

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TP-LINK CORPORATION LIMITED,
Petitioner,

v.

NETGEAR, INC.,
Patent Owner.

IPR2023-01400
Patent 10,327,242 B2

Before NATHAN A. ENGELS, SHEILA F. McSHANE, and
JASON M. REPKO, *Administrative Patent Judges*.

ENGELS, *Administrative Patent Judge*.

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

I. INTRODUCTION

TP-Link Corporation Limited (“Petitioner”) filed a Petition (Paper 2 (“Pet.”)), seeking *inter partes* review of claims 1–37 (the “challenged claims”) of U.S. Patent No. 10,327,242 B2 (Ex. 1001 (“the ’242 patent”)). See Pet. 1. Netgear, Inc. (“Patent Owner”) did not file a Preliminary Response to the Petition.

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. Upon consideration of the evidence currently of record, we conclude that the information presented shows that there is a reasonable likelihood that Petitioner would prevail in establishing the unpatentability of at least one challenged claim of the ’242 patent.

A. *Related Matters*

The parties indicate that the ’242 patent is the subject of an investigation in the International Trade Commission, Inv. No. 337-TA-1361, filed April 3, 2023. Pet 74; Paper 4, 1. The parties further indicate that the ’242 patent is subject of Civil Action No. 2:23-cv-2540 in the Central District of California, filed April 4, 2023. Pet 74; Paper 4, 1.

B. *Real Parties in Interest*

Petitioner identifies TP-Link Corporation Limited f/k/a TP-Link International Ltd., TP-Link Technologies Co., Ltd., TP-Link USA. Corp. and TP-Link Institute USA Corp. d/b/a TP-Link Research America Corp. as

the real parties-in-interest in this proceeding. Pet. 74. Patent Owner identifies itself as the real party-in-interest. Paper 4, 1.

C. The '242 Patent (Ex. 1001)

The '242 patent, titled “Roaming in a Wireless Mesh Network,” relates to systems and methods for using quality metrics to identify an access point (“AP”) that can improve service to a client device such as a mobile phone or computer. Ex. 1001, 3:36–46. According to the '242 patent, a “received signal strength indicator (RSSI) (a measurement of the power present in a received radio signal) between the user’s device and the mesh point can be used to estimate the quality of wireless mesh network’s coverage at different locations.” *Id.* at 15:14–18. The '242 patent states that “[t]raditionally, wireless network clients (e.g., user devices 130a–130n) only start roaming when the measured RSSI value drops below a predetermined threshold” but “the RSSI value of access point measured by the client is not a good estimation of the quality of the wireless link as the link is typically asymmetric (e.g., because the transmission power of an access point is usually higher than the client’s transmission power).” *Id.* at 20:43–53. The '242 patent teaches “measur[ing] one or more parameters in addition to the RSSI value to better determine when and how to roam a client.” *Id.* at 20:54–56.

D. Challenged Claims

Petitioner challenges claims 1–37 of the '242 patent. Pet. 1–73. Of the challenged claims, claims 1 and 22 are independent. Independent claim 1 is illustrative of the challenged claims and is reproduced below with Petitioner’s labeling of the limitations for ease of reference.

1. [Preamble] A computer-implemented method for roaming implementation in a wireless mesh network formed with one or more mesh points, the method comprising:

[1.1] causing a wireless link to be established between a first mesh point and a client;

[1.2] without requiring that the established wireless link to be corrupted or lost, causing a second mesh point to measure a plurality of qualitative parameters indicative of a quality of a potential link between the second mesh point and the client;

[1.3] causing the plurality of qualitative parameters indicative of the quality of the potential link to be transmitted to a controlling entity of the wireless mesh network;

[1.4] comparing, by the controlling entity, the quality of the potential link between the second mesh point and the client against a quality of the established wireless link between the first mesh point and the client;

[1.5] upon determining that the quality of the potential link exceeds the quality of the established wireless link by a select level, causing the controlling entity to issue one or more instructions resulting in the client roaming from the first mesh point to the second mesh point; and

[1.6] determining whether the client supports intelligent roaming;

[1.7] wherein, when the client does not support intelligent roaming, the one or more instructions include a deauthentication or a disassociation frame, with a reason code reflecting a roaming decision by the controlling entity.

Ex. 1001, 30:58–31:20.

E. The Alleged Grounds of Unpatentability

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

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1–10, 14, 15, 18–31, 35	103	Gupta, ¹ Murty ²
16, 17, 36, 37	103	Gupta, Murty, Ganu ³
11, 32	103	Gupta, Murty, Perahia, ⁴
1, 5, 8, 9, 12, 13, 19, 21, 22, 26, 29, 30, 33, 34	103	Murty, Tian ⁵

In addition to the references listed above, Petitioner relies on the Declaration of Zhi Ding, Ph.D. (Ex. 1002).

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).

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; *see also KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the

¹ International Publication No. WO 2014/145073 A1, published September 18, 2014 (Ex. 1005, “Gupta”).

² U.S. Patent No. 7,907,562 B2, issued March 15, 2011 (Ex. 1006, “Murty”).

³ U.S. Patent No. 9,936,028 B2, issued April 3, 2018 (Ex. 1007, “Ganu”).

⁴ Eldad PERAHIA AND ROBERT STACEY, *NEXT GENERATION WIRELESS LANS* (2d ed. 2013) (Ex. 1009, “Perahia”).

⁵ U.S. Patent Publication No. 2015/0085844 A1, published March 26, 2015 (Ex. 1008, “Tian”).

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. of Kan. City*, 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 a Bachelor’s degree in electrical engineering, computer engineering, computer science, or a related field, and three years of experience in the design and analysis of wireless communication systems or equivalent work experience,” and that “[a]dditional education might compensate for less experience, and vice-versa.” Pet. 4 (citing Ex. 1002 ¶¶ 49–52). Because Patent Owner did not file a Preliminary Response, Patent Owner does not offer an alternate contention.

For purposes of this Decision, we apply Petitioner's proposal.

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) (2021). 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

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

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 “submits that the Board does not need to construe any claim term for purposes of resolving the issues presented in this Petition.” Pet. 4. Because Patent Owner did not file a Preliminary Response, Patent Owner does not offer any constructions of its own.

For purposes of this Decision, we determine that no aspects of the challenged claims require explicit construction. *See, e.g., Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) (“The Board is required to construe ‘only those terms . . . that are in controversy, and only to the extent necessary to resolve the controversy.’” (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

D. Alleged Obviousness of Claims 1–10, 14, 15, 18–31, and 35 in View of Gupta, Alone or in Combination with Murty

Petitioner provides a limitation-by-limitation comparison of each of claims 1–10, 14, 15, 18–31, and 35 to the teachings of Gupta, alone or in combination with Murty. Pet. 13–50. We address Petitioner’s contentions regarding claim 1 as illustrative.

1. *Independent Claim 1*

- a. *1[Preamble]: A computer-implemented method for roaming implementation in a wireless mesh network formed with one or more mesh points, the method comprising:*

Petitioner does not address whether the preamble is limitation, but Petitioner contends both Gupta and Murty disclose wireless mesh networks. Pet. 16 (citing Ex. 1005 ¶¶ 28, 30, 33, Fig. 1), 17 (citing Ex. 1006, 1:21–32, 3:7–26, 6:58–61). Petitioner also contends that Gupta disclose “a computer-implemented method for roaming implementation (‘redistribution of wireless clients’) in its wireless mesh network.” Pet. 18–21 (citing Ex. 1005 ¶¶ 4, 44–48, 52, 54–61, 96–98, Fig. 2).

At this stage, Petitioner’s showings are un rebutted and are adequate for the preamble.

- b. *[1.1]: causing a wireless link to be established between a first mesh point and a client;*

Petitioner contends that Gupta discloses an access point configured to allow a client to associate to it and connect to a network. Pet. 21 (citing Ex. 1005 ¶¶ 11, 32).

At this stage, Petitioner’s showings are un rebutted and are adequate for this limitation.

- c. *[1.2]: without requiring that the established wireless link to be corrupted or lost, causing a second mesh point to measure a plurality of qualitative parameters indicative of a quality of a potential link between the second mesh point and the client;*

Petitioner contends that Gupta discloses a method for roaming or redistribution in its wireless mesh network that includes identifying a candidate AP (the claimed second mesh point) that is expected to improve service to the client device compared to the first AP connected to the client

device. Pet. 22 (citing Ex. 1005 ¶ 4). According to Petitioner, Gupta teaches that its decision-making architecture compares connection metrics, including signal-to-noise ratio, throughput, and received signal strength indication metrics, among others, to make decisions of whether to redistribute client devices. Pet. 22–24 (citing Ex. 1005 ¶¶ 52, 54–56, 59). Petitioner additionally cites Murty for its teachings regarding using throughput metrics in making roaming decisions, and Petitioner provides reasons that a person of ordinary skill would have combined Gupta and Murty. Pet. 24–26 (citing Ex. 1006, 12:59–67, 15:36–43, 17:64–18:8, 18:23–31, 18:45–67, 20:50–55).

At this stage, Petitioner’s showings are unrebutted and are adequate for this limitation.

d. [1.3]: causing the plurality of qualitative parameters indicative of the quality of the potential link to be transmitted to a controlling entity of the wireless mesh network;

Petitioner contends that Gupta describes various embodiments of a controlling entity responsible for making redistribution decisions, including an AP itself, “a central entity like a controller,” a designated AP, or a distributed controller among a collection of APs. Pet. 26–27 (citing Ex. 1005 ¶ 52). Petitioner further contends that Gupta teaches that the controlling entities use qualitative parameters, and that Murty additionally teaches using qualitative parameters, for redistribution decisions. Pet. 27–28 (citing Ex. 1005 ¶¶ 9, 33, 52, 54–56; Ex. 1006, 12:49–50, 20:50–55).

At this stage, Petitioner’s showings are unrebutted and are adequate for this limitation.

- e. *[1.4]: comparing, by the controlling entity, the quality of the potential link between the second mesh point and the client against a quality of the established wireless link between the first mesh point and the client;*

Petitioner contends that Gupta teaches that its controlling entities identify candidate APs for redistribution based on whether the quality of the potential link to the second AP is expected to improve service to the client device. Pet. 29–31 (citing Ex. 1005 ¶¶ 35, 42, 43, 52, 95). Petitioner also cites Murty as disclosing teachings consistent with those of Gupta relating to comparing the quality of a candidate AP to the currently associated AP. Pet. 31–32 (citing Ex. 1006, 19:38–54, 20:50–55).

At this stage, Petitioner’s showings are un rebutted and are adequate for this limitation.

- f. *[1.5]: upon determining that the quality of the potential link exceeds the quality of the established wireless link by a select level, causing the controlling entity to issue one or more instructions resulting in the client roaming from the first mesh point to the second mesh point; and*

Petitioner contends that Gupta teaches that its controlling entities use software control redistribution to determine when a link to a candidate AP will exceed the quality of the established link with the current AP and that the controlling entities issue instructions to cause redistribution. Pet. 33 (citing Ex. 1005 ¶¶ 35, 42, 43, 67). Petitioner also contends that Gupta uses one or more thresholds above the current connect metrics (the claimed select level) in making its redistribution decisions. Pet. 33–34 (citing Ex. 1005 ¶¶ 21, 52, 95). Petitioner additionally cites Murty and additional references as disclosing a select level in comparing connection metrics and link quality. Pet. 34–36 (citing, e.g., Ex. 1006, 19:49–54; Ex. 1008 ¶ 40, Ex. 1010 ¶ 49).

At this stage, Petitioner's showings are unrebutted and are adequate for this limitation.

g. [1.6]: determining whether the client supports intelligent roaming;

Petitioner contends that Gupta teaches sending BSS Transition Management frames to IEEE 802.11v-compliant clients, which, according to Petitioner, the '242 patent equates to a client that supports intelligent roaming. Pet. 36–37 (citing Ex. 1001, 22:34–39, 23:37–40; Ex. 1005 ¶¶ 67, 70–74).

At this stage, Petitioner's showings are unrebutted and are adequate for this limitation.

h. [1.7]: wherein, when the client does not support intelligent roaming, the one or more instructions include a deauthentication or a disassociation frame, with a reason code reflecting a roaming decision by the controlling entity.

Petitioner contends Gupta discloses sending deauthentication or disassociate frames when a client does not support IEEE 802.11v or 802.11r. Pet. 37 (citing Ex. 1001, 22:34–40; Ex. 1005 ¶¶ 44–48, 66–67).

At this stage, Petitioner's showings are unrebutted and are adequate for this limitation.

i. Reasons to Combine

Petitioner contends Gupta and Murty are analogous references with compatible teachings and that a person of ordinary skill would have recognized that “Murty's detailed software architecture could be used to improve and enhance the operation of Gupta's system.” Pet. 13–15.

At this stage, Petitioner's showings of reasons to combine the teachings of Gupta and Murty are unrebutted and are adequate for the purposes of institution.

j. Conclusion For Claim 1

We have reviewed Petitioner's assertions regarding claim 1 and the evidence supporting these assertions. On the record before us for the reasons discussed above, we determine that Petitioner has demonstrated a reasonable likelihood of prevailing in its challenge to claim 1 on this ground, and we institute *inter partes* review on all claims and all grounds asserted in the Petition. *See SAS Inst., Inc. v. Iancu*, 138 S. Ct. 1348, 1359–60 (2018); Consolidated Trial Practice Guide (Nov. 2019), 64.⁷

III. CONCLUSION

Based on the current record, we determine Petitioner has shown a reasonable likelihood of prevailing with respect to at least one claim of the '242 patent. Accordingly, we institute *inter partes* review of all claims challenged on all of the grounds in the Petition.

IV. ORDER

Accordingly, it is:

ORDERED that pursuant to 35 U.S.C. § 314, an *inter partes* review is hereby instituted as to claims 1–37 of the '242 patent based on the unpatentability challenges presented in the Petition; and

FURTHER ORDERED that pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial commencing on the entry date of this decision.

⁷ Available at www.uspto.gov/sites/default/files/documents/tpgnov.pdf.

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