performance measurements’ on CMs’ transmissions, it does not expressly disclose conducting these measurements using ‘probe packets,’ only requiring that each CM use burst profiles for the transmission being measured.” Pet. 36 (citing Ex. 1005, 8:44–65).

Petitioner asserts further that Hou “explains that certain burst profile types correspond to a burst profile, including the ‘initial ranging’ and ‘periodic ranging’ types” and that

[a]s such, a POSITA would have found obvious that the RNG-REQ messages (“at least one probe packet”) exchanged as part of known ranging protocols would have been transmitted by each CM using burst profiles, and therefore would have been appropriate vehicles by which to measure the parameters Hou

discloses for assigning burst profiles to the CMs.

Id. (citing Ex. 1005, 4:32–43; Ex. 1003 ¶ 107).

Patent Owner responds that “the Petition fails to identify any teaching of a MAC layer using a probe packet.” Prelim. Resp. 26. Specifically, Patent Owner contends that “*Hou* discloses that its CMTS measures metrics, but without reference to any ranging protocol or request” and that this disclosure would not have suggested a MAC layer using a probe packet as required. *Id.* at 31 (citing Ex. 1005, 6:35–36, Fig. 5). We agree.

Moreover, Petitioner’s attempt to use the teachings of Min⁷ to cure this deficiency in *Hou* is flawed. Petitioner asserts that Min “explains that a typical ranging process in a point-to-multipoint system according to the DOCSIS specification (such as that in *Hou*) involves each CM sending a ranging request message (‘RNG-REQ’) to the CMTS, and receiving a ranging response message (‘RNG-RSP’) from the CMTS.” Pet. 35 (citing Ex. 1003 ¶¶ 52, 106; Ex. 1018 ¶¶ 81–82). Petitioner reasons that “[a] POSITA would thus have understood that *Hou*’s ranging protocol used to adjust timing and power levels refers to the known, typical ranging processes like those described in Min, and would include the same use of RNG-REQ and RNG-RSP messages and resulting adjustments to transmission parameters.” *Id.* at 36 (citing Ex. 1003 ¶ 106).

In other words, Petitioner asserts that Min’s RNG-REQ messages are probe packets and that it would have been obvious to one of skill in the art to use Min’s RNG-REQ messages for *Hou*’s ranging protocols with the result that *Hou* would use “at least one probe packet” as claimed. *See* Pet. 33–37.

⁷ U.S. Patent Application Publication No. 2002/0191684 A1, published December 19, 2002 (Ex. 1018, “Min”).

This reasoning, however, is flawed because Min is relied upon as an evidence reference and not as part of the proposed combination. Hou does not disclose “RNG-REQ messages” or the claimed “at least one probe packets” and Min does not provide sufficient evidence that Hou would include these elements.

In addition, we agree with Patent Owner that the Petition provides insufficient basis to combine Hou and Konschak. PO Resp. 36. Patent Owner enumerates many reasons why a person of ordinary skill would not or could not combine the teachings of Hou and Konschak in the manner proposed in the Petition. *Id.* at 36–46. In a nutshell, Patent Owner argues that Hou and Konschak’s systems are incompatible and that Petition relies on conclusory and unsupported argument in support of its positions. *Icon Health & Fitness, Inc. v. Strava, Inc.*, 849 F.3d 1034, 1043 (Fed. Cir. 2017) (“[a]ttorney argument is not evidence”). We agree.

For these reasons, we determine that Petitioner has not demonstrated a reasonable likelihood of prevailing for claim 1.

E. Ground Two: Alleged Obviousness of Claims 2–7 in View of the Combined Teachings of Hou, Konschak, and Dapper

Petitioner contends that claims 2–7 of the ’539 patent are unpatentable over the combined teachings of Hou, Konschak, and Dapper. Pet. 50–64. Patent Owner asserts “the inclusion of *Dapper* does not cure the above identified deficiencies of Ground 1 nor provide teachings that would render any Claims dependent on Claim 1 of the ’539 Patent (Claims 2–7) obvious.” Prelim. Resp. 46. We agree with Patent Owner and determine that Petitioner has not demonstrated a reasonable likelihood of prevailing for claims 2–7 for the reasons discussed above.

III. CONCLUSION

For the foregoing reasons, we have determined that Petitioner has not established a reasonable likelihood of prevailing with respect to any claim. Thus, we do not institute an *inter partes* review.

IV. ORDER

Accordingly, it is:

ORDERED that the Petition is *denied*, and no trial is instituted.

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