

Filed on behalf of: Netgear, Inc.

Entered: December 28, 2023

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TP-LINK CORPORATION LIMITED,
Petitioner,

v.

NETGEAR, INC.,
Patent Owner.

Case IPR2023-01429
Patent 10,278,179

**PATENT OWNER'S
PRELIMINARY RESPONSE**

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Exhibit List

Ex.	Description
2001	Declaration of Zygmunt Haas, Ph.D. (“Haas Decl.”)
2002	<i>Curriculum Vitae</i> of Zygmunt Haas, Ph.D. (“Haas CV”)
2003	U.S. Patent No. 7,839,856 to Sinha (“Sinha Patent”)
2004	TP-Link’s Corrected Responsive Claim Construction Brief, <i>Certain Wi-Fi Routers, Wi-Fi Devices, Mesh Wi-Fi Network Devices, and Hardware and Software Components Thereof</i> , Inv. No. 337-TA-1361 (Sept. 19, 2023) (“Resp. CC Br.”)
2005	Order No. 33: Construing Certain Claim Terms, <i>Certain Wi-Fi Routers, Wi-Fi Devices, Mesh Wi-Fi Network Devices, and Hardware and Software Components Thereof</i> , Inv. No. 337-TA-1361 (Dec. 15, 2023) (“CC Order”)
2006	U.S. Provisional Application No. 62/336,503 (“’503 Provisional”)

I. Introduction

Patent Owner Netgear, Inc. respectfully submits this Preliminary Response to the Petition for *inter partes* review (“IPR”) of U.S. Patent No. 10,278,179 (“’179 patent”) filed by TP-Link Corporation Limited (“Petitioner”). As explained below, Petitioner has failed to carry its burden to show a reasonable likelihood that at least one of the challenged claims is unpatentable. Thus, the Board should deny the Petition, and no IPR proceeding should be instituted.

The ’179 patent describes and claims innovative methods for implementing a dedicated backhaul link for a robust wireless mesh network including, among other things, establishing a forward wireless communication with a mesh point, and establishing a backhaul communication, separate from the forward wireless communication, with the mesh point. Petitioner asserts that these claim elements are indefinite and does not propose a construction. Instead, Petitioner provides three different prior art “mappings” in case the Board decides to construe the claims in a manner that Petitioner insists is *wrong*. Petitioner’s unspoken alternative is that the Board issues an advisory opinion that the claims are indefinite. But Petitioner cannot prevail on grounds that Petitioner itself believes to be wrong, and Petitioner’s attempt to obtain an advisory opinion from the Board on indefiniteness is improper.

Petitioner's three mappings fail on their merits. The three mappings are based on two different combinations—Sinha with Liu in Grounds IA and IB, and Gatewood with Sinha in Ground III. In Grounds IA and IB, Petitioner proposes to modify Sinha based on Sinha's purported teaching of implementing its controller in an access point. But Sinha teaches no such thing, rendering Petitioner's reasoning invalid. In Ground IB, Petitioner proposes additional modifications to Sinha, repurposing a radio from one embodiment for use in a separate, alternative embodiment for a different purpose than anything disclosed in Sinha. Petitioner calls this a "repurposed" radio, and this repurposing is based entirely on hindsight. Ground II challenges only dependent claims and does not raise any arguments against independent claims distinct from those presented in Ground IB.

Ground III relies primarily on Gatewood, which was used against the '179 claims during prosecution. In fact, at the end of prosecution, the Examiner issued an Examiner's amendment to the independent claims, finding that the prior art including Gatewood did not disclose several features of the claims. Petitioner does not point to any error in the Examiner's analysis. Instead, Petitioner asserts that the mere combination with Sinha can avoid the Board's § 325(d) discretion. Not so. Petitioner repeatedly asserts that it applies Gatewood in the *same way* as the Examiner, and relies almost exclusively on Gatewood throughout its analysis with Sinha as an afterthought used to "confirm" Gatewood's teachings. Accordingly,

the Board should use its discretion to deny rehashing Gatewood's impact on the validity of the '179 patent.

Nevertheless, Ground III also fails on the merits. First, Petitioner's mapping in Ground III is based on a construction of "forward wireless communication" that neither party advocates for and that is unsupported by the intrinsic record. Further, Petitioner misinterprets Gatewood in order to manufacture "forward" and "backhaul" communications established with the same "second mesh node" as recited in the claims. For these reasons, Ground III fails to establish a reasonable likelihood of prevailing as well.

Accordingly, Patent Owner respectfully submits that institution should be denied.

II. Background

A. Overview of the '179 Patent

The '179 patent is titled "Dedicated Backhaul Link for a Robust Wireless Mesh Network." The '179 patent discloses that in some wireless networks, a single access point (AP) might not be able to provide coverage for an entire indoor area of a large house or office. '179 patent, 1:48-50. One way to provide wireless coverage over a large indoor area is to "us[e] a multitude of smaller APs that are deployed in the environment in a scattered, distributed manner." '179 patent, 2:3-6.

“These smaller APs form a wireless mesh network, and therefore are also called ‘mesh points.’” ’179 patent, 2:6-8.

The ’179 patent recognizes that there were “many challenges associated with implementing these wireless mesh networks, especially in a home environment where a layman user may be involved in installing and configuring these mesh points.” ’179 patent, 2:13-16. These problems included sub-optimal range extender placement and poor coordination between the range extenders and the main AP. ’179 patent, 3:51-60. Additionally, extenders “may not use the best band(s) to connect to the rest of the mesh network” or “may not use the best band to forward the traffic when extender is connected to two or more bands on the main AP.” ’179 patent, 4:6-10.

Addressing these issues, the ’179 patent discloses “techniques to provide automated mesh point survey and guided installation” as well as “rate estimation, roaming, and dedicated backhaul link implementation in such wireless mesh network.” ’179 patent, 4:12-18. The ’179 patent further discloses “a network control system” that “can decide, for example, with which mesh point each client should associate, when a client should roam, which topology the network should be using, with which band should the client associate, which band should be used for the traffic forwarding, and where to install a new mesh point.” ’179 patent, 4:26-35.

Figure 19 of the '179 patent, reproduced below, “illustrate[s] an example diagram showing a backhaul link established between two mesh points (e.g., in the mesh network),” ('179 patent, 27:5-8) where “a dedicated 5 GHz radio is used as the dedicated backhaul” ('179 patent, 29:47-53). In addition to “regular WLAN services (e.g., data packet forwarding to and from the gateway and the Internet)” provided to client devices, the mesh points can “form one or more dedicated backhaul links among the mesh points.” '179 patent, 27:8-14. For example, “such backhaul links may be used to perform control and management functions,” or “to provide more throughput, and/or to provide fault tolerance to the mesh network (e.g., to provide redundancy against temporary interference, etc.).” '179 patent, 27:14-21.

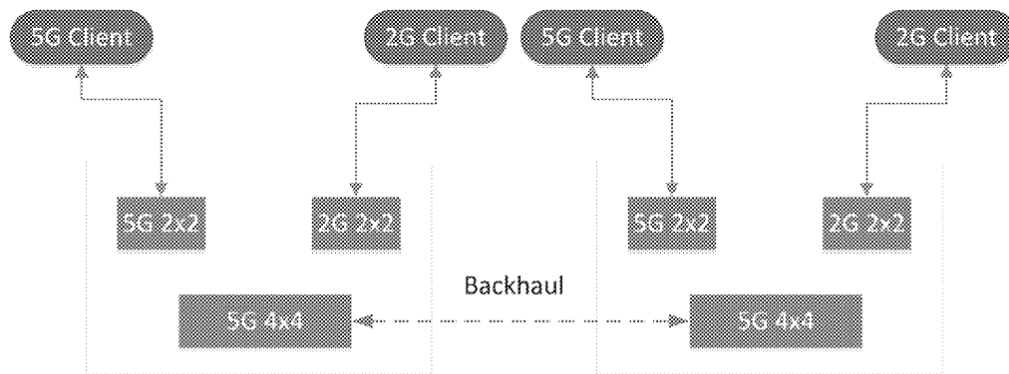


FIG. 19

'179 patent, Figure 19

The '179 patent discloses embodiments where the mesh points are “equipped with one or more of: a powerline communication circuit ..., a dedicated 5 GHz radio circuit, and/or a sub-1 GHz radio circuit, for purposes of establishing the dedicated backhaul link.” '179 patent, 27:34-39. The '179 patent further discloses that the backhaul can be switched from the “dedicated link” to “the 2.4 GHz or 5 GHz radio that [the] device uses to communicate to [the] client.” '179 patent, 27:45-50. (“Fault tolerance mechanisms are built in to the system such that, for example, when the dedicated link is not functioning or when the performance of dedicated link is significantly below the 2.4 GHz or 5 GHz radio that device uses to communicate to client, the best communication link can be used as the backhaul link.”); *see also, e.g.*, '179 patent, 28:54-67, 29:60-30:18. The dedicated backhaul link in this embodiment would be an example of the “backhaul communication, separate from the forward wireless communication” in claims 1 and 11, and the communication established using the 2.4 GHz or 5 GHz radio that the device uses to communicate with the client would be an example of the “forward wireless communication.”

B. Prosecution History

The '179 patent issued on April 30, 2019, from U.S. Patent Application No. 15/287,711 (“’711 application”), filed October 6, 2016. The non-provisional application claims the benefit of the filing dates of two provisional applications:

U.S. Provisional Application Nos. 62/253,540 (filed Nov. 10, 2015) and 62/336,503 (filed May 13, 2016). The '711 application was filed with 21 claims. Ex. 1004, 63-67.

The '711 application underwent two rejections before being allowed after an Examiner's amendment. As detailed below, Gatewood¹—the basis of Ground III—was the primary reference used in both rejections for all claims.

In a Non-Final Office Action, the Examiner rejected 13 claims, including both independent claims, as anticipated by Gatewood. The Examiner found that Gatewood did *not* disclose the limitations in dependent claims 8 and 18 relating to “constructing a list of backhaul candidates” and “establishing an alternative backhaul communication with the second mesh point.” Ex. 1004, 146. To reject these two claims, the Examiner combined Gatewood with Lu² for an obviousness-based rejection. Ex. 1004, 146-47. Specifically, the Examiner stated that “[i]t would have been obvious ... to modify the disclosure of Gatewood et al. and to implement the feature/teaching as taught by Lu to actively monitor neighboring/candidate APs to determine an optimum route. The motivation would be to improve transmission efficiency.” Ex. 1004, 146-47.

¹ U.S. Patent No. 9,001,767 (Exhibit 1005).

² U.S. Patent Application Publication No. 2010/0260146 (Exhibit 1020).

In response, Applicant amended the independent claims to put the “communication technology” of the forward and backhaul communications in a *Markush* form (“selected from the group consisting of...”). Ex. 1004, 165, 167. Applicant argued that the amended claims were not anticipated by Gatewood. Ex. 1004, 170-73. Applicant also stated that “[f]or the sake of conciseness and clarity,” it “may not have addressed every assertion or rejection made in the Office Action.” Ex. 1004, 173. Applicant stated that any silence about any rejections or assertions “does not constitute an admission or acquiescence regarding such assertions/rejections or a waiver of any argument relating to such assertions/rejections” and expressly “reserve[d] the right to challenge at a later time any rejection or any factual or legal assertion made by the Office in relation to the present application.” Ex. 1004, 173.

In the Final Office Action, the Examiner again rejected all of the claims based on Gatewood. For the independent claims, the Examiner added Gokturk³ and Nolan⁴ in an obviousness combination. Ex. 1004, 214. But the Examiner repeated his conclusion about Gatewood’s failure to disclose the limitations in claims 8 and 18 relating to “constructing a list of backhaul candidates” and “establishing an

³ U.S. Patent Application Publication No. 2016/0192203 (Exhibit 1011).

⁴ U.S. Patent Application Publication No. 2017/0238189 (Exhibit 1012).

alternative backhaul communication with the second mesh point.” Ex. 1004, 218.

The Examiner once again relied on a combination of Gatewood with Lu for these claims, repeating the same motivation to combine. Ex. 1004, 218-19.

After the Final rejection, Applicant and the Examiner conducted a telephonic interview. Ex. 1004, 268-69. The Examiner summarized the interview, stating that “[i]n the interest of expedite [*sic*] case prosecution, the Examiner suggested the applicant to roll up claim 8 into claims 1 and 12 to put the case in condition for allowance.” Ex. 1004, 269. The Examiner then issued an Examiner’s Amendment incorporating claim 8 into claims 1 and 12. Ex. 1004, 261-65. In allowing the claims, the Examiner stated that

The prior art of record fails to disclose the features

wherein the backhaul communication is established using a communication technology selected from the group consisting of: a power line based communication, a 2.4GHz or 5 GHz radio frequency (RF) technology using a dedicated radio, and a sub-1GHz RF technology; and

constructing a list of backhaul candidates, each backhaul candidate having a score indicative of an estimated quality of a potential link between the first mesh point and the second mesh point;

upon determining that a quality of service of the dedicated backhaul has dropped to below a predetermined threshold, establishing an alternative backhaul communication with the second mesh point using a backhaul candidate with the highest score on the list,

as recited in claim 1 and similarly recited in claim 12.

Ex. 1004, 266. Petitioner labels these three claim elements as [1.4]-[1.6] and [11.4]-[11.6]. Petition, 29, 31, 34. Notably, Petitioner relies on Gatewood for disclosure of [1.5]/[11.5] and [1.6]/[11.6] in Ground III. Petition, 74, 78.

Before issuance of the '179 patent, Applicant stated that “[a]lthough Applicant agrees with the Examiner’s conclusion that these claims are allowable, Applicant notes that the claims may be allowable for reasons other than those identified by the Examiner and does not concede that the Examiner’s characterizations of the terms of the claims and the prior art are correct.” Ex. 1004, 316.

C. Person of Ordinary Skill in the Art

For the '179 patent, a person of ordinary skill in the art (“POSITA”) would be a person with a bachelor’s degree in a technical field such as electrical engineering, computer engineering, computer science, or physics, and/or 2-3 years of relevant practical experience in wireless communication, data communication, or wireless networking systems. Haas Decl. ¶ 25.

III. Claim Construction

Petitioner asserts that the claims are indefinite. Petition, 5. However, recognizing that it cannot challenge indefiniteness in IPR, Petitioner presents three different mappings of the asserted references to the claims. Petition, 5-6. One of

these mappings is intended to address Patent Owner's proposed construction of the claims in the ITC, and the other two address strawman constructions not advocated for by either party in any venue. As shown below, Petitioner's approach flouts the Board's rules requiring identification of how the claims are to be interpreted, and the Board should decline to institute for this reason. Additionally, Patent Owner's proposed construction of the claims is correct and should be applied.⁵

A. The Board should deny institution because Petitioner defies 37 C.F.R. § 42.104(b)(3) by failing to identify how the claims are to be interpreted.

Petitioner's approach fails to identify how the claims are to be interpreted, as required under 37 C.F.R. § 42.104(b)(3), and the Board should deny institution of the Petition. *See Samsung Elecs. Am., Inc. v. UNILOC 2017 LLC*, IPR2020-00046,

⁵ On December 15, the Administrative Law Judge ("ALJ") overseeing the related case at the U.S. International Trade Commission ("ITC") issued a claim construction ruling relating to the '179 patent among others. Ex. 2005. The ALJ deferred ruling on the indefiniteness/construction disputes relating to "forward wireless communication" and "backhaul communication, separate from the forward wireless communication." Ex. 2005, 20. The ALJ also rejected Petitioner's proposed construction of the *Markush* group recited in claims 1 and 11. Ex. 2005, 23; *cf.* Petition, 6-7.

Paper 6 at 7-8 (Apr. 1, 2020) (declining to address grounds based on constructions Petitioner asserted were wrong).

Petitioner presents three separate “mappings” of the asserted references to the claim terms “forward wireless communication” and “backhaul communication, separate from the forward wireless communication.” Petition, 5-6. These mappings are not constructions. Petitioner does not identify the actual constructions it applies, nor does it advocate for or support any of the three mappings in the Petition. Instead, Petitioner refers the Board to read Petitioner’s claim construction brief from the ITC to figure out what “possible interpretations of those claim terms” it is applying. Petition, 5 (citing Ex. 1019, 27-31).⁶ There, however, Petitioner asserts that no possible interpretation “would make sense in view of the intrinsic record, a POSITA’s understanding, and basic claim construction principles,” and argues that the claims are indefinite. Ex. 1019, 28. Further, Petitioner does not even appear to mention any construction relating to its Ground III mapping in the ITC brief. *Cf.* Ex. 1019, 27-31.

⁶ Petitioner’s reliance on ITC briefs for claim construction constitutes improper incorporation by reference and the Board should disregard any arguments not made in the Petition itself. 37 C.F.R. § 42.6(a)(3).

The Board should reject Petitioner's approach for the same reasons it denied the petition in *Samsung*. In *Samsung*, the petitioner asserted that the challenged claims were indefinite under § 112(6) for failing to disclose an algorithm for performing recited functions requiring special programming. *Samsung* at 6, 8. Samsung provided an assumed structure "in the event the Board believes the specification does disclose sufficient corresponding structure" without a corresponding algorithm. *Id.* at 6. Samsung's failure to cite to any corresponding algorithm meant the petition did not comply with § 42.104(b)(3).

Like the petitioner in *Samsung*, Petitioner "invites [the Board] to either ... declare the claims to be indefinite (and presumably deny institution on that basis), or to adopt constructions it expressly advocates against ... and proceed with a trial using those allegedly incorrect constructions." *Id.* at 8. Such an approach cannot establish a reasonable likelihood of prevailing. The Board should "exercise [its] discretion and decline Petitioner's invitation to adopt allegedly incorrect claim constructions and institute an *inter partes* review on the basis of those constructions." *Id.* at 10.

Nevertheless, to the extent the Board considers Petitioner's approach to satisfy its requirement for identifying how the claims are to be interpreted, the Board should not adopt Petitioner's multiple interpretation argument as the parties agree that not all interpretations are correct. For example, Petitioner affirmatively

stated that it would violate “basic claim construction principles” to construe the “backhaul communication, separate from the forward wireless communication” to be differentiated based on whether a multi-hop backhaul path in a network is dedicated for carrying control information or for carrying data traffic. Ex. 1019, 28-29. Petitioner further emphasized that this construction “makes no sense” and that “[n]o party proposes that this definition is viable.” Ex. 2004, 18. Petitioner, nevertheless, seems to apply this claim interpretation in its Ground IA mapping. *See* Petition, 5.

B. The phrase “forward wireless communication” should be construed as “client-facing wireless communication.”

The Board should construe “forward wireless communication” as “client-facing wireless communication.” A POSITA would understand the intrinsic record to implicitly define it as a client-facing wireless communication, which is established using a radio that is available for client communications. Haas Decl.

¶ 32. Patent Owner’s proposed construction is consistent with the claims and specification, making explicit the distinction from the claimed “backhaul communication, separate from the forward wireless communication.” Haas Decl.

¶¶ 35-40.

Although “forward wireless communication” is not a term of art nor explicitly recited in the specification, “the specification may define claim terms by implication such that the meaning may be found in or ascertained by a reading of

the patent documents.” *Trs. of Columbia Univ. v. Symantec Corp.*, 811 F.3d 1359, 1364 (Fed. Cir. 2016).

The claims disclose features that tie the forward wireless communication directly to the client-facing wireless communication as described in the specification. Haas Decl. ¶¶ 33-35. The forward wireless communication is established using a 2.4 GHz or 5 GHz frequency band, and a “separate” backhaul communication established using a powerline, 2.4 GHz or 5 GHz RF technology using a dedicated radio, or sub-1 GHz RF technology. ’179 patent, claims 1 and 11. Dependent claim 3 provides that upon a drop in the backhaul’s quality of service, backhaul traffic is redirected to the forward wireless communication. ’179 patent, claim 3.

These same features are shared by the wireless communication established using the “client-facing” radios in the specification’s embodiments. Haas Decl. ¶¶ 38-40. For example, embodiments are equipped with client-facing “2.4 GHz and 5 GHz WLAN radios” and “dedicated backhaul circuits,” such as a “powerline,” “5 GHz dedicated radio,” or “sub-1 GHz radio.” ’179 patent, 27:34-50, 27:5-14, 29:47-30:18, Fig. 19. Embodiments describe establishing communications between mesh points using these client-facing radios, in addition to the dedicated backhaul communication. ’179 patent, 27:42-50, 28:54-67, 29:42-46, 29:59-30:18. And when the dedicated backhaul is underperforming, a mesh point may use a

communication established using the client-facing radio as an alternative backhaul communication to service “back end [i.e., backhaul] traffic,” in addition to “front end” traffic for clients. ’179 patent, 30:4-15. The name “forward wireless communication” also reflects a functional aspect of communication established using the client-facing radios: to provide the clients with “data packet forwarding to and from the gateway and the Internet.” ’179 patent, 27:5-21; *see also id.*, 29:60-63.

Consistent with these descriptions of the invention set forth by the specification, a POSITA would thus understand a “forward wireless communication” to be a “client-facing wireless communication.”⁷

C. The Board does not need to construe any other terms to resolve the dispute.

Petitioner notes that the parallel ITC proceeding involves two additional claim interpretation disputes. Petition, 6-7. First, at the ITC, Petitioner argues that a prosecution history disclaimer applies to the *Markush* groups recited in claims 1 and 11. Petition, 7 n.3; Ex. 1018, 43-44. Petitioner does not proffer that construction in its Petition and instead only addresses Patent Owner’s interpretation applying the well-accepted law of *Markush* groups. Petition, 6-7.

⁷ In the parallel ITC proceeding, the ALJ issued a claim construction order that defers resolving this dispute. Ex. 2005, 20.

Notably, the ALJ in the parallel ITC action agrees with Patent Owner's interpretation. Ex. 2005, 22.

Second, Petitioner grouped the preambles of claims 1 and 11 together as requiring a first mesh point performing each of the limitations recited in the claim. Petition, 7; Ex. 1018, 46-47. In the ITC action, Petitioner stated that it was not asserting that the first mesh point performs each step exclusive of other entities' involvement. Ex. 2005, 24. Patent Owner agrees the preambles are limiting. *Id.* The ALJ in the parallel ITC proceeding found that "the claimed computing device is configured to perform the claimed method and that other entities may also be configured to be involved in the recited steps." Ex. 2005, 25. None of the grounds in the Petition appear to hinge on any distinction between the parties' positions and therefore the Board need not construe these terms. *See* Petition, 7.

IV. Ground IA: Petitioner does not demonstrate a reasonable likelihood that Sinha alone or in combination with Liu renders any claim obvious.

In Ground IA, Petitioner maps Sinha (alone or in combination with Liu) to the claimed "forward wireless communication" and "backhaul communication, separate from the forward wireless communication" based on whether a multi-hop backhaul path in a network is "dedicated for carrying control information" or "dedicated for carrying data traffic." As shown below, Ground IA is based on a misinterpretation of Sinha as well as a contradictory reliance on lightweight protocols in embodiments that do not use lightweight protocols. Petitioner also

concedes that Ground IA does not apply to Patent Owner's proper construction of the claims. Thus, Petitioner has not shown a reasonable likelihood of prevailing against any claim in Ground IA.

A. Overview of Sinha.

Sinha is a U.S. Patent Application Publication (from Cisco Technology Inc., *see* Ex. 2003) titled "Centrally Controlled Routing with Tagged Packet Forwarding in a Wireless Mesh Network." Sinha, Cover. Sinha discloses a system, illustrated in Figure 1 (reproduced below), with a remote central controller 103 that controls a mesh network including a root access point (Root AP) 111 and various mesh nodes (also called Mesh APs) 113-123. The "wireless mesh network includes a backhaul topology to or from a root access point 111 to a set of mesh nodes." Sinha [0024]. The Root AP "is coupled to a network 107, e.g., via a switch." Sinha [0024]. The controller 103 is also coupled to the network 107 and controls the functionality of the Mesh APs. Sinha [0026].

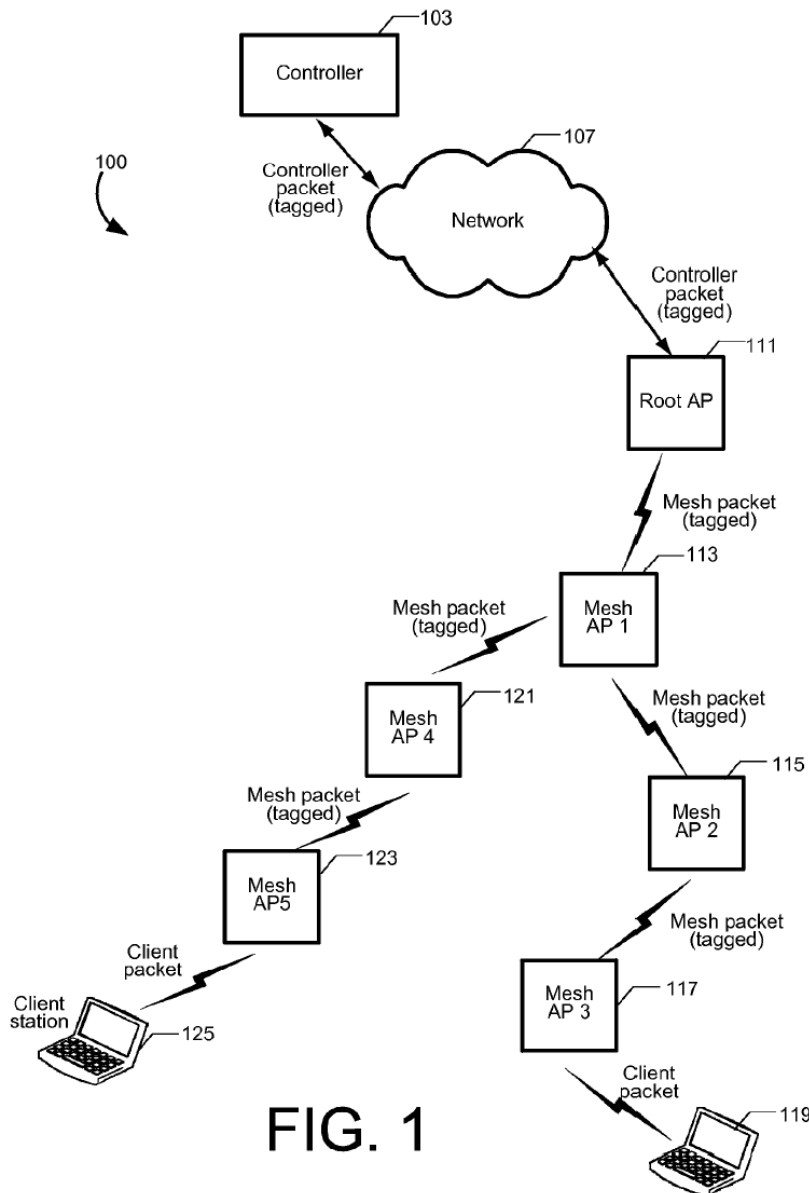


FIG. 1

Sinha, Figure 1

Sinha focuses on networks with “lightweight” APs that use a specific protocol “to exchange messages between any mesh node and the controller, e.g., using a secure tunnel between the mesh node and the controller 103.” Sinha [0026]. Sinha discloses two such protocols: Light Weight Access Point Protocol (LWAPP), developed by Cisco (the applicant of Sinha), and Control and

Provisioning of Wireless Access Points (CAPWAP), which is a “later version of LWAPP.” Sinha [0026]. Sinha’s disclosure “is also applicable to mesh nodes that are not ‘lightweight’ but rather include enough capability to not need an LWAPP or other protocol connection for a controller to function.” Sinha [0131].

Sinha discloses Mesh APs with separate radios for backhaul and client access. Sinha [0025] (Mesh APs “may be implemented by a dual radio wireless station that includes a first radio for the backhaul link between mesh nodes, and a second radio to provide access point functionality.”). For example, Figure 3A of Sinha, reproduced below, discloses a backhaul radio 301 and a separate access radio 303.

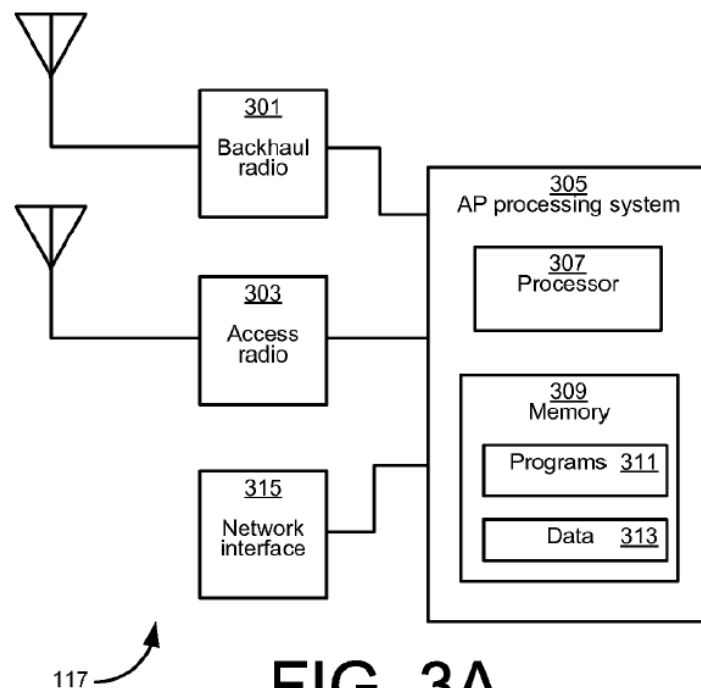


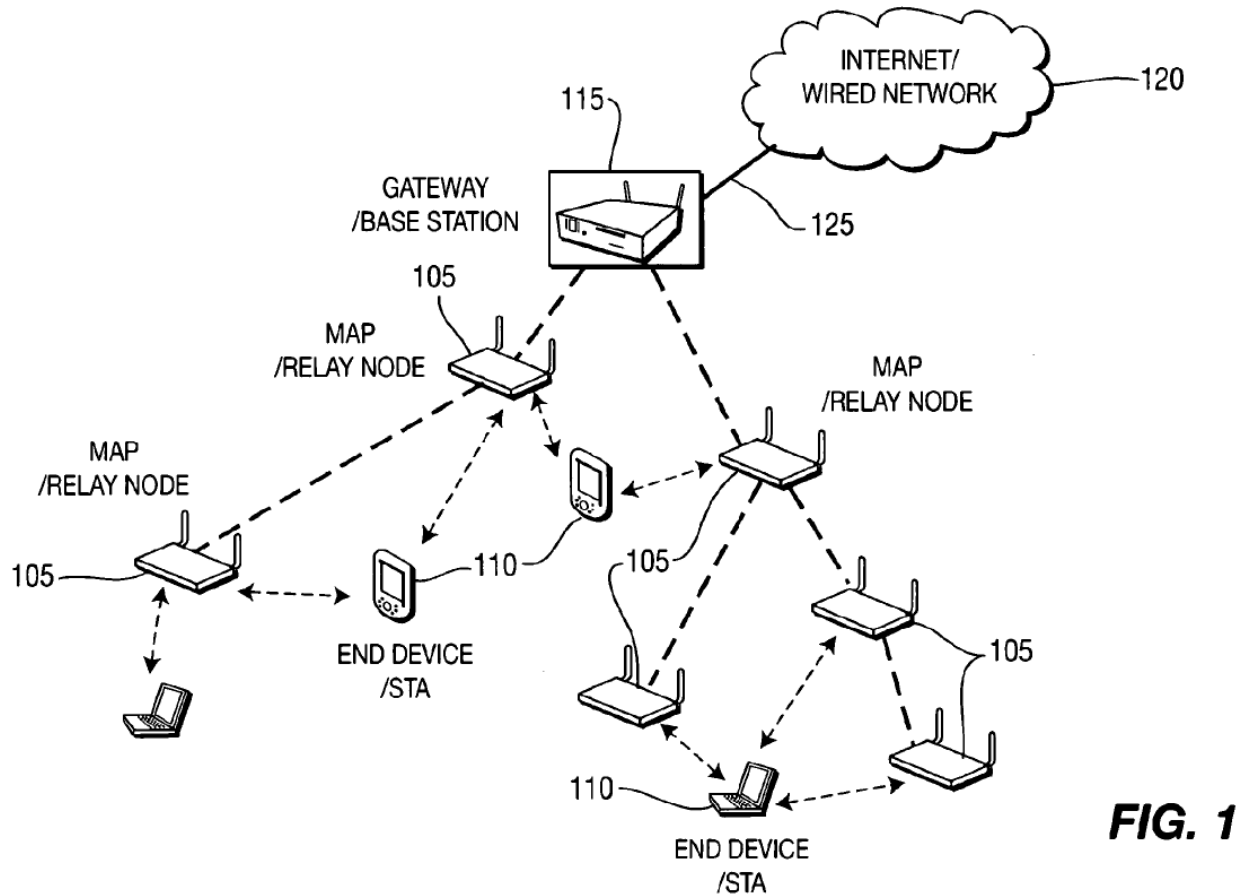
FIG. 3A

Sinha, Figure 3A

Figure 3A shows “a mesh AP that includes two radios, a first radio 301 for the backhaul that is used, for example, as a CAPWAP tunnel to the controller 103 and for mesh data, and a second radio 303 that is used as an access radio for data communication with clients associated with the mesh AP.” Sinha [0047]. Sinha also discloses that even though Figure 3A shows a dual-radio configuration with separate radios for client access and backhaul, a single-radio configuration may be used “in an alternate embodiment, [where] the same radio is used for access and backhaul communication.” Sinha [0048].

B. Overview of Liu.

Liu is a U.S. Patent Application Publication titled “Joint Association, Routing and Rate Allocation in Wireless Multi-Hop Mesh Networks.” Liu discloses a wireless municipal mesh (muni-mesh) network with a hierarchical architecture illustrated in Figure 1, reproduced below. Liu [0006]. The architecture includes an “upper layer (also referred to as relay layer)” that includes mesh access points or MAPs. Liu [0006]. “The MAPs are interconnected via wireless links to form a multi-hop backhaul, providing network access and data forwarding for the client stations (STAs).” Liu [0006]. MAPs that are connected to “the wired Internet backbone” are called gateways. Liu [0006]. The lower layer, or access layer, comprises client nodes or STAs. Liu [0006].



Liu, Figure 1

C. Petitioner does not demonstrate a reasonable likelihood that a POSITA would have modified Sinha in the proposed manner.

In Ground IA, Petitioner proposes to modify Sinha by incorporating Sinha's remote controller 103 into the Root AP 111. Petition, 16. Petitioner bases this modification on either Sinha alone or in combination with Liu. Petition, 15-17. In either case, Petitioner relies on a passage in Sinha that discusses the applicability of its disclosure to non-lightweight APs. Petitioner interprets this disclosure as teaching that the Root AP can be made into a non-lightweight AP by incorporating the central controller's functions into the Root AP. Petitioner's interpretation of

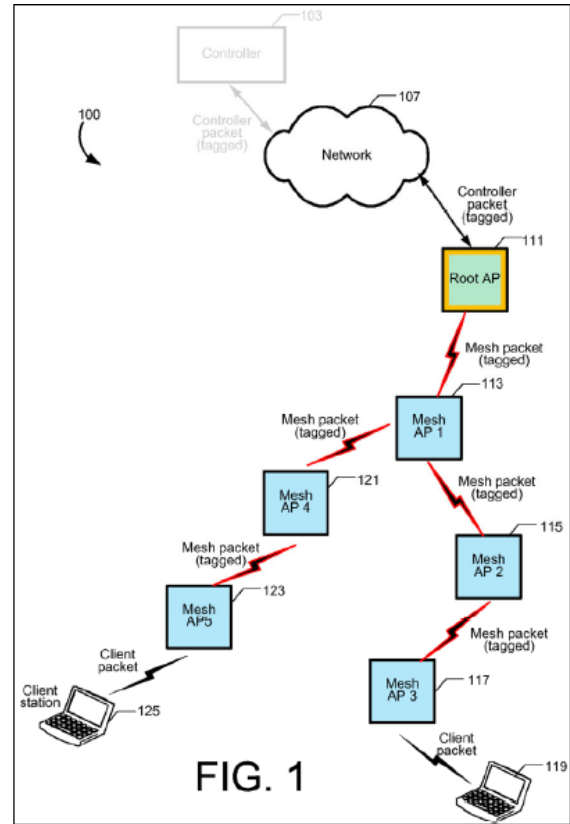
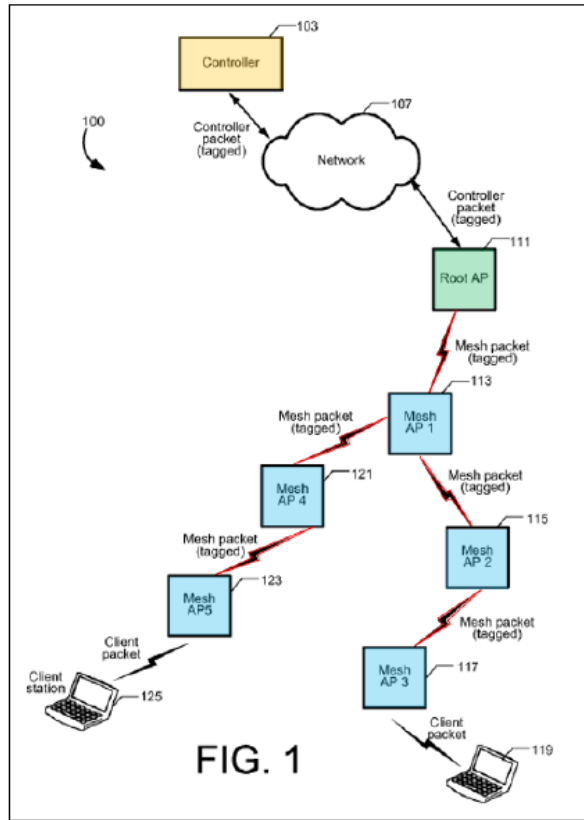
Sinha is unsupported and incorrect. Because Ground IA depends on this incorrect interpretation, Ground IA fails to establish a reasonable likelihood of prevailing against any claim of the '179 patent.

1. Petitioner's interpretation of Sinha is unsupported and incorrect.

Sinha focuses on networks with lightweight APs that require a lightweight protocol connection between the APs and the centralized controller. As Sinha describes, "the description has been mostly for mesh APs that are controlled by a controller with which the mesh AP has a secure tunnel, e.g., an LWAPP/CAPWAP tunnel." Sinha [0131]. In one sentence, Sinha notes that its "invention is also applicable to mesh nodes that are not 'lightweight' but rather include enough capability to not need an LWAPP or other protocol connection for a controller to function." Sinha [0131]. Sinha provides an example, stating that "in the case access point capability is included, certain aspects of the present invention may also be applicable also to mesh APs that are not lightweight APs." Sinha [0131]. Sinha does not mention incorporating a central controller into a Root AP.

Petitioner misinterprets Sinha's discussion of non-lightweight APs. Petition, 15-16 (quoting Sinha [0131]). Petitioner asserts that this paragraph describes an embodiment "whereby the controller is integrated in a MAP." Petition, 15. Petitioner creates a modified version of Sinha's Figure 1, which it calls Figure 1M, reproduced below next to the original Figure 1. Figure 1M erases the remote

controller 103 from the system diagram and moves the controller's functionality into Root AP 111.



Sinha Figure 1 (left) and Petitioner's modified Figure 1M (right). Petition, 16.

Petitioner's interpretation of Sinha is incorrect. Sinha's disclosure of non-lightweight MAPs does not teach or suggest integrating the centralized controller into a mesh access point. In the relevant paragraph, Sinha first notes that "the description has been mostly for mesh APs that are controlled by a controller with which the mesh AP has a secure tunnel, e.g., an LWAPP/CAPWAP tunnel." Sinha [0131]. Sinha then specifies that "the invention is also applicable" to non-

lightweight MAPs, which mitigate the need for “an LWAPP or other protocol connection *for a controller to function.*” Sinha [0131] (emphasis added).

Sinha thus teaches that the controller still “function[s]” in networks with non-lightweight APs. Sinha [0131]. Importantly, Sinha does not describe *any* modifications to the controller in this embodiment, but merely describes that the invention “is also applicable to” non-lightweight mesh nodes. Sinha [0131]; Haas Decl. ¶¶ 46-48, 54. The only difference disclosed by Sinha is that there need not be an LWAPP or other protocol connection between the APs and the controller. Thus, paragraph 131 of Sinha merely specifies that MAPs can be lightweight, whereby they use a secure tunnel to communicate with a controller, or they can be non-lightweight in which case the lightweight protocol connection is not needed because the non-lightweight MAPs include “enough capability to not need” the lightweight protocol connection. Haas Decl. ¶¶ 46-48, 54.

Petitioner seems to interpret Sinha’s disclosure of not needing a lightweight protocol connection as not needing *any* connection between a single AP (specifically the Root AP) and the controller, apparently because the two (Root AP and controller) would be one and the same. *See* Petition, 15-16. Petitioner emphasizes in bold and italics that the non-lightweight MAPS do “***not need an LWAPP or other protocol connection***” (Petition, 15 (emphasis in Petition)) but neglects the crucial words that follow: “for a controller to function.” Sinha [0131].

Mitigating the need for a lightweight protocol connection does not teach or suggest collapsing two distinct entities (controller and Root AP) into one. Haas Decl. ¶ 55.

Sinha's paragraph 131 teaches that its disclosure applies to networks with APs having enough functionality to not need an LWAPP/CAPWAP protocol for the controller to function. It does not teach or suggest integrating any aspect of the controller itself into any particular AP, let alone the Root AP. Petitioner's interpretation of Sinha is therefore incorrect. Haas Decl. ¶¶ 54-55.

2. Petitioner's misinterpretation of Sinha is fatal to its obviousness ground based on Sinha alone.

For Petitioner's obviousness ground based on Sinha alone, Petitioner's misinterpretation of Sinha's paragraph 131 is the sole basis for its proposed modification to Sinha, which would incorporate the centralized controller into the Root AP. *See* Petition, 15-17 (where paragraph 131 is the only portion of Sinha cited). For example, Petitioner's assertion that "[a] POSITA would recognize and understand" some purported benefits of "integrat[ing] the centralized controller in the network's RootAP" (Petition, 16-17) is premised on the disproven assumption that Sinha actually describes integrating the controller into a MAP (Petition, 15).

But Petitioner's assertions about a POSITA's knowledge should not be given any weight even if Petitioner had argued that such knowledge would exist absent the misinterpretation of Sinha. Petitioner's assertions are conclusory and unsupported. For example, Petitioner states that "[a] POSITA would recognize and

understand that a non-lightweight architecture that integrates the centralized controller in the network's RootAP (as illustrated in Figure 1M) advantageously reduces the number of network devices and connections, thereby reducing complexity and cost." Petition, 16-17. This assertion has no basis in fact.

Petitioner's only support is Dr. Ding, who parrots the conclusory statement and observes that his modified version of Figure 1 has "one-box" instead of the "'two-box' solution" of the actual Figure 1. Ex. 1002 ¶ 75. Dr. Ding suggests that combining two distinct network components with different responsibilities and connected through a network 107 consists merely of erasing one of the components and connections in a block diagram. The diagram shows one fewer box, and one fewer connection, Dr. Ding asserts. Ex. 1002 ¶¶ 74-75.

Dr. Ding ignores that his Figure 1M has a *new* box (which he misleadingly gives the same name as before, Root AP), *based on a misinterpretation of Sinha*, and that new box would be much *more complicated and costly* than the actual Root AP disclosed by Sinha. Haas Decl. ¶ 57. Even ignoring the misinterpretation of Sinha, there is simply no support for the conclusion that integrating two distinct components is less complex and cheaper than having separate components. The absurd result of Dr. Ding's logic is that all network components should simply be integrated into one box. This is obviously wrong, and Dr. Ding's assertions have no explanation and no evidence to support them. There is no evidence that a

POSITA would have had *any* reason to move the controller 103 into Root AP, let alone for cost and complexity. In fact, Dr. Haas lists several factors that would motivate a POSITA *against* such integration. Haas Decl. ¶ 57. For example, a remote centralized controller can be reused by multiple mesh networks, rather than having each network include its own integrated controller. As another example, keeping the remote centralized controller as a physically separate component allows for modularity, allowing either component to be managed, upgraded, or changed independently of other components, as well as allowing mobility management of users across networks. Haas Decl. ¶ 57.

Accordingly, Sinha alone does not render obvious any claim challenged in Ground IA.

3. Petitioner's misinterpretation of Sinha is fatal to its obviousness ground based on the combination with Liu.

Petitioner's combination of Sinha with Liu relies on Petitioner's misinterpretation of Sinha. Specifically, Petitioner assumes that a POSITA would be "interested in integrating Sinha's centralized controller in RootAP to reduce complexity and cost" as the "motivat[ion] to consult Liu." Petition, 17. As discussed above, this motivation is based entirely on Petitioner's misunderstanding that paragraph 131 of Sinha describes an embodiment "whereby the controller is integrated in a MAP." Petition, 15.

Under the correct interpretation of Sinha—that is, Sinha's actual words—Petitioner has not identified any reason why a POSITA would have looked to Liu. *See* Petition, 17. And although Petitioner asserts that a POSITA would have understood certain benefits of controller integration from Liu, those benefits are, at best, learned only after “[h]aving consulted Liu.” Petition, 18. But without a valid reason to consult Liu, Petitioner has no evidence that a POSITA would have understood any benefits to the proposed modification of Sinha.

But Petitioner's assertions about the supposed benefits a POSITA would understand after “[h]aving consulted Liu” should not be given any weight even if the consultation of Liu weren't based on a misinterpretation of Sinha. Petitioner's assertions are (again) conclusory and unsupported. For example, Petitioner states that “a POSITA would have understood that integrating a centralized controller into Sinha's RootAP would have provided the benefits of higher integration and reduced communication complexity.” Petition, 18. This assertion has no basis in fact. For example, Petitioner does not cite to *any* disclosure in Liu espousing *any* benefit of integrating a centralized controller into a MAP. *See* Petition, 18.

Petitioner's only support is Dr. Ding, who parrots the conclusory statement without further explanation or evidence. Ex. 1002 ¶ 78. Even ignoring the misinterpretation of Sinha, there is simply no support for the conclusion that “higher integration” is desirable in this case, or that “communication complexity”

was at all a problem in Sinha that needed to be (or even would be) addressed by such integration. Even in light of Liu, Petitioner does not provide any evidence that a POSITA would have had *any* reason to move the controller 103 into Root AP, let alone for “higher integration and reduced communication complexity.” Petition, 18.

Seemingly aware of its lack of evidentiary support, Petitioner throws in last-ditch legal conclusions to try to justify its modification of Sinha. Specifically, Petitioner asserts that the modification “would have been obvious to try in view of Liu” and it “would be a combination of prior art elements according to known methods, and also application of a known technique to a known system ready for improvement, both with predictable results.” Petition, 18-19. Petitioner has no support for these conclusions aside from Dr. Ding’s verbatim repetition of them. Ex. 1002 ¶ 78. Nevertheless, Petitioner’s obvious-to-try argument appears to rely on the mere disclosure of routing decisions being made in Liu’s gateway. But the mere disclosure of a feature in one reference does not make that feature obvious to try in another reference. *Cf. KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 421 (2007) (A solution might be obvious to try where “there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions.”); *see also Current Lighting Solutions, LLC v. Jiaxing Super Lighting Elec. Appliance Co.*, IPR2023-00269, Paper 18 at 20, 27 (Aug. 16, 2023) (finding

“unavailing” petitioner’s argument that combining two references was obvious to try for failing to provide support for the conclusory assertion); *AviaGames, Inc. v. Skillz Platform Inc.*, IPR2022-00531, Paper 13 at 35 (Aug. 4, 2022) (rejecting petitioner’s “unexplained and unsupported allegations” that combining two references was obvious to try as too non-specific and general). Petitioner does not even try to show any design need or market pressure, let alone any finite number of identified, predictable solutions. *Motorola Mobility LLC v. Maxell, Ltd.*, IPR2023-00110, Paper 7 at 30 (June 15, 2023) (rejecting obvious-to-try argument that failed to “explain what the finite number of identified predictable solutions are, or articulate any ‘design need or market pressure’”) (citing *KSR* at 421).

Nor has Petitioner provided any evidence to support its conclusion that the modification is a combination of prior art elements according to known methods or application of a known technique to a known system ready for improvement. Petitioner has shown no improvement, for example. Nor has Petitioner shown that applying the functionality of Sinha’s controller 103 into Root AP 111 is “known” based on Liu’s mere disclosure of routing decisions taking place in a gateway. Liu does not discuss any methods for integrating a controller into a Root AP. And Sinha does not disclose that a Root AP is a gateway, but rather discloses that Root AP is coupled to a network via a switch. Sinha [0024].

Accordingly, Sinha in combination with Liu does not render obvious any claim challenged in Ground IA.

4. Dr. Ding's testimony should be given no weight.

Petitioner's only support for its misinterpretation of Sinha (and subsequent modification based on Sinha alone or in combination with Liu) is the declaration of Dr. Ding. *See* Petition, 15-17 (citing Ex. 1002 ¶¶ 71-78). But Dr. Ding mimics the Petition without citing any additional evidence or providing any technical explanation. The Board should not give his testimony any weight. *Xerox Corp. v. Bytemark, Inc.*, IPR2022-00624, Paper 9 at 15-16 (Aug. 24, 2022) (precedential) (expert testimony that is “conclusory and unsupported, [and] adds little to the conclusory assertion for which it is offered to support” is “entitled to little weight” especially when offered “to supply a limitation missing from the prior art”) (citations omitted).

In eight paragraphs spanning more than four pages, Dr. Ding parrots the Petition's conclusory assertions about modifying Sinha in Ground IA. *Compare* Petition, 15-17 *with* Ex. 1002 ¶¶ 71-78. Dr. Ding adds just two sentences that do not appear in the Petition. First, in paragraph 75, Dr. Ding describes his modified Figure 1M noting that he has made a “one-box” Root AP to replace the “two-box” solution” in Sinha. Ex. 1002 ¶ 75. This description, however, does not provide any additional explanation or evidence to support the modification. Second, in

paragraph 78, Dr. Ding states that Figures 6 and 9 of Liu illustrate how to integrate a controller in a gateway. Ex. 1002 ¶ 78. As described previously, Liu is silent about integrating a controller in a Root AP, and Liu's Figures 6 and 9 do not purport to illustrate such integration. But even if accepted as true for the sake of argument, this one sentence from Dr. Ding does not provide any reason to consult Liu in the first instance.

* * *

Sinha does not teach or suggest integrating its controller into any AP, let alone the Root AP specifically. Petitioner's attempts to fill in the gaps with Dr. Ding's parroted declaration fails to establish a reasonable likelihood of prevailing with Ground IA.

D. Petitioner does not demonstrate a reasonable likelihood that Sinha alone or in combination with Liu teaches or suggests “establishing a backhaul communication, separate from the forward wireless communication, with the second mesh point” as required in claim element [1.2].

According to Petitioner, “[i]n Ground IA, the ‘backhaul communication’ is mapped to back-end/backhaul path(s) dedicated for carrying control information (or that carry data and control information), and the ‘forward wireless communication’ is mapped to different back-end path(s) dedicated for carrying data traffic.” Petition, 5. Although this mapping of “backhaul communication, separate from the forward wireless communication” is apparently based on an

unstated claim construction that neither party advocates for, (*see* Sections III.A, III.B, *supra*), even under this wrong construction, Petitioner fails to show that Sinha discloses or renders obvious this claim element.

Petitioner cites to “a control path for CAPWAP control packets between the controller 103 and the new mesh AP 117” as the “backhaul communication.” Petition, 26-27 (quoting Sinha [0036]). But Sinha only discloses lightweight protocol (e.g., CAPWAP) control packets in the context of *lightweight APs* (Haas Decl. ¶¶ 45-47, 60), and Petitioner explicitly relies on non-lightweight embodiments that do not need lightweight control packets.

For example, in paragraph 36, quoted by Petitioner, the relied-upon “control path for CAPWAP control packets” is “between the controller 103 and the new mesh AP 117.” Sinha [0036]. Sinha explicitly states this disclosure “[r]efer[s] to FIG. 1” (Sinha [0036]), which Petitioner admits discloses lightweight APs. Petition, 15 (“A ‘lightweight’ architecture, in which a centralized controller separate from MAPs controls the operation of the MAPs of a wireless mesh network, is illustrated in Sinha’s Figure 1.”). In the lightweight architecture of Figure 1, “the mesh AP has a secure tunnel, e.g., an LWAPP/CAPWAP tunnel” with the remote controller 103. Sinha [0131].

In contrast, the embodiment that Petitioner relies on in Ground IA would not have CAPWAP control packets, and thus no “control path” for such packets.

Ground IA relies on Sinha's disclosure of APs that are "*not* '*lightweight*' but rather include enough capability to *not need an LWAPP or other protocol connection* for a controller to function." Petition, 15-16 (quoting Sinha [0131]) (emphases in Petition). LWAPP stands for "Light Weight Access Point Protocol." Sinha [0026]. CAPWAP (Control And Provisioning of Wireless Access Points) "is a later version of LWAPP" and, at the time of Sinha, was part of a draft standard. Sinha [0026]. A POSITA would thus understand that Sinha's disclosure in paragraph 131 of not needing "LWAPP or other protocol connection" means that CAPWAP (a light-weight protocol) is also not needed for a controller to function with non-lightweight APs. Haas Decl. ¶ 47. And because a lightweight protocol connection is not needed in Petitioner's modification to Sinha's Figure 1, either alone or in view of Liu, Sinha's control path for CAPWAP control packets (which Petitioner relies upon as the claimed backhaul communication) would also not exist. Haas Decl. ¶ 60.

Petitioner has no explanation for its contradictory reliance on 1) *non-lightweight* APs that do not need a lightweight protocol for a controller to function and 2) a control path for *lightweight* protocol packets for the claimed backhaul communication. See Petition, 26-28. Thus, regardless of the construction of "backhaul communication, separate from the forward wireless communication," Ground IA does not show disclosure of claim element [1.2].

E. Petitioner does not demonstrate a reasonable likelihood that Ground IA discloses or renders obvious claim element [1.1] under the correct construction of “forward wireless communication.”

In Ground IA, Petitioner's mapping apparently relies on a construction that it has argued “makes no sense” and “cannot be” true in the ITC. Ex. 1019, 28. Specifically, Petitioner seems to apply a construction where the “forward wireless communication” and “backhaul communication, separate from the forward wireless communication” are “separate” because they carry “two different kinds of communications: one for client traffic forwarded through the network (the ‘forward wireless communication’) and one for control/management traffic (the ‘backhaul communication, separate from the forward wireless communication’).” Ex. 1019, 28. Thus, Ground IA is based on a hypothetical construction of claim 1 for which neither party advocates.

Under the correction construction of claims 1 and 11, discussed above in Section III.B, Ground IA easily fails. Petitioner does not even try to map Sinha to Patent Owner's construction in Ground IA, instead purporting to do so only in Ground IB. *See* Petition, 5-6 (stating that the mapping of Ground IB “is consistent with Patent Owner's claim construction position”).

Petitioner's mapping of Sinha to the “forward wireless communication” of claims 1 and 11 is not a *client-facing* wireless communication established between mesh points. Specifically, Petitioner maps this claim element [1.1]/[11.1] to “[a]

backhaul path dedicated for carrying/forwarding client's traffic data between RootAP (claimed first mesh point) and AP 117 (MAP3) (claimed second mesh point) in Figure 1/1M." Petition, 23. Petitioner's alleged forward wireless communication is "established in the 5-GHz band" using "the backhaul radio [which] is an IEEE 802.11a conforming radio in the 5 GHz range." Petition, 29. But as Petitioner admits, this "5-GHz band is dedicated for back-end/backhaul" communications between mesh points and, in contrast, only the "2.4-GHz band is used for client-to-AP access communication" in Sinha. Petition, 46. Sinha thus does not disclose using a frequency band accessible to clients (client-facing wireless communication) to form a communication between mesh points as required under the proper interpretation of the term.

Thus, the purported forward wireless communication in Ground IA is not a client-facing wireless communication and Petitioner has failed to establish a reasonable likelihood that Ground IA will prevail against any claim.

V. Ground IB: Petitioner does not demonstrate a reasonable likelihood that its second mapping of Sinha and Liu renders obvious claims 1-7 and 11-16.

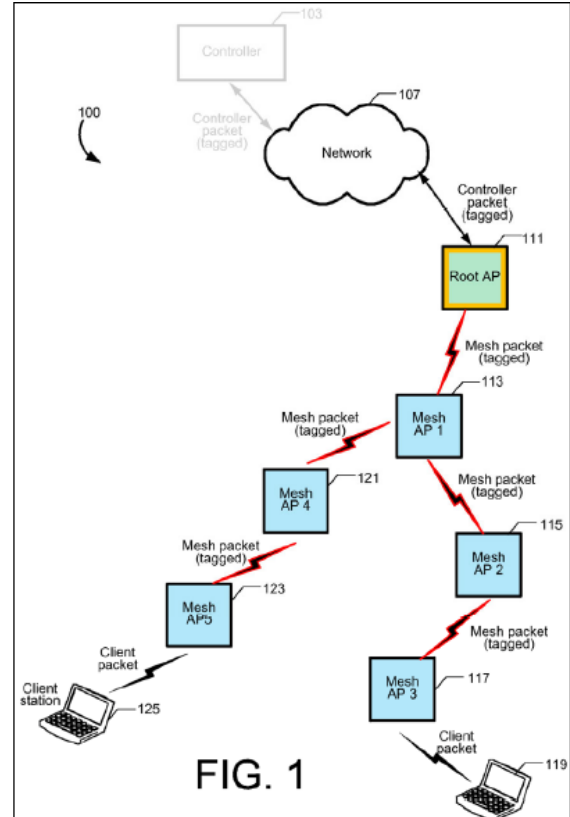
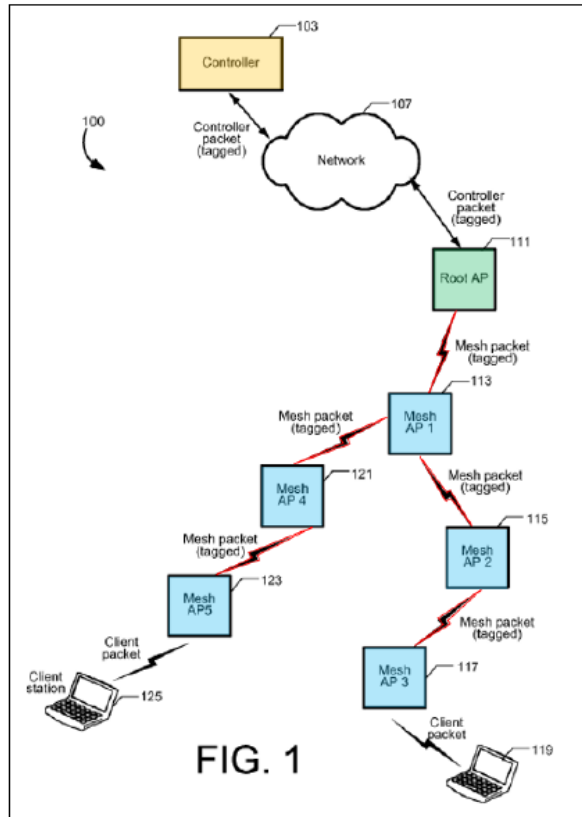
In Ground IB, Petitioner maps Sinha (alone or in combination with Liu) to the claimed "forward wireless communication" and "backhaul communication, separate from the forward wireless communication" based on whether a multi-hop backhaul path in a network is established with a frequency band "dedicated for

backhaul” [the claimed “backhaul communication”] or is “a general-purpose frequency band used for both backhaul and client-facing communications” [the claimed “forward wireless communication”]. Petition, 6. As shown below, Ground IB relies on the same misinterpretation of Sinha that dooms Ground IA.

Additionally, Petitioner admittedly “repurposes” an embodiment of Sinha in an unjustified, hindsight-based attempt to reconstruct the claims like a puzzle. Thus, Petitioner has not shown a reasonable likelihood of prevailing against any claim in Ground IB.

A. Ground IB relies on the same misinterpretation of Sinha that dooms Ground IA.

Ground IB relies on the same modification to Sinha that Petitioner failed to justify in Ground IA. Specifically, Ground IB requires incorporating Sinha’s centralized controller 103 into the Root AP as shown in Petitioner’s modification of Figure 1, which Petitioner labels Figure 1M, reproduced below. Petition, 48 (“Ground IB relies on Sinha’s wireless mesh network Figure 1M”).



Sinha Figure 1 (left) and Petitioner's modified Figure 1M (right). Petition, 16.

Patent Owner showed above for Ground IA that this modification is unsupported and based on a misinterpretation of Sinha's paragraph 131. Thus, for the same reasons discussed above for Ground IA, Ground IB does not establish a reasonable likelihood of prevailing against any claim because of Petitioner's misinterpretation of Sinha's disclosure of non-lightweight APs.

B. Petitioner's further modifications to Sinha in Ground IB are based on nothing more than hindsight.

Ground IB proposes an additional unsupported modification to Sinha.

Petitioner proposes to modify Sinha's APs to include a 5 GHz backhaul radio and a 2.4 GHz radio that operates as both a client-facing access radio and a backhaul

radio. Petition, 46 (“[A] POSITA would have understood and found obvious to use Sinha’s 2.4-GHz band to establish both backhaul and client-facing communications—making the 2.4-GHz band a *general-purpose* frequency band.”) (emphasis in Petition).

It is undisputed that Sinha does not disclose such a system. *See* Petition, 45-46. Sinha focuses on systems that include a 5 GHz radio solely for backhaul and a 2.4 GHz radio solely for client access. Sinha, Figure 3A, ¶ 47. In one sentence, Sinha describes that its disclosure also applies to an alternative embodiment with only a single radio that is used for both client access and backhaul. Sinha [0048] (“[W]hile the architecture of FIG. 3A shows a separate access radio 303 and a separate backhaul radio 301 for the backhaul links of the network, each able to operate simultaneously at different frequency bands, in an alternate embodiment, the same radio is used for access and backhaul communication.”).

Petitioner proposes to do something that Sinha never suggests: combine these two *alternative* embodiments into a new two-radio system, with a 2.4 GHz radio for both access and backhaul communication, and a 5 GHz radio for only backhaul communication. Petition, 46. Petitioner labels this a “repurposed” radio. Petition, 47.

Petitioner’s combination is based on nothing but hindsight. Petitioner relies heavily on Dr. Ding to explain the understandings and motivations of a POSITA.

Petition, 44-48 (citing Ex. 1002 ¶¶ 124-31). But Dr. Ding does nothing more than parrot the Petition's conclusory statements. He does not offer additional evidence, nor provide further explanation for the conclusory statements. Ex. 1002 ¶¶ 124-31. In fact, in the eight paragraphs spanning five pages cited by Petitioner, Dr. Ding provides only two sentences that do not appear either verbatim or substantively identical to pages 44-48 of the Petition. *See* Ex. 1002 ¶¶ 128 (last sentence), 131 (last sentence).

But even if the Board gave these two sentences weight, they do not show a reasonable likelihood of prevailing. Specifically, both of these sentences merely assert, with no support, that the combination would not require changes in isolated components (i.e., Sinha's 5 GHz backhaul in Figure 3A and 2.4 GHz client access/backhaul radio in paragraph 48). Ex. 1002 ¶¶ 128, 131. But they do not address the significant changes in Sinha's overall system that would be required. For example, Sinha's system does not have any mechanism to use a separate radio as an alternative backhaul; nor does it have any mechanism to use a dual-purpose client/backhaul radio to operate as a backup in case of failure of the 5 GHz radio. Haas Decl. ¶ 73. Dr. Ding ignores these challenges in his conclusory assertions that the radios in isolation, and from two alternative embodiments, would not need to be modified.

Even considering Dr. Ding's declaration, Petitioner's assertions are unsupported, conclusory, and contradictory. Petitioner relies on Handforth (which is not part of Ground IB), to support its assertions that the modification "increase[s] the amount of traffic that can be carried on backhaul paths beyond the capabilities (*e.g.*, maximum throughput) of the 5-GHz dedicated backhaul radio" and "enhances the resilience ... when the 5-GHz dedicated backhaul radio fails." Petition, 47 (citing Handforth, 6:64-7:18). But Handforth does not disclose or motivate using a client-access radio to increase traffic or as a redundant/backup link in the backhaul. Haas Decl. ¶ 72. And indeed, none of Sinha, Liu, nor Handforth disclose or motivate such a system. Haas Decl. ¶ 72. Further, a POSITA would have understood that Petitioner's proposed repurposing would have *decreased client capacity* relative to the radios employed in Figure 3A. Haas Decl. ¶ 70. And this decreased client capacity would not have been counterbalanced by a significant benefit such as reduced cost, unlike Sinha's single-radio embodiment. Haas Decl. ¶ 70. A POSITA would not have been willing to repurpose Sinha's radios in a way that indisputably decreases client capacity in order to nominally increase backhaul capacity or to add redundancy, especially because Sinha already provides redundant paths and is silent on the need for increased backhaul throughput. Haas Decl. ¶¶ 70-71.

Absent Petitioner's hindsight, there is no reason to modify Sinha as proposed in Ground IB. As the Petition discusses in Ground 1A, Sinha builds redundancy through redundant *paths* (e.g., Sinha [0104]), and does not suggest any need for additional redundancy by using additional radios on the backhaul. *E.g.*, Petition, 7-10; Haas Decl. ¶¶ 69, 71.

Apparently aware of the lack of any actual suggestion for the modification, Petitioner relies on *Boston Scientific* to argue that the modification is obvious as a matter of law based on the proximity of embodiments in Sinha. Petition, 48 (citing *Boston Sci. Scimed, Inc. v. Cordis Corp.*, 554 F.3d 982, 991 (Fed. Cir. 2009)). The Board has previously rejected the notion that *Boston Scientific* “support[s] the proposition that the adjacent placement of embodiments in a prior art reference, by itself, is a sufficient rationale for combining those embodiments.” *Intel Corp. v. Tela Innovations, Inc.*, IPR2019-01521, Paper 65 at 25-26 (Mar. 9, 2021). To the contrary, the Board has found that “[t]he court’s analysis in *Boston Scientific* indicates that adjacent placement alone is ***not sufficient***.” *Id.* (emphasis added). As the Board stated,

In *Boston Scientific*, a first embodiment showed a drug-eluting polymer stent made of a drug-eluting polymer with a barrier topcoat (referred to as separate layers), and a second embodiment showed a metallic stent with a drug-eluting polymer coating that was identified with the same numeral as the drug-eluting polymer in the first embodiment. *Id.* at 988.

The court found that the motivation to add the second coating layer from the first embodiment to the stent in the second embodiment was the expectation of achieving the same benefit realized by the use of the second coating layer in the stent in the first embodiment. *Id.* at 991.

Intel, at 25-26.

In contrast to *Boston Scientific*, Petitioner's proposed modification of Sinha does not combine related embodiments to achieve the same benefits. To the contrary, Petitioner proposed to employ Sinha's single-radio embodiment for an entirely new purpose not disclosed in Sinha: as a dual-use backup radio for backhaul communications. It is no wonder that Petitioner refers to this as a "repurposed" radio, as Petitioner uses this embodiment for a purpose that was never foreseen or intended by Sinha. Petition, 48.

Ground IB requires significant modifications to Sinha. Petitioner has failed to justify the proposed modification, which was tailored by hindsight using the claims as a guide. Accordingly, Ground IB fails to establish a reasonable likelihood of prevailing against any claim.

C. Petitioner does not demonstrate a reasonable likelihood that Ground IB discloses or renders obvious claim elements [1.5]/[11.5] and [1.6]/[11.6].

Claims 1 and 11 recite "constructing a list of backhaul candidates, each backhaul candidate having a score indicative of an estimated quality of a potential link between the first mesh point and the second mesh point," which Petitioner has

labeled as claim element [1.5]/[11.5]. Claims 1 and 11 also recite “upon determining that a quality of service of the dedicated backhaul has dropped to below a predetermined threshold, establishing an alternative backhaul communication with the second mesh point using a backhaul candidate with the highest score on the list,” which Petitioner has labeled as claim element [1.6]/[11.6].

Petitioner does not substantively address these claim elements in Ground IB. Instead, Petitioner merely directs the Board to its discussion of these claim elements in Ground IA. Petition, 50. But Ground IA does not address Petitioner's additional modification of Sinha proposed in Ground IB—specifically, Ground IA does not address Petitioner's “repurposed” device that uses multiple distinct radios for backhaul. Ground IA, for example, does not address Ground IB's supposed backup 2.4 GHz backhaul in its purported “list of backhaul candidates” let alone showing any “score” for such candidate. Nor does Ground IA address establishing “an alternative backhaul communication” in the context of the “repurposed radio.”

Ground IA is directed to an entirely different embodiment as Ground IB, which applies a “repurposed radio” that Petitioner has constructed on its own. Petitioner has not shown that this repurposed radio would have operated in a manner to disclose or render obvious claim elements [1.5]/[11.5] and [1.6]/[11.6]. Thus, Ground IB fails for this additional reason.

VI. Ground II: Petitioner did not demonstrate a reasonable likelihood that the combination of Sinha, Liu, and Handforth renders obvious claims 8-10 and 17-19.

Although facially presented as a challenge to claims 1-19, Ground II does not present a separate challenge to claims 1-7 and 11-16. Instead, Ground II relies on Ground IB for these claims. Petition, 53. Confusingly, however, Petitioner states in Ground II that Ground IB shows that “[c]laim [*sic*] 1-7 and 11-16 are rendered obvious by Sinha in combination with Liu *and Handforth*.” Petition, 53 (emphasis added). But Ground IB does not include Handforth. For example, Petitioner’s table of asserted grounds, reproduced below, shows Ground IB is based solely on Sinha and Liu.

Ground	Basis	Challenged Claims	Reference(s)
IA	§ 103	1, 2, 4-7, 11, 12, 14-16	Sinha, Liu
IB	§ 103	1-7, 11-16	Sinha, Liu
II	§ 103	1-19	Sinha, Liu, Handforth
III	§ 103	1, 3-6, 11, 13-16	Gatewood, Sinha

Petitioner’s Table of Grounds (Petition, 2)

Further, the title of Ground IB refers only to “Sinha, Alone or In Combination With Liu.” Petition, 44. Petitioner presents a section titled “Reasons to Combine Sinha and Liu” for Ground IA (Petition, 15-19) that it apparently relies

on for Ground IB (Petition, 48) but never discusses or motivates any combination with Handforth in Ground IB.

Thus, Petitioner is wrong in its assertion in Ground II that claims 1-7 and 11-16 are rendered obvious by Sinha in combination with Liu and Handforth. To the extent Petitioner attempts to add Handforth into Ground IB, it must fail because it has not articulated any reasoning to combine Handforth with Sinha and Liu for independent claims 1 and 11, nor has Petitioner expressly relied on Handforth for any disclosure of any claim element in these independent claims.

Ground II does not cure the deficiencies of Ground IB identified above. For example, Petitioner's discussion of the dependent claims targeted by Ground II does not fix Petitioner's misinterpretation of Sinha or its hindsight analysis in Ground IB. Nor does Ground II establish a reasonable likelihood of prevailing against claims 8-10 and 17-19. Claims 8-10 depend from independent claim 1, and claims 17-19 depend from independent claim 11. Petitioner has failed to establish a reasonable likelihood of prevailing against claims 8-10 and 17-19 for the same reasons discussed above for claims 1 and 11 in Ground IB.

VII. Ground III: Petitioner did not demonstrate a reasonable likelihood that the combination of Gatewood and Sinha renders obvious claims 1, 3-6, 11, and 13-16.

In Ground III, Petitioner maps Gatewood and Sinha to the claimed "forward wireless communication" and "backhaul communication, separate from the

forward wireless communication” based on whether a path is a primary or secondary backhaul path. Petition, 6. As shown below, Ground III attempts to rehash art applied by the Examiner during prosecution and expressly overcome by an Examiner’s amendment to the independent claims. The Board should exercise its discretion to deny rehashing Gatewood. Additionally, Ground III fails on the merits because Petitioner is unable to map Gatewood to multiple claim elements without significant and unjustified modifications based on misinterpretations and hindsight.

A. Overview of Gatewood.

Gatewood is titled “Selection of Wireless Backhaul Links Based on Uptime Factors.” In Gatewood, a wireless LAN access node provides Wi-Fi connectivity to user devices over a WLAN link, and uses separate links to wireless access nodes for backhaul. For example, Figure 1, reproduced below, illustrates a communication system where wireless LAN access node 120 provides a WLAN link 140 to user devices 110-112. Gatewood, 2:35-39. Separately, the wireless LAN access node 120 provides a backhaul via backhaul links 141-142 “by way of ones of wireless access nodes 121-123.” Gatewood, 2:39-42; *see also id.*, 2:61-63. The wireless access nodes 121-123 “have associated wireless links 151-153” that “can be used by WLAN access node 120 as backhaul links, and must first be selected by WLAN access node 120.” Gatewood, 2:64-67. In an example,

“wireless link 153 associated with wireless access node 133 has the highest signal strength, and thus WLAN access node 120 selects wireless link 153 as the first wireless backhaul link.” Gatewood, 3:13-17. “As shown in FIG. 1, the ‘1’ indicator illustrates wireless backhaul link 141 and wireless link 153 as being associated together for the first wireless backhaul link.” Gatewood, 3:17-19.

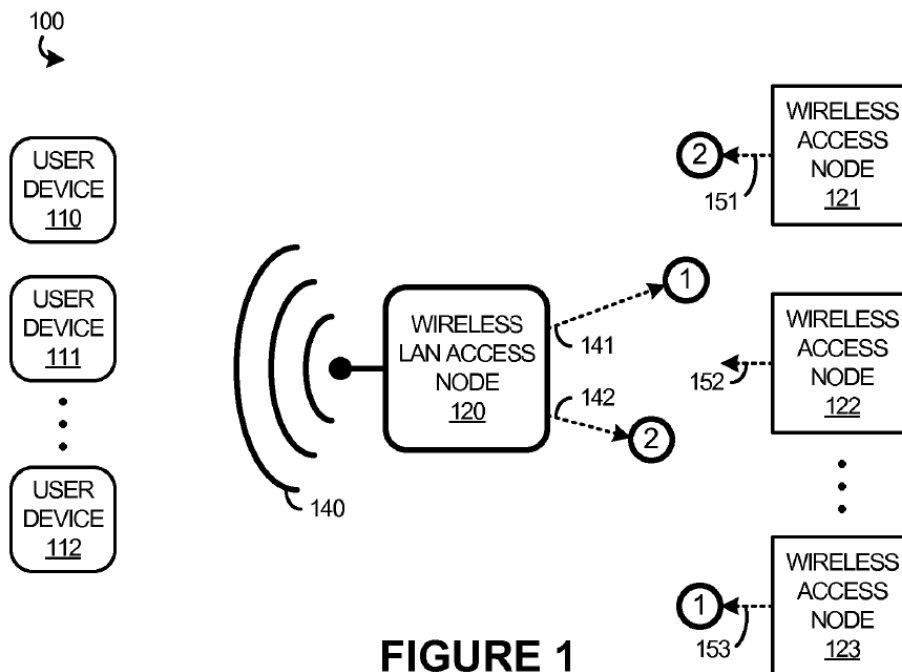


FIGURE 1

Gatewood, Figure 1

Figure 3, reproduced below, illustrates another system with user devices 310-312 and WLAN access nodes 330-334. “WLAN access nodes 331-334 are also communicatively coupled to further networks, communication links, and systems which can provide communication with other networks such as the Internet, corporate networks, Internet service providers, cellular voice and data core networks, and the like.” Gatewood, 3:58-62. In other words, all the WLAN

access nodes 331-334 provide a connection to other networks and would be considered gateways under Petitioner's use of that term. *See* Petition, 61; Haas Decl. ¶¶ 77, 84.

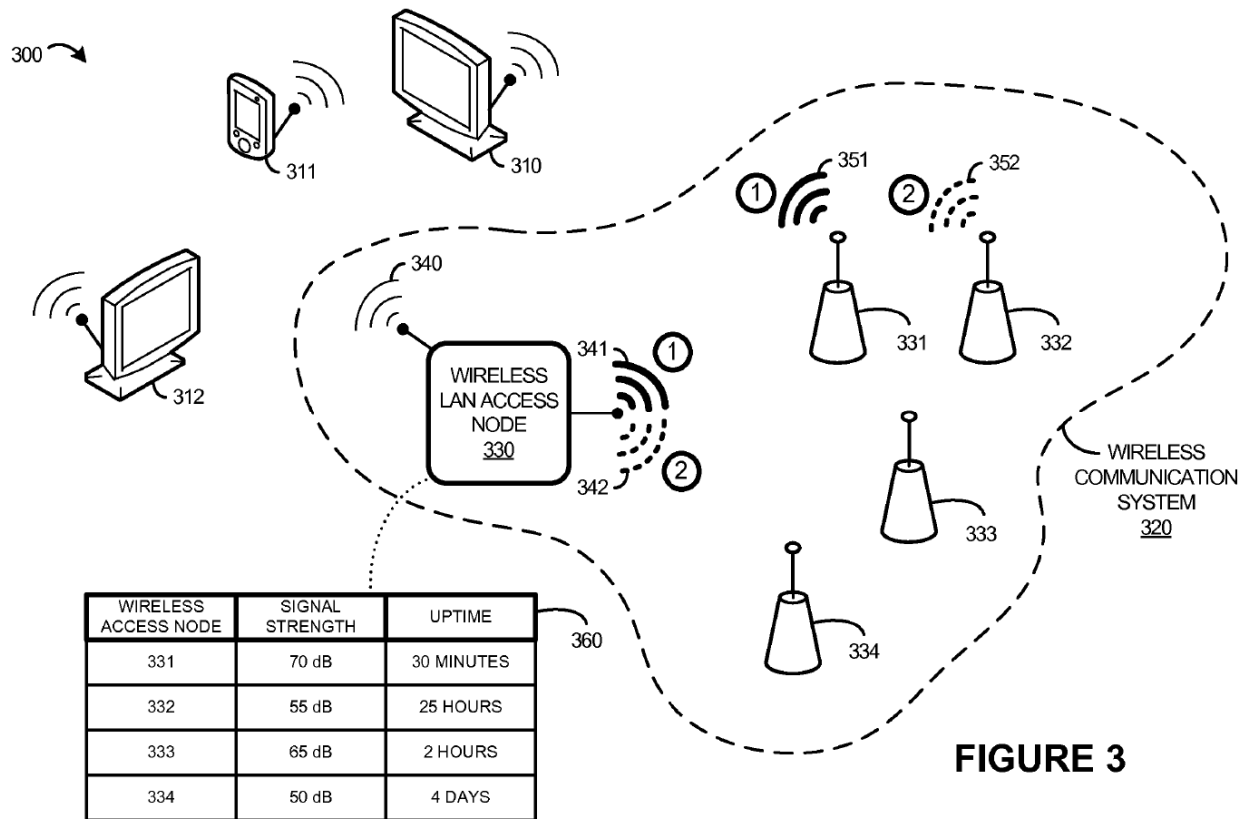


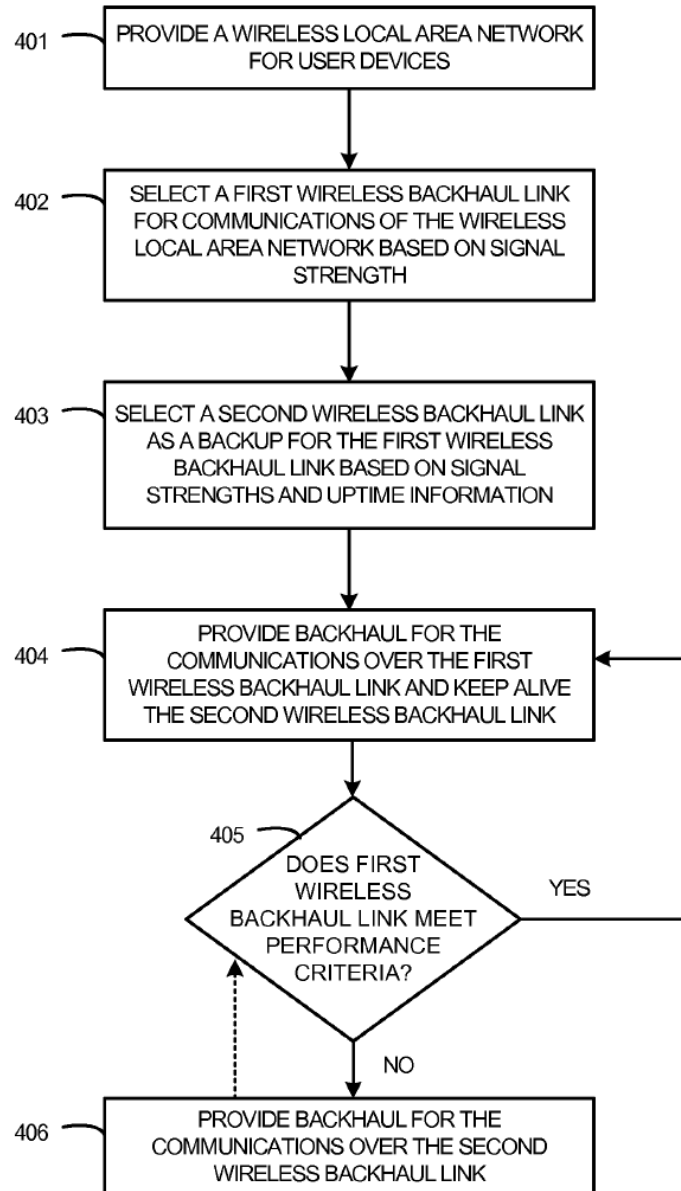
FIGURE 3

Gatewood, Figure 3

As shown in Figure 3, WLAN access node 330 includes a data structure 360 with three columns. “A first column indicates an identity of a wireless access node, namely WLAN access nodes 331-334. A second column indicates a signal strength, namely a corresponding signal strength in decibels (dB) as detected by WLAN access node 330 for each WLAN access node 331-334. A third column

indicates uptime information, namely an uptime period corresponding to each WLAN access node 331-334.” Gatewood, 4:6-13.

The WLAN access node 330 selects a first and second backhaul link from the data structure 360 based on a comparison of signal strength and uptime. Figure 4, reproduced below, shows an example flow diagram of such selection. The WLAN access node 330 selects a first wireless backhaul link “based on signal strength of wireless links provided by ones of WLAN access nodes 331-334.” Gatewood, 4:29-32. In the example of Figure 3, the WLAN access node 330 “selects WLAN access node 331 for the first wireless backhaul link, as indicated by wireless link 341 and the ‘1’ indicator in FIG. 3.” Gatewood, 4:49-53.

**FIGURE 4****Gatewood, Figure 4**

WLAN access node 330 also selects “a second wireless backhaul link as a backup for first wireless backhaul link 341 based on signal strength and uptime information.” Gatewood, 4:59-61. The backup is used as a “failover or backup

protection for communications of WLAN 340 when first wireless backhaul link 341 is unavailable, underperforming, or does not meet performance criteria, among other scenarios.” Gatewood, 4:61-66. Because “WLAN access node 331 has already been selected for first wireless backhaul link 341, [] only WLAN access nodes 332-334 remain for selection for the second backhaul wireless link.” Gatewood, 5:31-35. In the example of Figure 3, “WLAN access node 332 is selected” as the second backhaul link “due in part to having the highest signal strength and longest uptime combination from among WLAN access nodes 332-334.” Gatewood, 5:37-42. This selection is “indicated by wireless link 342 and the ‘2’ indicator in FIG. 3.” Gatewood, 5:42-44.

B. Overview of Petitioner's Combination of Gatewood and Sinha.

Unlike Grounds IA and IB, which included separate sections attempting to explain the relevant modifications to Sinha, Ground III does not specifically address how Gatewood is combined with Sinha to render any claim obvious. Instead, Petitioner primarily relies on Gatewood, citing Sinha only as a backup argument.

Petitioner appears to propose three modifications to Gatewood based on Sinha. First, Petitioner seems to propose using Sinha's dual-radio MAP for Gatewood's WLAN access nodes in relation to the preamble. Petition, 62-64. Second, Petitioner proposes using Sinha's “priority ordered list of routes” in

Gatewood for claim element [1.5]. Petition, 78. Third, Petitioner proposes using Sinha's "monitoring multiple network parameters such as 'data rates ...' to determine the primary and failover routing paths 'for different classes of traffic'" for claim element [1.6]. Petition, 81. Each of these proposed combinations is cumulative to Petitioner's use of Gatewood—in fact, when attempting to justify the third modification, Petitioner concedes that "Sinha applies the same strategy ... as Gatewood, except that it does so for multiple classes of traffic." Petition, 82.

C. The Board should use its discretion under § 325(d) to deny Ground III.

Gatewood was the primary reference used by the Examiner during prosecution of the '179 patent. Petitioner acknowledges that Gatewood was applied extensively during prosecution and does not identify any errors made by the Examiner. Petitioner, 87-88. Instead, Petitioner asserts that the mere combination with Sinha averts § 325(d). Petition, 87-88. But under the *Advanced Bionics* framework, which Petitioner does not address, the relevant factors considered by the Board heavily favor denial.⁸ *Advanced Bionics, LLC v. MED-EL*

⁸ Where Grounds I and II fail on the merits, the Board can deny the Petition based on § 325(d) for Ground III. *See, e.g., Samsung Elecs. Co. v. Neodron Ltd.*, IPR2020-00334, Paper 11 at 12, 17 (July 10, 2020) (finding petitioner failed to meet "reasonable likelihood threshold of institution" for grounds based on one

Elektromedizinische Geräte GmbH, IPR2019-01469, Paper 6 at 8 (Feb. 13, 2020) (precedential).

The Board has discretion to deny institution where “the same or substantially the same prior art or arguments previously were presented to the Office.”

35 U.S.C. § 325(d). When considering whether to exercise this discretion, the Board considers a non-exhaustive set of six factors. *Becton, Dickinson & Co. v. B. Braun Melsungen AG*, IPR2017-01586, Paper 8 (Dec. 15, 2017) (precedential as to § III.C.5, first paragraph).⁹ These factors are considered in a two-step analysis.

primary reference, and exercising discretion not to institute under §325(d) for grounds based on second primary reference).

⁹ The six factors are (a) the similarities and material differences between the asserted art and the prior art involved during examination; (b) the cumulative nature of the asserted art and the prior art evaluated during examination; (c) the extent to which the asserted art was evaluated during examination, including whether the prior art was the basis for rejection; (d) the extent of the overlap between the arguments made during examination and the manner in which petitioner relies on the prior art or patent owner distinguishes the prior art; (e) whether petitioner has pointed out sufficiently how the examiner erred in its evaluation of the asserted prior art; and (f) the extent to which additional evidence

Advanced Bionics, at 8. In the first step, the Board considers *Becton, Dickinson* factors (a), (b), and (d) to determine whether the same or substantially the same art or arguments were previously presented to the Office. If so, in the second step of the analysis the Board considers factors (c), (e), and (f) to determine whether petitioner has demonstrated that the Office erred in a manner material to the patentability of challenged claims.

As shown below, the *Advanced-Bionics* framework weighs heavily in favor of denial.

1. The '179 patent overcame rejections based on Gatewood, and Petitioner's use of Sinha is cumulative.

Becton, Dickinson factors (a), (b), and (d) show that the same or substantially the same prior art or arguments were previously considered by the Office during prosecution of the '179 patent.

During examination, the Examiner issued both Non-Final and Final Office Actions rejecting all pending claims based on Gatewood, either alone or in combination with other references. *See* Section II.B, *supra*. In both Actions, the Examiner stated that Gatewood, either alone or in view of Gokturk and Nolan,

and facts presented in the petition warrant reconsideration of the prior art or arguments.

“does not explicitly disclose” claim elements [1.5]/[11.5] and [1.6]/[11.6]. Ex. 1004, 146 (Non-Final Action), 218 (Final Action). In both Actions, the Examiner relied upon Lu for this disclosure. However, after an interview with the Applicant, the Examiner allowed the claims over Gatewood, Lu, and the rest of the prior art based on Examiner's Amendment that incorporated claim elements [1.5]/[11.5] and [1.6]/[11.6] into the independent claims from then-pending dependent claims. Ex. 1004, 261-66.

In Ground III, Sinha is cumulative of the prior art combination considered during prosecution. The Petition demonstrates Sinha's cumulative nature by relying primarily on *Gatewood alone* for disclosure and obviousness of key claim limitations, and then mentioning in passing that the Gatewood-Sinha combination also renders the limitation obvious. When arguing against the use of § 325(d), Petitioner asserts that Sinha discloses the claim elements that the Examiner found lacking during prosecution. Petition, 87-88. But Ground III primarily relies *Gatewood* for these claim elements, not Sinha. Specifically, for claim limitations [1.5] and [1.6]—both of which the Examiner repeatedly found to be missing from Gatewood (Ex. 1004, 146, 218)—Petitioner states “Gatewood discloses this element and, alone or in [combination/view] with Sinha, renders it obvious.” Petition, 74 (element [1.5]), 78 (element [1.6]). For both claim elements, Petitioner

uses three full pages arguing that *Gatewood alone* discloses and renders obvious the claim element. Petition, 74-77 (element [1.5]), 78-81 (element [1.6]).

Then, for both claim elements, Petitioner throws in Sinha as an afterthought—not as an alternative based on any technical reasoning, and not identifying any deficiency in Gatewood that Sinha would cure. Petitioner even states that “*Sinha applies the same strategy* of determining and ranking primary and backup paths/routes based on quality of service *as Gatewood*, except that it does so for multiple classes of traffic.” Petition, 82 (emphases added). Petitioner has not shown, or even argued, that Sinha’s applying Gatewood’s strategy to multiple classes of traffic constitutes a material difference in the references. It is not. Thus, Petitioner uses Sinha in a way that is cumulative of Gatewood.

2. Petitioner has not identified any errors by the Examiner during prosecution.

Petitioner does not address the second prong of *Advanced Bionics*. As shown below, the second prong favors denial because 1) Gatewood was the basis for rejection on two separate occasions and the Examiner expressly allowed the claims over Gatewood; 2) Petitioner has not identified *any* error by the Examiner in his evaluation of Gatewood; and 3) Petitioner has not presented any additional evidence or facts warranting reconsideration of Gatewood.

Becton, Dickinson factor (c) favors denial because Gatewood was the primary reference used to reject the claims during prosecution. In two separate

Office Actions, the Examiner stepped through his understanding of Gatewood's disclosure or non-disclosure of each asserted claim element, including its lack of disclosure of what are now claim elements [1.5] and [1.6]. Ex. 1004, 142-47 (first Office Action), 214-19 (second Office Action).

Factor (e) also favors denial because Petitioner did not identify *any* errors in the Examiner's evaluation of Gatewood. To the contrary, Petitioner asserts that it uses the same mapping used by the Examiner. Petition, 68 (“[T]he examiner relied on the same mapping.”), 72 (same). And even though Petitioner acknowledged that the Examiner found claim elements [1.5] and [1.6] missing from Gatewood, Petitioner does not assert that the Examiner overlooked or misunderstood any of the cited aspects of Gatewood. Petition, 87-88. Petitioner does not even assert that the Examiner was mistaken when concluding that Gatewood does not disclose these claim elements. *Id.* Instead, Petitioner ignores its heavy reliance on Gatewood for these claim elements and asserts, misleadingly, that Ground III is different than what the Examiner considered because Ground III relies on Sinha. Petition, 88. But Petitioner's failure to identify any errors by the Examiner also applies to Sinha because Petitioner admits that “Sinha applies the same strategy ... as Gatewood.” Petition, 82.

Factor (f) also favors denial. Aside from its minimal citation to Sinha, which it admits applies the same strategy as Gatewood, Petitioner does not argue that it

has provided any additional facts or evidence warranting reconsideration of Gatewood. Dr. Ding's declaration does not warrant reconsideration of Gatewood because Dr. Ding parrots Petitioner's conclusory attorney arguments without further explanation, as discussed below. *See, e.g.*, Ex. 1002 ¶¶ 177-83.

Petitioner attempts to rehash Gatewood without identifying any errors in the Examiner's evaluation or presenting evidence warranting reconsideration. Petitioner admits that it applies Gatewood in the same way as the Examiner, and admits that its secondary reference Sinha works in the same way as Gatewood with respect to limitations the Examiner explicitly found to be missing from Gatewood. The Board should deny Ground III under § 325(d).

D. Petitioner does not demonstrate a reasonable likelihood that Ground III discloses or renders obvious claim element [1.1]/[11.1] under the correct construction of “forward wireless communication.”

Under the correction construction of claim 1, discussed above in Section III.B, Ground III easily fails. Petitioner does not even try to map Gatewood, or the Gatewood-Sinha combination, to Patent Owner's construction. Petitioner's mapping of Gatewood/Sinha to the “forward wireless communication” of claims 1 and 11 is not a client-facing wireless communication, as Petitioner states explicitly that the frequency band used to communicate between an access point and clients is separate from the frequency band used for both the alleged forward and backhaul communications.

Specifically, in Ground III, Petitioner maps the references to the claims such that “the ‘backhaul communication’ is mapped to the primary back-end/backhaul path(s), and the ‘forward wireless communication’ is mapped to different secondary back-end path(s) that are on active standby.” Petition, 6. Both the backhaul communication and forward wireless communications are “established in the ‘5-GHz IEEE 802.11 frequency spectrum.’” Petition, 62 (quoting Gatewood, 6:48-56). Conversely, “[c]lient-facing access communication (MAP-to-client) is over *separate* wireless links such as link 340 (140 in Figure 1).” Petition, 62 (emphasis added). Petitioner combines Gatewood with Sinha such that Sinha’s 5 GHz “backhaul radio” is used for both the backhaul communication and the forward wireless communication, and Sinha’s 2.4 GHz “separate ‘access radio’” is used for client-facing communication. Petition, 62-63.

Petitioner asserts that Patent Owner’s ITC claim construction brief supports Petitioner’s mapping of Gatewood in Ground III. Petition, 68. Not so. Patent Owner proffers the same construction of “forward wireless communication” in the ITC as it does in here, and Petitioner never asserts that Gatewood meets Patent Owner’s proposed construction. Petitioner’s cherry-picking of one sentence in Patent Owner’s claim construction brief constitutes an improper backdoor claim construction argument that the “forward wireless communication” can itself be a dedicated backhaul link. But neither party proposes such a construction. Ground III

therefore challenges the claims under a strawman construction, and does not establish a reasonable likelihood of prevailing.

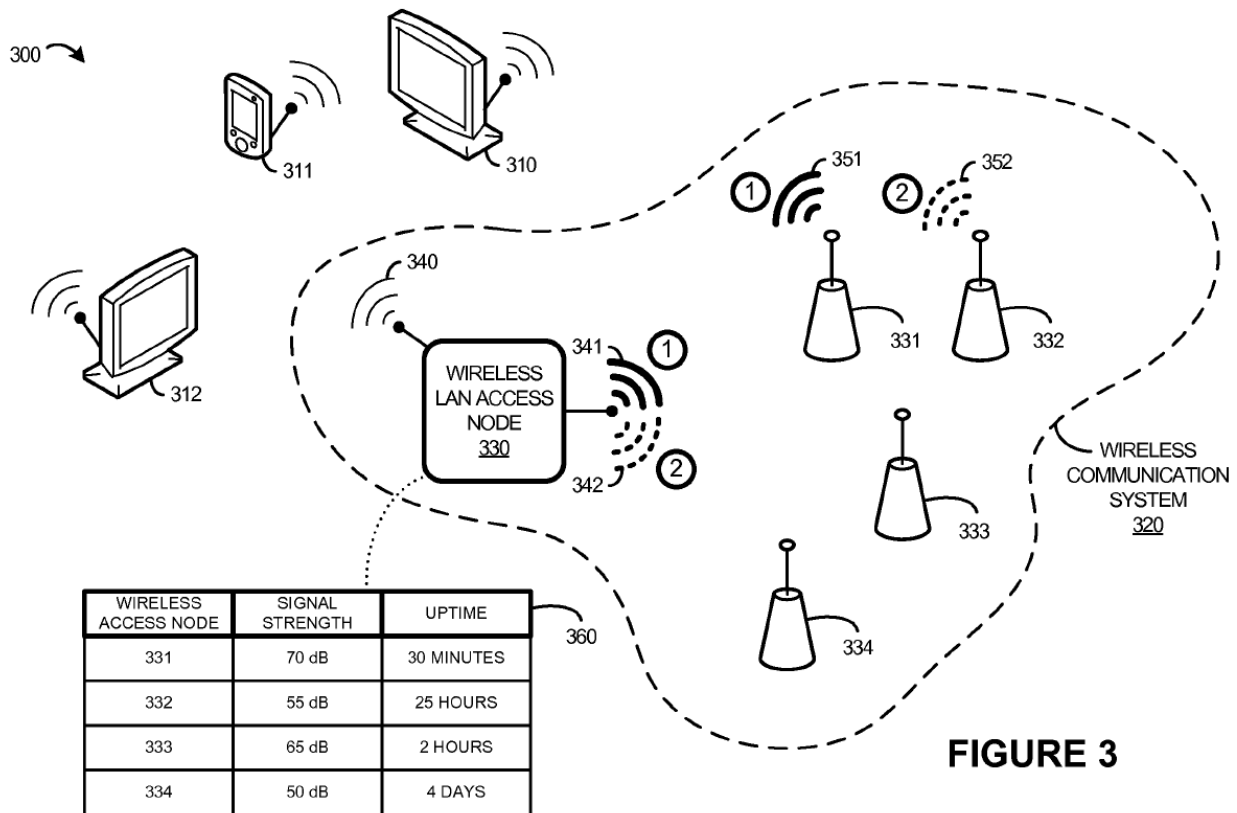
Accordingly, the purported forward wireless communication in Ground III is not a client-facing wireless communication and Petitioner has failed to establish a reasonable likelihood that Ground III will prevail against any claim.

E. Petitioner does not demonstrate a reasonable likelihood that Ground III discloses or renders obvious claim element [1.2]/[11.2].

Claims 1 and 11 recite “establishing a backhaul communication, separate from the forward wireless communication, with *the second mesh point*.” The phrase “the second mesh point” in claim element [1.2] refers to the same “second mesh point” recited in claim element [1.1] with which the method establishes a “forward wireless communication.” Thus, in claims 1 and 11 the “forward wireless communication” and the “backhaul communication” are established with the same “second mesh point.”

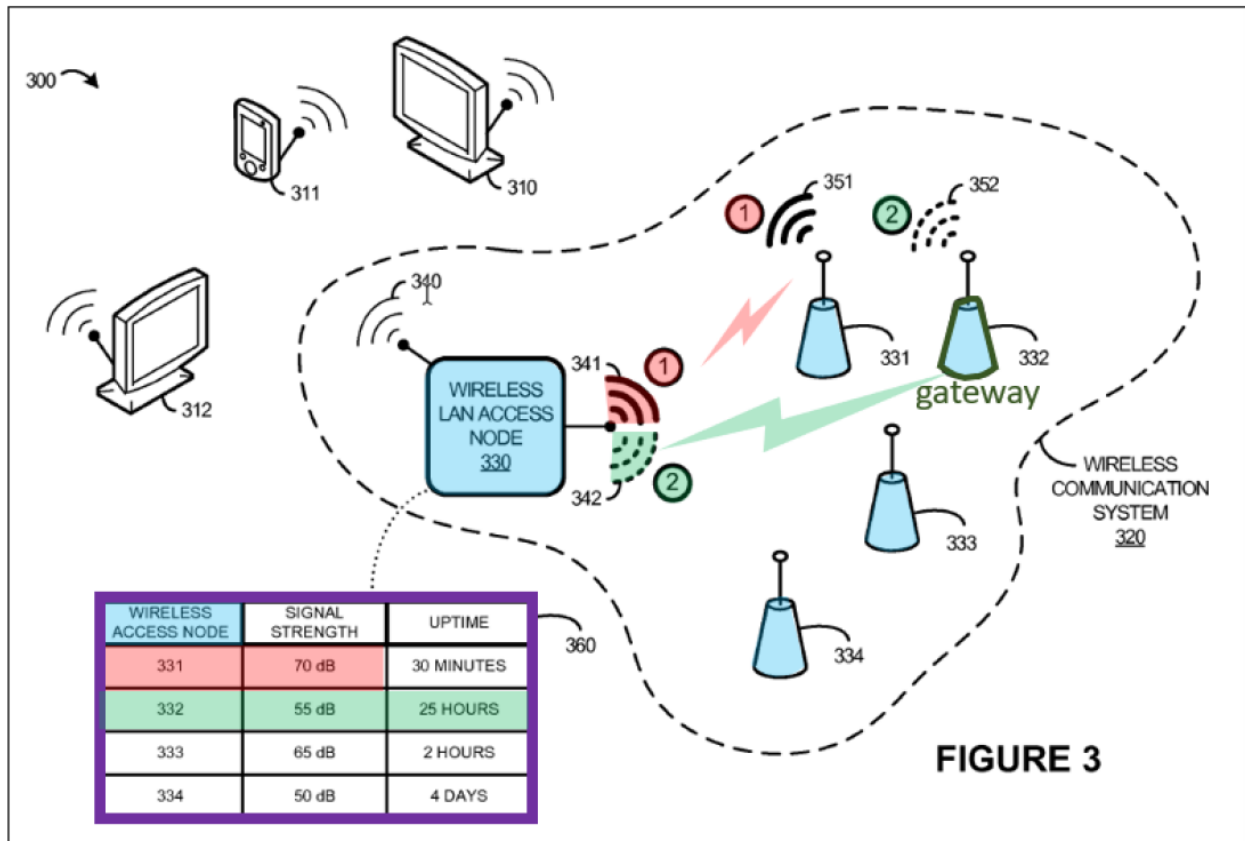
In Ground III, Petitioner fails to show a backhaul communication established with the same mesh point as the purported forward wireless communication. Petitioner maps the “backhaul communication” to a “first wireless backhaul link 341” in Gatewood’s Figure 3, reproduced below. Petition, 69. But Petitioner maps the “second wireless backhaul link 342” to the claimed “forward wireless communication.” As shown by Gatewood’s numbers (1) and (2) in Figure 3, these two links 341 and 342 are with different access nodes—notably nodes 331 and

332, respectively. Haas Decl. ¶ 83. The different destinations of these links are also shown by the table provided in Gatewood's Figure 3, which shows the different links from wireless access node 330 to different wireless access nodes.



Gatewood, Figure 3

Petitioner's own annotation of Figure 3, reproduced below, shows that the first and second backhaul links are to different access nodes.



Petitioner's annotation of Gatewood Figure 3 (Petition, 70)

Specifically, the first backhaul link to access node 331 (the purported “backhaul communication”) is shaded red, while the second backhaul link to access node 332 (the purported “forward wireless communication”) is shaded green.

Petitioner attempts to overcome this obvious deficiency with several different hindsight-based obviousness arguments. First, Petitioner asserts that the first backhaul link 341 “is part of a 2-hop backhaul communication path (MAP.330-to-MAP.331-to-MAP.332) connecting MAP.330 (claimed first mesh point) and the gateway/MAP.332 (claimed second mesh point), as claimed.” Petition, 70-71. This two-hop scenario is constructed entirely by Petitioner and has

no support in Gatewood itself. For example, Gatewood does not ever designate node 332 as being different than the other nodes, nor does it disclose selecting a two-hop route to node 332 instead of a one-hop route. Haas Decl. ¶¶ 77, 84. To the contrary, Gatewood merely discloses selecting the link to wireless access node 331 as the first backhaul link and the link to wireless access node 332 as the second backhaul link. Gatewood specifically discloses that *all* of the WLAN nodes 331-334 are coupled to other networks, not just a subset (let alone node 332). Gatewood, 3:58-62. Thus, Gatewood's network does not disclose or even need two-hop paths. Haas Decl. ¶¶ 77, 84. Petitioner's assertion of establishing a two-hop link is a pure hypothetical motivated by hindsight.

Petitioner has a backup argument: that "Gatewood teaches that there are multiple candidate backhaul links between any two MAPs—such as between MAP.330 and MAP.332." Petition, 71 (citing Gatewood, 10:23-31). Under this interpretation of Gatewood, according to Petitioner, the node 330 "can select a primary backhaul link (claimed backhaul communication) and a secondary/backup backhaul link (claimed forward wireless communication) that both terminate at *the same* MAP, such as MAP.332 (second mesh point)." Petition, 71 (emphasis in Petition). In other words, Petitioner asserts that Gatewood explicitly discloses two links between access nodes, and in that case a node "can" select one link as the

“forward wireless communication” and the other link as the “backhaul communication.”

But the cited passage of Gatewood does not disclose “multiple candidate backhaul links between any two MAPs.” Petition, 71. Nor does it disclose selecting two links between two nodes as the first and second backhaul links. Rather, this passage refers to “wireless links 140-142 and 151-153” of Figure 1, reproduced below. Gatewood states that “one main wireless link for each of wireless links 140-142 and 151-153 is shown in FIG. 1.” Gatewood, 10:23-25. These wireless links “are merely illustrative to show communication modes or wireless access pathways for user devices 110-112 and associated backhaul.” Gatewood, 10:23-27.

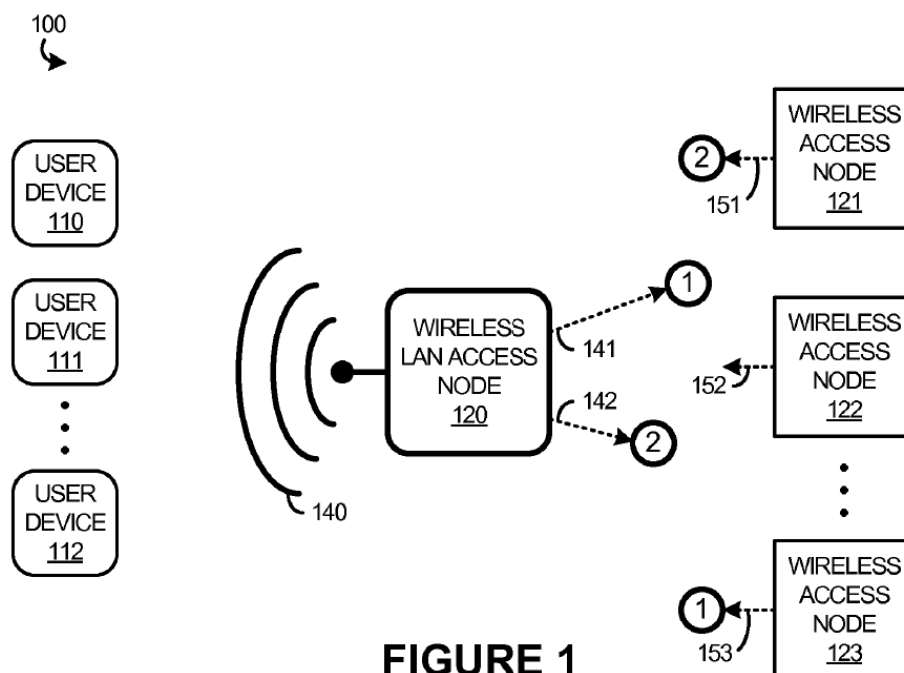


FIGURE 1

Gatewood, Figure 1

According to Gatewood, “further wireless links can be shown, with portions of the further wireless links shared and used for different communication sessions or different content types, among other configurations.” Gatewood, 10:28-31. Nowhere in this passage does Gatewood describe multiple links between the same two access nodes, let alone multiple links for redundancy between the same two nodes. Haas Decl. ¶ 86. For example, even if this passage did disclose multiple links between access nodes, there is no reason that these links would have different link quality (e.g., signal strength and uptime) such that one could serve as a serviceable backup to the other. Haas Decl. ¶ 87. And again, Petitioner’s only support for this interpretation comes from Dr. Ding, who merely recites the Petition’s conclusions verbatim, and his opinions should not be given any weight. *Compare* Petition, 68-72 with Ex. 1002 ¶¶ 177-83.

Petitioner then asserts that “[e]stablishing multiple redundant backhaul links between any two MAPs was in fact well-known and expressly taught in Sinha.” Petition, 71. But Petitioner does not propose any modification of Gatewood based on Sinha for this limitation. *See* Petition, 68 (“Gatewood discloses or renders obvious this element.”). Further, Sinha discloses multiple *paths* to a controller, not multiple direct links between two access points. Haas Decl. ¶ 88. But Patent Owner showed above there is no reason for multiple paths to a single MAP in Gatewood because each of nodes 331-334 is coupled to further networks. Gatewood, 3:58-62.

Petitioner does not provide any reason to modify Gatewood to provide multiple links between access nodes or show any reasonable expectation of success in doing so.

Petitioner further asserts that it applies the “same mapping” of Gatewood as the Examiner and that Applicants did not challenge this mapping during prosecution. Petitioner’s admission that it uses the same mapping as the Examiner further supports denial under § 325(d) as discussed above. Nevertheless, Petitioner does not assert any kind of estoppel, nor does it make any claim construction argument based on prosecution. Nevertheless, the Applicant stated explicitly that its silence on any assertion by the Examiner is not an admission or acquiescence, and it “reserve[d] the right to challenge at a later time any rejection or any factual or legal assertion made by the Office in relation to the present application.” Ex. 1004, 173.

F. Petitioner does not demonstrate a reasonable likelihood that Ground III discloses or renders obvious claim elements [1.5/11.5] and [1.6/11.6].

Claims 1 and 11 recite “constructing a list of backhaul candidates, each backhaul candidate having a *score indicative of an estimated quality of a potential link between the first mesh point and the second mesh point*” (claim element [1.5/11.5]). Claims 1 and 11 further recite “upon determining that a quality of service of the [dedicated/established] backhaul has dropped to below a

predetermined threshold, establishing an alternative backhaul communication with the second mesh point using a backhaul candidate with the highest score on the list” (claim element [1.6/11.6]).

Gatewood discloses that wireless access nodes maintain a table that “indicate[s] signal strengths and uptime information for various wireless links or wireless access nodes, such as table 360 of FIG. 3.” Gatewood, 8:21-24. Petitioner asserts that Gatewood discloses a “score indicative of an estimated link quality with each backhaul candidate” by performing a “weighting calculation [] employed to balance signal strength and uptime considerations.” Petition, 76 (quoting Gatewood, 5:45-48). Even if true, however, such weighting calculation does not indicate an estimated quality of a potential link between the wireless access node and “the second mesh point” as required by the claim.

As discussed above for claim element [1.2]/[11.2], Petitioner warps Gatewood in an attempt to reconstruct the claimed “second mesh point.” For the same reasons, Petitioner is unable to show a reasonable likelihood that Gatewood discloses or renders obvious “each backhaul candidate having a score indicative of an estimated quality of a potential link between the first mesh point and the second mesh point” or “establishing an alternative backhaul communication with the second mesh point using a backhaul candidate with the highest score on the list” as

recited in claim elements [1.5/11.5] and [1.6/11.6], respectively. Haas Decl. ¶¶ 92, 94.

VIII. Conclusion

For the reasons set forth above, the Board should deny the Petition for *Inter Partes* Review.

Respectfully submitted,

Dated: December 28, 2023

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CERTIFICATE OF COMPLIANCE WITH 37 C.F.R. § 42.24

I hereby certify that this Patent Owner's Preliminary Response complies with the word count limitation of 37 C.F.R. § 42.24(b)(1) because the Patent Owner's Preliminary Response contains 13,586 words using Microsoft Word's counting feature excluding the cover page, signature block, and the parts of the Patent Owner's Preliminary Response exempted by 37 C.F.R. § 42.24(b)(1).

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CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. § 42.6(e), I certify that on this 28th day of December, 2023, a true and correct copy of the foregoing **Patent Owner's Preliminary Response and all Exhibits** were served by electronic mail on Petitioner's lead and backup counsel at the following email addresses:

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