

Filed on behalf of: Netgear, Inc.

Entered: January 4, 2024

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TP-LINK CORPORATION LIMITED,
Petitioner,

v.

NETGEAR, INC.,
Patent Owner.

Case IPR2023-01469
Patent 10,681,698 B2

**PATENT OWNER'S
PRELIMINARY RESPONSE**

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Exhibit List

Ex.	Description
2001	Declaration of Zygmunt J. Haas, Ph.D. (“Haas Decl.”)
2002	<i>Curriculum Vitae</i> of Zygmunt J. Haas, Ph.D.
2003	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) (“ITC CC order”)

I. Introduction

Patent Owner Netgear, Inc. respectfully submits this Preliminary Response to the Petition for *inter partes* review (“IPR”) of U.S. Patent No. 10,681,698 (“’698 patent”), filed by TP-Link (“Petitioner”). The Petition should be denied and no IPR proceeding should be instituted, both under § 325(d) and on the merits.

As an initial matter, the Board should exercise its discretion and deny institution under 35 U.S.C. § 325(d) because “the same or substantially the same prior art or arguments previously were presented to the Office.” Contrary to Petitioner’s assertions, *every* reference the Petition relies on—Ho, Gatewood, and Farid—were before the Patent Office during prosecution of the ’698 patent. Each of these references were expressly considered, and the Examiner even substantively addressed Ho in a rejection. Discretionary denial is appropriate because Petitioner failed to demonstrate that the Patent Office somehow materially erred by allowing the challenged claims to issue over the cited prior art, as required under *Advanced Bionics, LLC v. Med-El Elektromedizinische Gerate GmbH*, IPR2019-01469, Paper 6 at 8-9 (P.T.A.B. Feb. 13, 2020) (precedential).

Moreover, Petitioner has failed to carry its burden to show a reasonable likelihood that at least one of the challenged claims is unpatentable in any of its three asserted grounds.

The Petition's first two obviousness grounds based on Gatewood and/or Ho against independent claims 1 and 12 fail because, for each Ground, Petitioner fails to demonstrate that every limitation of the challenged claims is met. Petitioner instead relies on hindsight-driven misinterpretations and reconstructions of the references, alone or in combination. And Petitioner's combination fails because Petitioner does not demonstrate a motivation to combine Gatewood with Ho, focusing only on whether the asserted prior art *could* be combined instead of whether the asserted prior art *would have been* combined. In Ground I, Petitioner further relied heavily on the conclusory testimony of Zhi Ding, whose Declaration appears to be copied and pasted from the Petition with no additional analysis or detail. Ground 3 addresses only dependent claims and relies on the same Ho base reference as Ground 2, and therefore fails for the same reasons.

For the reasons described herein, institution should be denied.

II. Background

A. Overview of the '698 Patent

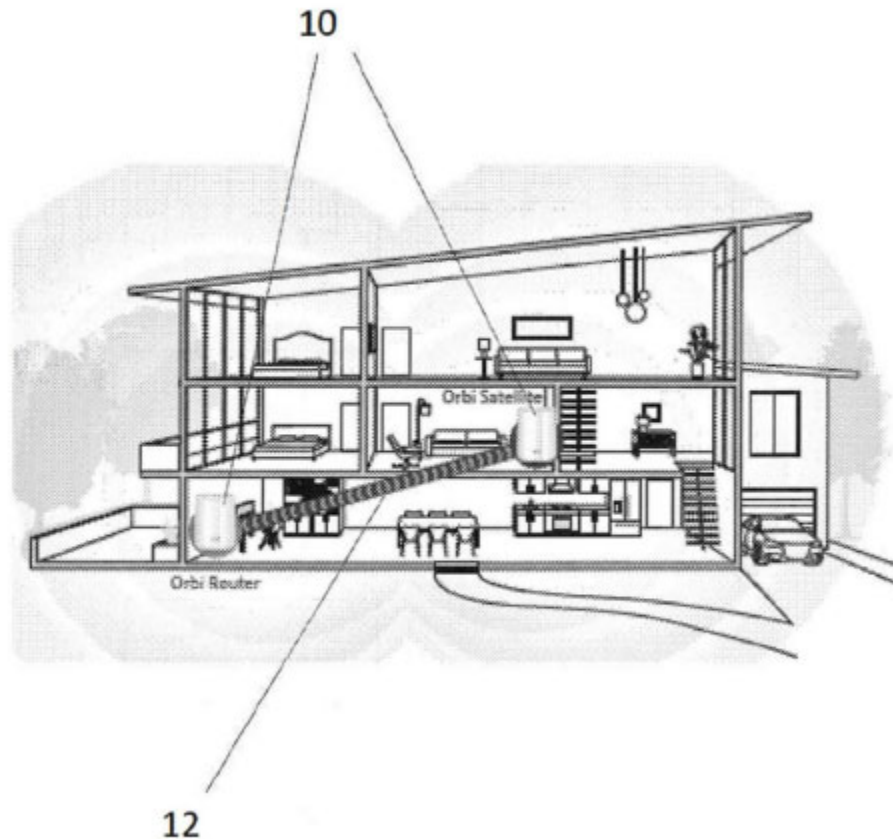
The '698 patent is titled "Dedicated Backhaul for Whole Home Coverage" and relates to home wireless communication networks. The specification discloses that home wireless networks "can comprise an access point (AP) with links to various repeaters." '698 patent (Ex. 1001), 1:31-32. Also referred to as "mesh networking," the "access points are connected wirelessly and exchange data frames

with each other to forward traffic to/frame a gateway point, such as the AP.” ’698 patent, 1:34-37.

The ’698 patent explains that while mesh networks were known, they can be “difficult to set up and maintain, especially where intermediate links between the edge and the access point are added, such as when intermediate repeaters relay traffic between the AP and a remote repeater that is out of range of the AP.” *Id.*, 1:37-41. To address that problem, the ’698 patent discloses “optimization techniques” for the communications between access points in mesh networks including the use of a channel within a frequency band, such as the “5 GHz high band,” as a “dedicated backhaul” that is used only for communications between a first and second AP. *Id.*, 1:45-51; 3:45-51 (explaining the 5Ghz “high band is defined in US as channels 100 to 140+149 to 165.”). In other words, a channel is “dedicated” to backhaul because it is used exclusively for backhaul between APs as opposed to being also used for “front haul” communications between an AP and client devices. *See id.*, 3:45-65, 9:9-17, Fig. 2.

If a channel is being used as a dedicated backhaul, the ’698 patent explains that there could be a need for a “backup” backhaul between the first and second node, such as a channel on the 2.4GHz band, if the “5 GHz band fails to reach between nodes” or it is otherwise detected that the received signal strength of the backhaul band is too low. *Id.*, 1:45-51; *see also* 2:50-51, 3:48-50.

Figure 1, reproduced below, illustrates a home network with a backhaul (labeled 12) between a router and satellite (both labeled 10).



'698 patent, Figure 1

In this example, the backhaul frequency channel that is used between the satellite and router is a “dedicated backhaul” frequency channel in the 5GHz band if the “received signal strength” of the dedicated channel “is above a threshold.”

'698 patent, 1:51-53. However, if it is detected that the “the dedicated wireless link falls below the quality threshold, the 2.4 GHz band may be used as a backup option.” *Id.*, 3:48-50.

This use of 5 GHz as the dedicated backhaul and 2.4 GHz as an alternative backhaul between the same two nodes is described in greater detail with respect to Figure 2 of the '698 patent, reproduced below. '698 patent, 3:52-53.

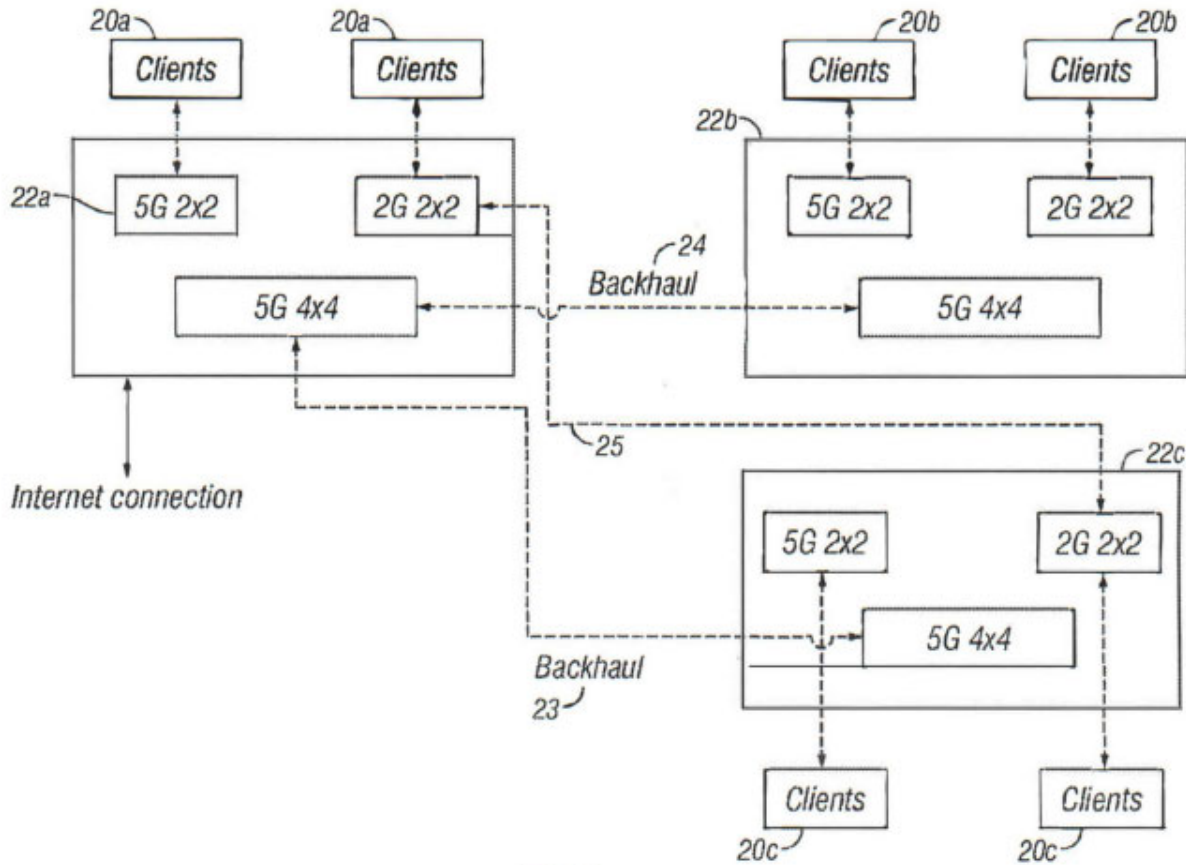


FIG. 2

'698 patent, Figure 2

Specifically, the access points in a mesh network are nodes 22a-22c, each including “2.4 GHz radios” and “5 GHz” radios for connecting to client devices, and “the nodes are connected by dedicated 5 GHz backhaul connections 23, 24” or “[a] 2.4 GHz connection 25.” *Id.*, 3:55-65. As depicted, the dedicated 5 GHz backhaul is not connected to any client facing radios, whereas the 2.4 GHz radios

have both backhaul and fronthaul connections. The nodes are configured to attempt to utilize a channel in the dedicated 5GHz channel, but if the quality of the wireless link is detected to be below a threshold, the 2.4 GHz channel is attempted in the alternative. '698 patent, 3:48-51, 4:28-31, 4:44-50. In these attempts, the channels used are prioritized based on received signal strengths in order to select the best channel for backhaul. *See id.*, Figs. 5-6.

B. Prosecution History

The application that issued as the '698 patent was originally filed with 22 claims, and issued after Patent Owner overcame one non-final rejection by the Examiner.

The originally filed claims were rejected in a first Office Action for two reasons. First, the Examiner rejected all claims as indefinite for reciting "and/or." Ex. 1004, 123. Second, the Examiner rejected pending independent claims 1 and 12, among other claims, as anticipated by Mallik,¹ and dependent claims 5 and 16 as obvious over Mallik and Ho.² Ex. 1004, 123-26. According to the Examiner,

¹ U.S. Patent Application Publication No. 2013/0194948 (Ex. 1007).

² U.S. Patent Application Publication No. 2015/0049616. Petitioner asserts the corresponding patent, U.S. 9,247,440 (Ex. 1009) but there is no substantive distinction between the two. *See* Petition, 2, 75.

although “Mallik fails to teach utilizing a spanning tree based protocol to avoid loops,” based on his evaluation, Ho teaches this claim element. Ex. 1004, 126. The Examiner attempted to motivate the combination of Ho with Mallik based on “prevent[ing] network failure by avoiding loops.” Ex. 1004, 126.

Without amending the claims, the Applicant overcame the indefiniteness rejection by explaining the term “and/or” was not indefinite because it had an accepted meaning of “A alone, B alone, or A and B together.” Ex. 1004, 167. Then, with respect to the prior art, the Applicant explained how the prior art failed to disclose or render obvious “upon detecting that a received signal strength of the first channel from the second node is below a threshold, performing an attempt to utilize a different channel in the default frequency band and/or a channel in a different frequency band that has a lower frequency range than the default frequency band to establish the backhaul with the second node.” Ex. 1004, 167-68. The Examiner agreed and allowed the claims, stating that the claims “are allowable in view of the remarks filed on 10/25/2019.” Ex. 1004, 877. In particular, the Examiner was persuaded by the Applicant’s remarks that the prior art did not show “switching for a mesh wireless network backhaul communication, upon detection that the received signal strength of the first backhaul channel is below a threshold.” Ex. 1004, 877.

C. Person of Ordinary Skill in the Art

For the '698 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. (Ex. 2001), ¶ 25.

D. Claim Construction

Petitioner does not advocate for any constructions. Petition, 6. Instead, Petitioner cites an exhibit "list[ing] the parties' disputed constructions in the currently pending parallel ITC litigation" and asserts the claims are invalid under either construction. Petition, 6 (citing Ex. 1017). Petitioner's reliance on ITC filings (*e.g.*, Exs. 1017-1019) for claim construction constitutes improper incorporation by reference and the Board should disregard these claim construction arguments because they are not made in the Petition itself. 37 C.F.R. § 42.6(a)(3). In any event, the only disputed term was "default frequency band," which Petitioner proposed to mean "a preset frequency band used automatically in the absence of a choice made by the user" and Patent Owner proposed to mean "preferred frequency band." *See* Petition, 6.

On December 15, 2023 the Administrative Law Judge ("ALJ") in the parallel ITC action issued a claim construction order that did not adopt either

party's proposal, instead construing "default frequency band" to mean "a first selected frequency band." Ex. 2003 (ITC CC order), 32.

The Board need not resolve the dispute over the scope of "default frequency band" for purposes of institution because Petitioner's grounds fail under any reasonable construction of this term.³

III. Overview of the Asserted References

A. Overview of Gatewood

Gatewood is generally directed to "[s]ystems, methods and software for providing a wireless local area network [WLAN] to user devices using a wireless access node," including the "selection of wireless backhaul links for wireless access nodes." Gatewood (Ex. 1005), Abstract, 1:6-8. More particularly, Gatewood teaches a system where a first wireless access node can form a backhaul link with any of a plurality of access nodes, each of which has a connection to an external network. Gatewood, 3:58-62.

In Gatewood's system, unlike the '698 patent, the "backhaul links" to different nodes all comprise "the same or similar first wireless frequency spectrum" (Gatewood, 6:52-56, 7:1-8, 9:55-10:5), and the "first wireless backhaul

³ Patent Owner reserves its rights to propose and advocate for claim constructions if the Board institutes this proceeding.

link” and “second wireless backhaul link as a backup” are always to entirely different nodes. Haas Decl. ¶¶ 33, 39, Figs. 1-4.

In Figure 1, for example, the “wireless LAN access node 120” can form a “backhaul link” by “way of ones of wireless access nodes 121-123.” Gatewood, 2:39-42; *see also id.*, 2:61-63.

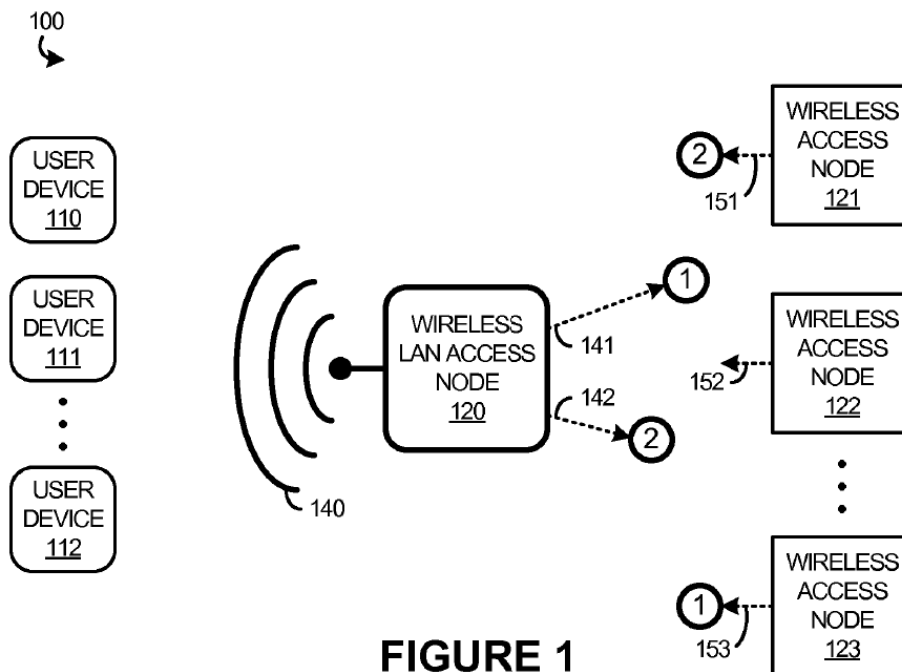


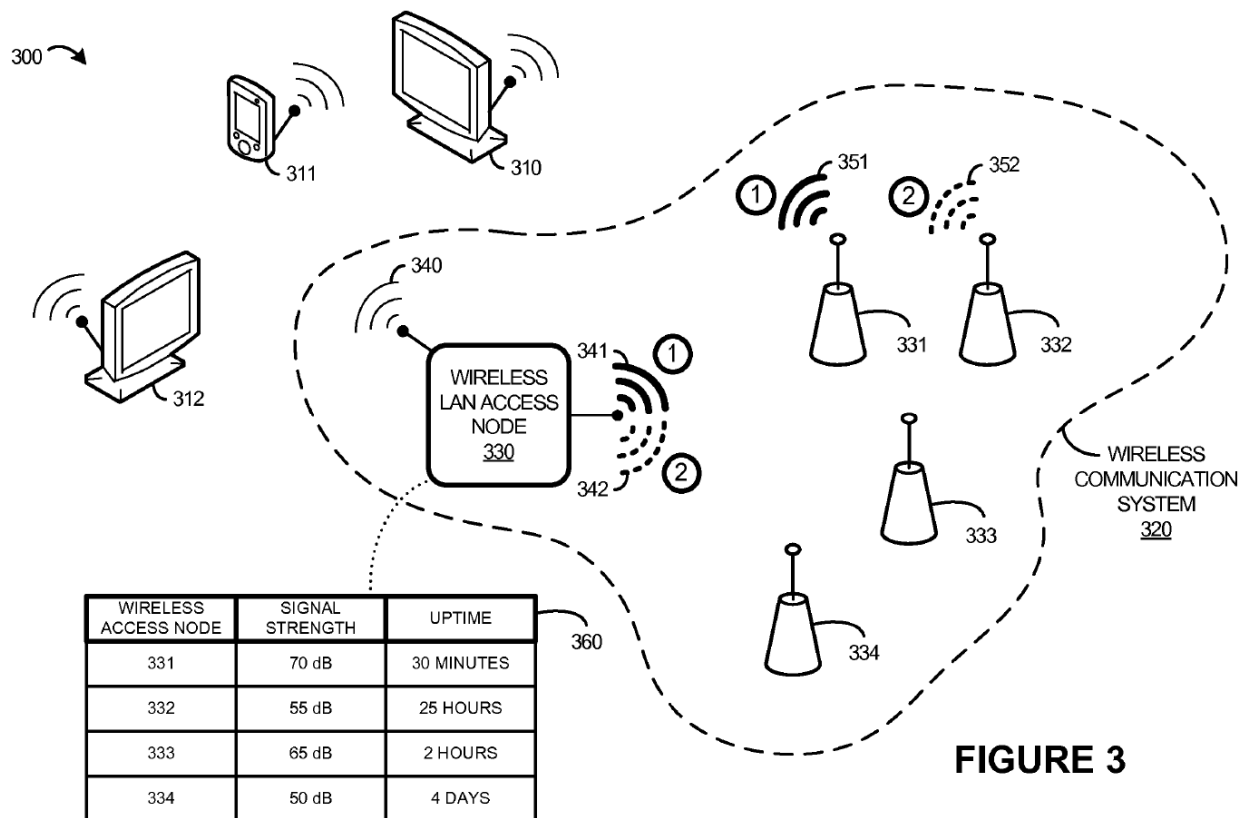
FIGURE 1

Gatewood, Figure 1

Gatewood explains that in this example the “first backhaul link” is with access node 123 as indicated by the “1” indicator, and the “backup” backhaul link is with a different access node 121 as shown by the “2” indicator. Gatewood, 3:17-44. The two backhaul links are associated with different nodes by design. Gatewood explains that after a node is selected as the first wireless backhaul link, a different node must be selected for the backup backhaul link. Gatewood, 3:35-38

(“Since wireless link 153 has already been selected as the first wireless backhaul link in operation 202, WLAN access node 120 selects from among wireless links 151-152 for the second wireless backhaul link.”).

Gatewood’s Figure 3 embodiment is the same. The wireless LAN access node 330 can form a backhaul with any of “WLAN access nodes 331-334” to provide connections to “other networks.” Gatewood, 3:58-62.



Gatewood, Figure 3

Based on signal strength and uptime, 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. For the

backup backhaul link, “WLAN access node 331 has already been selected for first wireless backhaul link 341, and only WLAN access nodes 332-334 remain for selection for the second backhaul wireless link.” Gatewood, 5:31-35. Thus, the “first” and “second” backhaul links in Gatewood must be to different nodes.

B. Overview of Ho

Ho is directed to hybrid communication networks for a home network, including the automatic configuration of “hybrid devices.” Ho, Abstract. Ho’s hybrid devices are network devices that support multiple network interfaces and communication technologies. Ho (Ex. 1009), 2:26-33 (describing supported technologies). Supported technologies can include wireless local area networks (WLAN), powerline communication (PLC), or Ethernet. *Id.*, 2:26-33.

Figure 1 of Ho, reproduced below, is “a conceptual diagram of an example hybrid communication network 100 including a mechanism for automatic configuration of hybrid devices 102, 118, and 120, a legacy WLAN device 122, and a network gateway 124.” *Id.*, 3:26-29. The hybrid devices in Figure 1 can be client devices such as laptops, tablets, or mobile phones. *Id.*, 4:9-14. The hybrid devices 102, 118, and 120 are all connected by a PLC connection. *Id.*, 3:49-62.

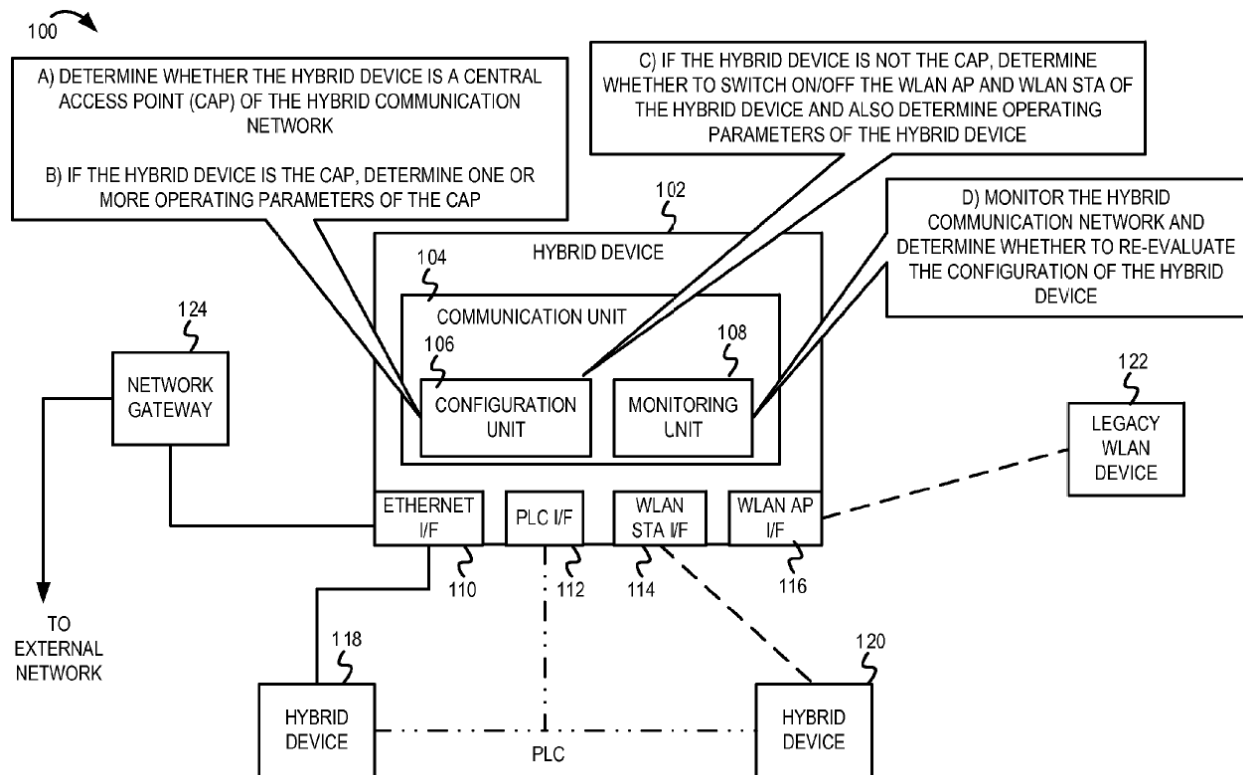


FIG. 1

Ho, Figure 1

The hybrid device “configures itself automatically to form a communication network (e.g., an IEEE Std 1905.1 hybrid communication network) with other network devices with minimal or zero user interventions.” Ho, 2:48-54.

A hybrid device can take on one of two main “personalities.” First, a hybrid device can be a centralized access point, or CAP, of which there is generally only one in the network. *Id.*, 4:64-66. The CAP is connected to the network gateway by

a single hop, e.g., over an Ethernet connection as shown in Figure 1. Ho, 4:66-5:3.

Second, a hybrid device can be a non-CAP.⁴ *Id.*, 5:43-46.

Ho's hybrid devices are not necessarily mesh access points. Haas Decl., ¶ 35. A hybrid device configured as a CAP can disable its WLAN STA module because of the CAP's direct connection to the network gateway. Ho, 11:13-19. The CAP also determines the operating band, channel, and transmit power for the WLAN AP module. *Id.*, 9:5-10; *see also* Figure 4 (illustrating an example process for the CAP to determine its operating band and channel).

If, conversely, the hybrid device determines that it is a non-CAP device, it must determine what Ho calls its "second-level personality" or simply "the personality of the non-CAP device." *Id.*, 8:11-13. A non-CAP device need not have a WLAN connection to the CAP and need not serve as an access point to other clients. The configuration of the non-CAP device's WLAN AP and WLAN STA modules can determine its second-level personality. *Id.*, 16:43-50. Ho lists four second-level personalities of a non-CAP device:

- 1) an access point** (e.g., a WLAN AP module of the hybrid device is enabled and a WLAN STA module of the hybrid device is disabled),
- 2) a relay** (e.g., the WLAN AP module and the WLAN STA module of

⁴ Ho discloses that a hybrid device can also be a "standby CAP" or have an "unknown personality." Ho, 8:2-9.

the hybrid device are enabled and are operating on the same communication channel/band), **3) *a sink*** (e.g., the WLAN AP module of the hybrid device is disabled and the WLAN STA module of the hybrid device is enabled), or **4) *disabled*** (e.g., the WLAN AP module and the WLAN STA module of the hybrid device are disabled).

Ho, 8:13-23.⁵

In particular, Ho discloses that a non-CAP device is an access point when its “WLAN STA module of the hybrid device is disabled” such that it would not have a WLAN connection to the CAP (because a non-CAP otherwise connects to the CAP via the non-CAP’s WLAN STA module). *Id.*, 8:13-17; Haas Decl., ¶¶ 35, 55. Additionally, a non-CAP device can have its WLAN AP module disabled and act as an information “sink”—i.e., like a client device. Ho, 8:19-22; Haas Decl., ¶ 35.

IV. The Board should exercise its discretion under § 325(d) and deny the Petition.

The Board need not reach the merits of the Petition because the Board should exercise its discretion under 35 U.S.C. § 325(d) to deny institution of the IPR. Contrary to Petitioner’s dismissive, cursory representations of the facts and the law, the Patent Office has already considered all three references—Gatewood,

⁵ Unless otherwise noted, all emphasis has been added throughout this Preliminary Response.

Ho, and Farid⁶—Petitioner relies on. While Petitioner alleges that the Petition should nevertheless be instituted, those arguments fail under the *Advanced Bionics* framework for § 325(d) discretion.

Under 35 U.S.C. § 325(d), the Board has discretion whether to institute IPR if the “same or substantially the same prior art or arguments previously were presented to the Office.” 35 U.S.C. § 325(d). The Board uses the two-part *Advanced Bionics* framework to determine whether to exercise its discretion under section 325(d). Under that framework, the Board is to consider: “(1) whether the same or substantially the same art previously was presented to the Office or whether the same or substantially the same arguments previously were presented to the Office; and (2) if either condition of first part of the framework is satisfied, whether the petitioner has demonstrated that the Office erred in a manner material to the patentability of challenged claims.” *Advanced Bionics*, IPR2019-01469, Paper 6 at 8. The Board uses six non-exclusive factors set forth in *Becton, Dickinson & Co. v. B. Braun Melsungen AG*, IPR2017-01586, Paper 8 (P.T.A.B.

⁶ Petitioner refers to US2016/0007273 as “Farid” and mistakenly asserts that Farid was “not cited.” Petition, 2. However, the Farid application *is cited* on the face of the ’698 patent as “Pang et al.” See ’698 patent, page 2 at block (56). Pang is a named coinventor of Farid.

Dec. 15, 2017) (precedential in relevant part)⁷ in the *Advanced Bionics* two-step analysis.

Petitioner acknowledges that Ho was applied in an obviousness combination to reject claims during prosecution of the '698 patent, and that Gatewood was also cited and expressly considered. Petition, 2, 4, 75-76. Despite this, the Petition asserts that there should be no discretionary denial because “[t]he Board has consistently held that a reference that ‘was neither applied against the claims nor

⁷ 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 and facts presented in the petition warrant reconsideration of the prior art or arguments.

discussed by the Examiner' does not weigh in favor of exercising [] discretion under §325(d)." Petition, 75 (quoting *Fasteners for Retail, Inc. v. RTC Indus., Inc.*, IPR2019-00994, Paper 9 at 7-11 (P.T.A.B. Nov. 5, 2019)). Petitioner's reliance on a non-precedential decision predating *Advanced Bionics* mischaracterizes the law, and the Petition should be denied because (1) the Petition presents the same art that was already before the Office and (2) Petitioner has not identified any material error by the Examiner.

A. Advanced Bionics Step One – Ho, Gatewood and Farid were previously presented to the Office

All three of Ho, Gatewood and Farid were expressly considered during prosecution. First, Ho was *substantively discussed* by the Office during prosecution of the '698 patent. *See* Section II.B, *supra* (explaining Examiner rejected pending claims 5 and 16 based in part on Ho). The Examiner thus evaluated Ho, and found it did not invalidate independent claims 1 and 12. Ex. 1004, 123-26.

Gatewood and Farid were also considered by the Office. Indeed, the Applicant expressly identified both references to the Examiner. Ex. 1004, 98 (IDS identifying Gatewood), Ex. 1004, 6 (IDS identifying Farid as "PANG, et al.", App. No. 2016/0007273). The Examiner acknowledged both Gatewood and Farid by signing his name and initials stating that he considered them. Ex. 1004, 148-49 (Gatewood); 138-39 (Farid). That is sufficient to meet the first prong under

Advanced Bionics. *Advanced Bionics*, IPR2019-01469, Paper 6 at 7-8 (“Previously presented art includes . . . art provided to the Office by an applicant, such as on an Information Disclosure Statement (IDS), in the prosecution history of the challenged patent.”); *see also Nespresso USA, Inc. v. K-Fee Sys. GmbH*, IPR2021-01223, Paper 9 at 14 (P.T.A.B. Jan. 18, 2022) (“Given that Yoakim was presented to the Examiner in an IDS and marked ‘considered’ as not ‘lined through,’ we find unpersuasive Petitioner’s argument that ‘Yoakim includes content not considered during prosecution.’”); *NXP USA, Inc. v. Impinj, Inc.*, IPR2020-00519, Paper 7 at 8 (P.T.A.B. Aug. 17, 2020) (similar).

Petitioner’s two arguments to the contrary both fall flat. First, Petitioner argues that the “Gatewood-Ho combination of Ground I was not in front of the Examiner.” Petition, 75. That is irrelevant. Step one of *Advanced Bionics* is satisfied if the same art “*or*” the same arguments were before the Board. *See Nespresso USA*, IPR2021-01223, Paper 9 at 12 (exercising discretion to deny Petition where Petitioner ignored the conjunctive “or” in § 325(d) where it “disregard[ed] whether the same or substantially the same prior art previously was presented to the Office, [and] focus[ed] instead almost exclusively on whether the Examiner applied in any rejection the same prior art combinations asserted in the Petition”); *Advanced Bionics*, IPR2019-01469, Paper 6 at 8 (explaining the 325(d) analysis proceeds to step two “if *either condition* of the first part of the framework

is satisfied,” i.e., “the same or substantially the same art” *or* “the same or substantially the same arguments”). Here, Gatewood, Ho, and Farid were before the Office, and step one is satisfied. *Id.*

Second, Petitioner emphasizes that the Examiner used Ho as a “secondary reference” during prosecution in contrast to its use as a “primary reference” in the Petition. Petition, 75-76. Petitioner cites *CrowdStrike* in support, but that decision is inapposite. Petition, 76. The Board in *CrowdStrike* held that step one of *Advanced Bionics* was not satisfied because the petition relied on two new references that were not previously presented to the Office and were not alleged to be cumulative. *CrowdStrike, Inc. v. Open Text Inc.*, IPR2023-00556, Paper 9 at 11-12 (P.T.A.B. Sept. 12, 2023) (citing *Advanced Bionics*, IPR2019-01469, at 8). The fact that the one prior art reference that was before the examiner was used as a primary or secondary reference made no difference. *Cf* Petition, 76. Unlike *CrowdStrike*, the Petition here does not rely on *any* new references that were not before the Examiner, and therefore Step 1 is satisfied regardless of whether the references were included in a rejection at all. *See, e.g., Splunk Inc. v. Sable Networks, Inc.*, IPR2022-00003, Paper 10 at 12-13 (P.T.A.B. Apr. 14, 2022) (denying petition under § 325(d) where reference was merely cited during prosecution but not applied in a rejection).

B. Advanced Bionics Step Two – Petitioner has not identified any errors by the Examiner during prosecution.

Because the first prong of the *Advanced Bionics* framework is satisfied, the Petition must show material error by the Examiner during prosecution. *See Advanced Bionics*, IPR2019-01469, Paper 6 at 8-9. Here, Petitioner failed to identify *any* error by the Office. That reason alone warrants the Board exercising its discretion under § 325(d) to deny institution. *Id.* (“If a condition in the first part of the framework is satisfied and the petitioner fails to make a showing of material error, the Director generally will exercise discretion not to institute inter partes review.”); *Merial, Inc. v. Intervet Int’l B.V.*, IPR2018-00919, Paper 13 at 18-19 (P.T.A.B. Oct. 22, 2018) (denying institution under § 325(d) and stating “importantly, Petitioner does not explain whether or how the examiner erred in evaluating the prior art”); *see also Ocado Grp. Plc. v. Autostore Tech. AS*, IPR2021-00412, Paper 9 at 36-39 (P.T.A.B. July 21, 2021) (finding the Petitioner did not establish a material error by the Office where the Petitioner did address the *Advanced Bionics* or *Becton, Dickinson* and merely asserted the references were not considered or applied in an Office Action despite the references being discussed in the specification of the patent at issue, cited in an IDS, or cumulative). Indeed, denial is appropriate under all three *Becton Dickinson* factors, (c), (e), and (f), considered at step 2 of *Advanced Bionics*.

First, *Becton, Dickinson* factor (c) favors denial because Ho was expressly used by the Examiner to reject claims during prosecution. Ex. 1004, 123-26. This shows that the Examiner expressly considered and evaluated Ho against the claims, and correctly found that Ho was not invalidating prior art.

Second, factor (e) favors denial because Petitioner did not identify *any* errors in the Examiner's evaluation of Ho, Gatewood, or Farid. *See* Petition, 75-76.

Third, Factor (f) also favors denial. Aside from the mere combination of “Gatewood-Ho”—two references that were undisputedly presented to the Office—Petitioner does not argue that it has provided any additional facts or evidence warranting reconsideration of Gatewood, Ho, or Farid. Dr. Ding's declaration does not warrant reconsideration of these references because Dr. Ding parrots Petitioner's conclusory attorney arguments without further explanation, as discussed below. *Compare, e.g.,* Ex. 1002 ¶¶ 99-104 *with* Petition, 29-31. *Xerox Corp. v. Bytemark, Inc.*, IPR2022-00624, Paper 9 at 15 (P.T.A.B. Aug. 24, 2022) (precedential) (“conclusory and unsupported” declaration testimony “adds little to the conclusory assertion[s] for which it is offered to support, and is entitled to little weight.”). Moreover, the Board recently confirmed that where a petitioner's expert “look[s] at substantially the same references as the Examiner and comes to a different conclusion,... [it] is not compelling, especially when there is no explanation how the Examiner erred.” *Ivantis, Inc., v. Sight Scis., Inc.*, IPR2022-

01530, Paper 14 at 18, 23, 29 (P.T.A.B. Mar. 27, 2023) (non-precedential); *see Nespresso USA, Inc. v. K-Fee Sys. GmbH*, IPR2021-01222, Paper 9 at 26 (P.T.A.B. Jan. 18, 2022) (denying institution on 325(d) and finding the mere assertion that petitioner's invalidity challenge "is supported by expert testimony" "is ineffective to show that the Examiner materially erred by failing to discuss the same prior art combinations advanced in the Petition").

This makes sense. As the Board instructed in *Advanced Bionics*, "[i]f reasonable minds can disagree regarding the purported treatment of the art or arguments, it **cannot** be said that the Office erred in a manner material to patentability." *Advanced Bionics*, IPR2019-01469, Paper 6 at 9. At bottom, this framework reflects a commitment to defer to previous Office evaluations of the evidence of record unless material error is shown. *Id.* Because the Petition has shown no error, the Board should deny it under § 325(d).

V. Ground I: Petitioner failed to establish a reasonable likelihood that claims 1-6 and 12-17 are obvious in view of Gatewood alone or in combination with Ho.

In Ground I, Petitioner applies Gatewood alone or in combination with Ho. As discussed below, there are a number of differences between Gatewood and independent claims 1 and 12. Petitioner attempts to fix these differences with a POSITA's supposed understanding of various aspects of the references. But Petitioner's fixes are based on hindsight and unsupported attorney argument and

contradict the references themselves. For the reasons discussed below, Petitioner failed to establish a reasonable likelihood that any claim would have been obvious to a POSITA in view of Gatewood alone or in combination with Ho.

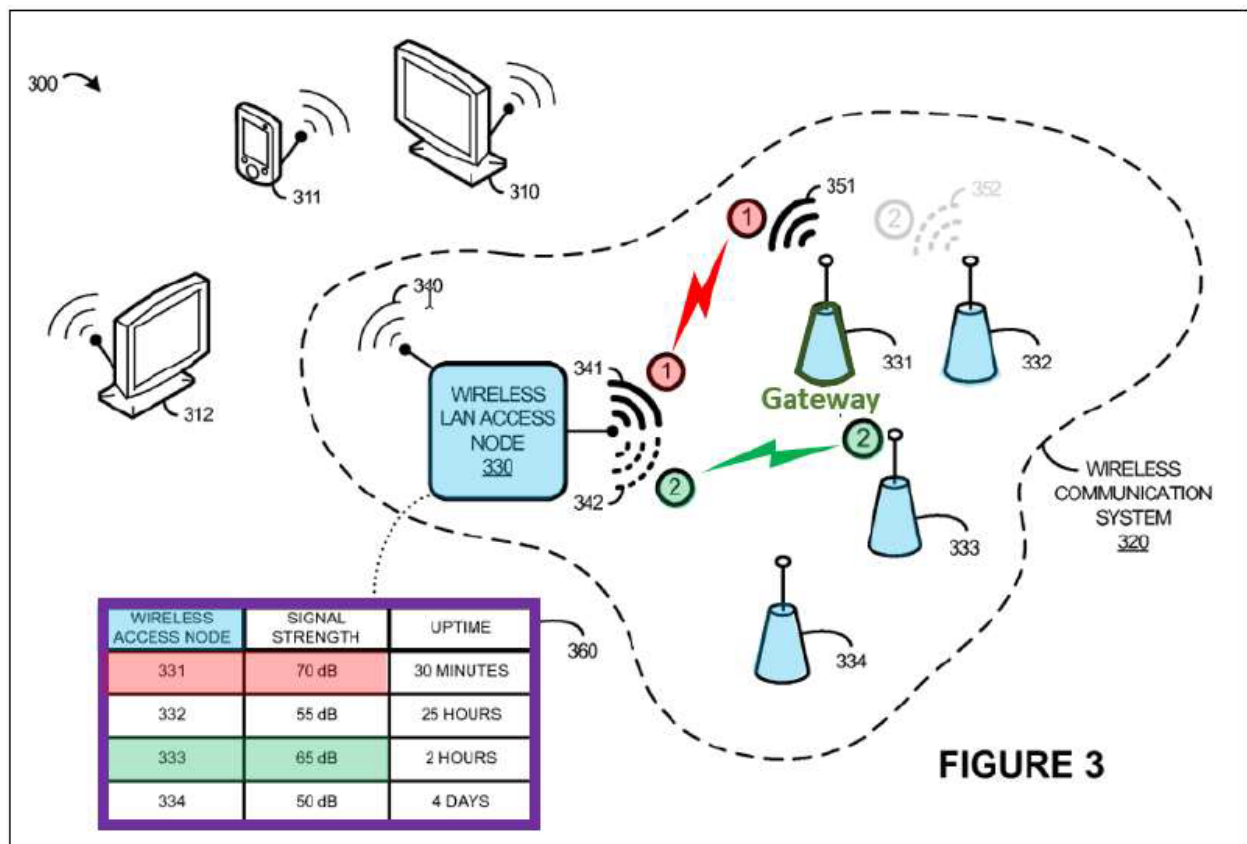
A. Gatewood, alone or in combination with Ho, does not disclose or render obvious two attempts to establish a backhaul between a first node and a second node (claim elements [1.1]/[12.1] and [1.2]/[12.2]).

Claims 1 and 12 recite “*performing an attempt to utilize a first channel* in a default frequency band as a *backhaul with second node* in the network” and “*performing an attempt to utilize a different channel* in the default frequency band and/or a channel in a different frequency band that has a lower frequency range than the default frequency band, *to establish the backhaul with the second node.*” Petitioner concedes these two claim elements require attempts to establish a backhaul with the same “*second node.*” Petition, 29.

Petitioner does not show Gatewood taught making multiple attempts to establish a backhaul with a single “second node.” Petitioner maps the “attempt to utilize a first channel” to a “first wireless backhaul link 341” in Gatewood’s Figure 3, reproduced below, and maps the second attempt—“an attempt to utilize a different channel in the default frequency band”—to the “second wireless backhaul link 342.” Petition, 23, 30.

But these two mapped links 341 and 342 are with different access nodes—notably nodes 331 and 333, respectively. Petition, 26-27, 29 (“[T]he first wireless

backhaul link and second wireless backhaul link connect MAP.330 to MAP.331 and MAP.333, respectively.”); Haas Decl., ¶ 38. The different destinations of these links are expressly shown by Petitioner’s annotation of Figure 3, reproduced below, which shows that the first and second attempts to establish backhaul are to different access nodes 331 and 333. Specifically, the first attempted backhaul to access node 331 (the purported attempt in the “default frequency band”) is shaded red, while the second attempted backhaul to access node 333 (the purported “attempt to utilize a different channel ... and/or ... band”) is shaded green.



Petition, 27 (Petitioner’s annotation of Gatewood Figure 3)

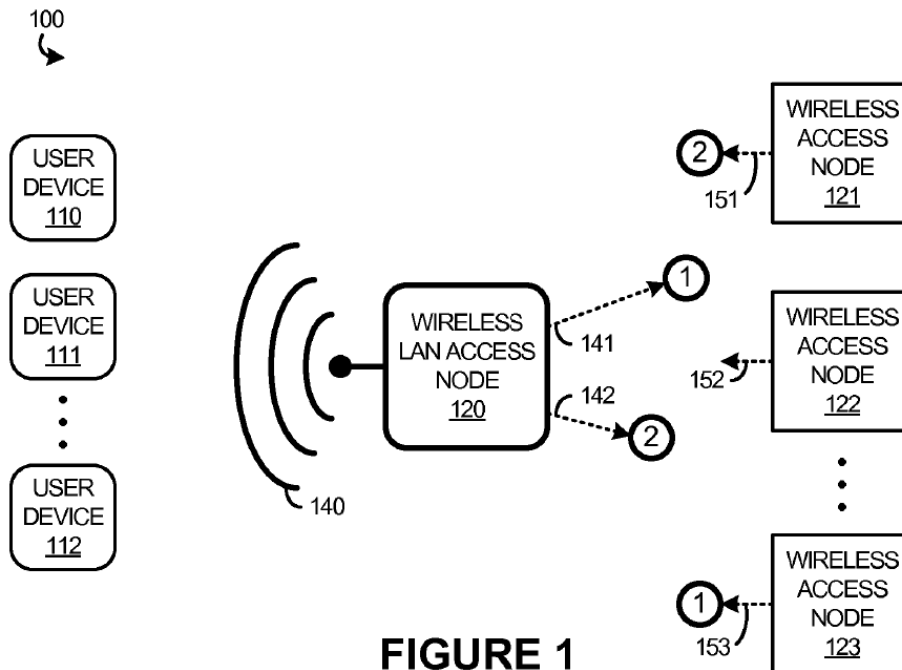
Petitioner attempts to overcome this obvious deficiency with three different hindsight-based obviousness arguments. Each fails.

First, Petitioner asserts that “[t]he second wireless backhaul link is part of a multi-hop backhaul path (*e.g.*, MAP.330-to-MAP.333-to-MAP.331) to the same gateway” (MAP.331). Petition, 29. This multi-hop scenario is fabricated by Petitioner with no support in Gatewood itself. Gatewood does not designate node 331 as being different than the other nodes, nor does it disclose selecting a multi-hop route to node 331 instead of a one-hop route. Haas Decl., ¶¶ 33, 39. To the contrary, Gatewood taught selecting links to two different wireless access nodes 331 as the first and second backhaul links. Further, Gatewood specifically discloses that *all* of the WLAN nodes 331-334 are coupled to other networks, not just a subset (let alone node 331). Gatewood, 3:58-62. Put simply, Gatewood has no multi-hop paths. Haas Decl., ¶¶ 33, 39. Petitioner’s assertion otherwise is based on nothing more than hindsight using the ’698 patent claims as a blueprint to modify Gatewood.

Second, Petitioner argues as a backup that “Gatewood teaches forming multiple parallel wireless links (channels) between any two MAPs—such as between MAP.330 (first node) and MAP.331 (second node).” Petition, 30 (citing Gatewood, 10:23-31). Under this interpretation of Gatewood, according to Petitioner, the node 330 “can establish first wireless backhaul link (over claimed

‘first channel’) and second wireless backhaul link (over claimed ‘different channel’) that both terminate at *the same* MAP, such as MAP.331 (second node/gateway).” Petition, 30-31 (emphasis in Petition). In other words, Petitioner asserts that Gatewood explicitly discloses two channels between access nodes, and in that case a node “can” select one channel for its first attempt to establish backhaul to a second node and the other channel for its second attempt to establish a backhaul with the same second node.

This second argument fares no better than Petitioner’s first because, once again, it is made out of whole cloth and entirely unsupported by Gatewood and improperly mixes and matches Gatewood’s embodiments without a motivation to combine. The cited passage of Gatewood does not disclose “multiple parallel candidate wireless links (channels) between any two MAPs.” Petition, 30. Nor does it disclose making two attempts to establish backhaul on two different channels between the same two nodes. Rather, the 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.

**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 (let alone channels) between access nodes, let alone multiple links (or channels) for redundancy between the same two nodes. Haas Decl., ¶¶ 41-42. 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. *Id.*, ¶ 42. Nor has Petitioner provided any motivation for a POSITA to combine descriptions of Gatewood’s Figure 1 embodiment with Gatewood’s Figure 3 embodiment. *See*

SIBIA Neurosciences, Inc. v. Cadus Pharmaceutical Corp., 225 F.3d 1349, 1356 (Fed. Cir. 2000) (“In appropriate circumstances, a single prior art reference can render a claim obvious. ***However, there must be a showing of a suggestion or motivation to modify the teachings of that reference to the claimed invention in order to support the obviousness conclusion.***”). A POSITA would not have because Gatewood indicates that in the Figure 3 embodiment, if “WLAN access node 331 has already been selected for first wireless backhaul link,” “***only*** WLAN access nodes 332-334 remain for selection for the second backhaul wireless link.” Gatewood, 5:31-35. Thus, Gatewood teaches against the second backhaul link being a parallel link with the same node. 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, 29-31 *with* Ex. 1002 ¶¶ 99-104.

Third, Petitioner attempts to fix Gatewood by reaching outside of its disclosures into one or more of Ho, Sinha, or Handforth. Those arguments fail too. Petitioner asserts “Ho also teaches forming multiple parallel backhaul connections (‘upstream links’) between a non-CAP hybrid device and a CAP using different frequency channels and, thus, Ho further confirms Gatewood’s teachings.” Petition, 31 (citing Ho, 21:7-12). Even if Petitioner’s characterization of Ho were correct (it is not), Petitioner has not proposed any kind of modification of

Gatewood based on Ho, offered any motivation for why a POSITA could have or would have combined the references, nor has Petitioner argued that Ho's teaching would have influenced a POSITA's understanding of Gatewood. That is fatal to Petitioner's argument. *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006) (requiring "articulated reasoning with some rational underpinning to support the legal conclusion of obviousness") (internal citations omitted)); *Ruiz v. A.B. Chance Co.*, 357 F.3d 1270, 1275 (Fed. Cir. 2004) (improper under the "as a whole" requirement of § 103 to "break an invention into its component parts (A+B+C), then find a prior art reference containing A, another containing B, and another containing C, and on that basis alone declare the invention obvious").

Nevertheless, Petitioner mischaracterizes Ho. Ho's "establishing redundant upstream links" in this example does not teach or suggest multiple WLAN channels between a non-CAP and a CAP in the same frequency band. Haas Decl., ¶ 43. Rather, the cited passage of Ho refers to the usage of non-WLAN interfaces to determine a non-CAP device's second-level personality. Ho states "determining the personality of the non-CAP hybrid device can also take into consideration whether the non-CAP hybrid device is connected an end-device." Ho, 21:3-7. In Ho's example, a non-CAP hybrid device may choose *not* to be an access point (which would "improv[e] WLAN coverage") if it is connected to an end-device via an Ethernet interface. Ho, 21:7-12; Haas Decl., ¶ 43. But the non-CAP includes

multiple interfaces capable of connecting to the CAP (e.g., PLC interface and WLAN STA interface) for the redundant upstream links.

Because Ho fails to support Petitioner's arguments, Petitioner tries again with Sinha and Handforth, contending based on those references that "[e]stablishing multiple redundant parallel backhaul links (over different frequency channels) between two nodes of a mesh network was in fact well-known and described in many other prior art references, and thus within the knowledge of a person of ordinary skill." Petition, 31. This argument is insufficient for similar reasons to Ho. Petitioner does not rely on any modification of Gatewood based on Sinha or Handforth (or the knowledge of a POSITA) for this limitation. *See* Petition, 29-31. Nor does Petitioner provide any motivation to combine those references. Once again, that is fatal to Petitioner's arguments. *In re Kahn*, 441 F.3d at 988.

Even if the Board were to consider Sinha and Handforth, they do not support Petitioner's mischaracterizations of Gatewood. Sinha discloses multiple *paths* to a controller, not multiple redundant backhaul links over different frequency channels. Haas Decl., ¶ 45. 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. Nor has Petitioner identified any reason to modify Gatewood in view of Handforth's "multiple parallel wireless

channels” (Petition, 31 (citing Handforth, 4:54-63)) when Gatewood already has redundancy in its backhauls built into the network. Haas Decl., ¶¶ 33, 46.

Petitioner's hindsight driven interpretations should be rejected, and the Board should deny institution because Petitioner failed to establish a reasonable likelihood that Gatewood alone or in combination with Ho discloses or renders obvious claim elements [1.1]/[12.1] and [1.2]/[12.2].

B. Gatewood alone or in combination with Ho does not disclose or render obvious claim element [1.1]/[12.1].

Claims 1 and 12 both recite “performing an attempt to utilize a first channel in a default frequency band as a backhaul with second node in the network, wherein the backhaul is to provide communication of management functions between the nodes in the network, as opposed to a front haul that provides wireless data communication to clients in the network.” Petitioner labels this claim element [1.1]/[12.1]. Petition, 17.

Petitioner relies on a POSITA's knowledge of “backhaul communication” to argue disclosure of the requirement that “the backhaul is to provide communication of management functions between the nodes in the network.” Petition, 21-22. In other words, Petitioner asserts based on a POSITA's understanding that *any* backhaul meets the claim limitation. Petition, 21-22 (“[A] backhaul communication provides MAP-to-MAP communication and is not a front-haul client-facing communication A backhaul also carries control and management

information that communicate management functions such as MAP coordination functions, which Gatewood refers to as ‘overhead communications,’ between nodes in the network.”). That is wrong as a matter of law because it improperly renders superfluous the limitations requiring that the backhaul is “to provide communication of management functions between the nodes in the network, as opposed to a front haul that provides wireless data communication to clients in the network.” *See Intel Corp. v. Qualcomm Inc.*, 21 F.4th 801, 809-10 (Fed. Cir. 2021) (“It is highly disfavored to construe terms in a way that renders them void, meaningless, or superfluous.”) (internal citations omitted). Petitioner also misrepresents Gatewood, which does not disclose that overhead communication constitutes “MAP coordination functions” carried by a backhaul. *Cf.* Petition, 22; Haas Decl., ¶¶ 47-48.

Petitioner also cites to Ho, stating that “as also described in Ho, APs communicate with one another over the backhaul to identify themselves, to exchange capability and configuration information, and to coordinate their operations.” Petition, 22 (citing Ho, 13:39-41, 14:4-6, and 4:46-55). These passages all relate to *broadcasts* of AP information that occur *before* the alleged

backhaul links are established.⁸ Thus they cannot satisfy this limitation that requires “the *backhaul* [] to provide communication of management functions between the nodes in the network.”

Finally, Petitioner cites to Dr. Ding's declaration, but Dr. Ding (Ex. 1002, ¶¶ 86-88) mimics Petitioner (Petition, 21-22) *verbatim*, and his opinions are not entitled to any weight. *Xerox Corp.*, IPR2022-00624, Paper 9 at 15 (precedential) (“conclusory and unsupported” declaration testimony “adds little to the conclusory assertion[s] for which it is offered to support, and is entitled to little weight.”).

Accordingly, Petitioner failed to establish a reasonable likelihood that Gatewood alone or in combination with Ho discloses or renders obvious claim element [1.1]/[12.1].

⁸ Petitioner also mentions IEEE 802.11s in passing (Petition, 22). That standard cannot save Petitioner's arguments. Neither Gatewood nor Ho disclose use of IEEE 802.11s; IEEE 802.11s is not part of Ground 1; and Petitioner does not assert any reason to modify Gatewood or Ho based on IEEE 802.11s. Haas Decl., ¶ 49.

C. Petitioner fails to establish a reasonable likelihood that Gatewood alone or in combination with Ho discloses or renders obvious claim element [1.2]/[12.2].

Claim 1 recites “upon detecting that a received signal strength of the first channel from the second node is below a threshold, performing an attempt to utilize a different channel in the default frequency band and/or a channel in a different frequency band that has a lower frequency range than the default frequency band, to establish the backhaul with the second node.”

Petitioner asserts that “Gatewood teaches that the second wireless backhaul link is established using a different channel of the default 5 GHz band, Gatewood satisfies” this claim element. Petition, 28. Not so. Gatewood does not disclose using different channels for different links, and Petitioner makes no attempt to cite to Gatewood for such disclosure. *See* Petition, 28-29. Instead, Petitioner seems to assume that the second wireless backhaul link will operate on “a different channel of the . . . 5 GHz band” than the first wireless backhaul link, merely because they are different links. *Id.*

Petitioner further asserts that “[t]he second wireless backhaul link can be established using a different, better, channel of the same default 5 GHz band used to establish the first wireless backhaul link.” Petition, 28. Gatewood makes no such disclosure or suggestion. Nevertheless, even if true, Petitioner’s statement goes to the mere possibility of performing the claim element, not obviousness of the claim.

See Belden Inc. v. Berk-Tek LLC, 805 F.3d 1064, 1073 (Fed. Cir. 2015)

(“[O]bviousness concerns whether a skilled artisan not only *could have made* but *would have been motivated to make* the combinations or modifications of prior art to arrive at the claimed invention.”) (original emphasis) (citation omitted).

Accordingly, Petitioner failed to establish a reasonable likelihood that Gatewood alone or in combination with Ho discloses or renders obvious claim element [1.2]/[12.2].

VI. Ground II: Petitioner failed to establish a reasonable likelihood that claims 1-22 are obvious in view of Ho.

In Ground II, Petitioner applies Ho alone. As discussed below, Petitioner mischaracterizes Ho's hybrid wireless network in a number of different ways. For the reasons discussed below, Petitioner failed to establish a reasonable likelihood that any claim would have been obvious to a POSITA in view of Ho alone.

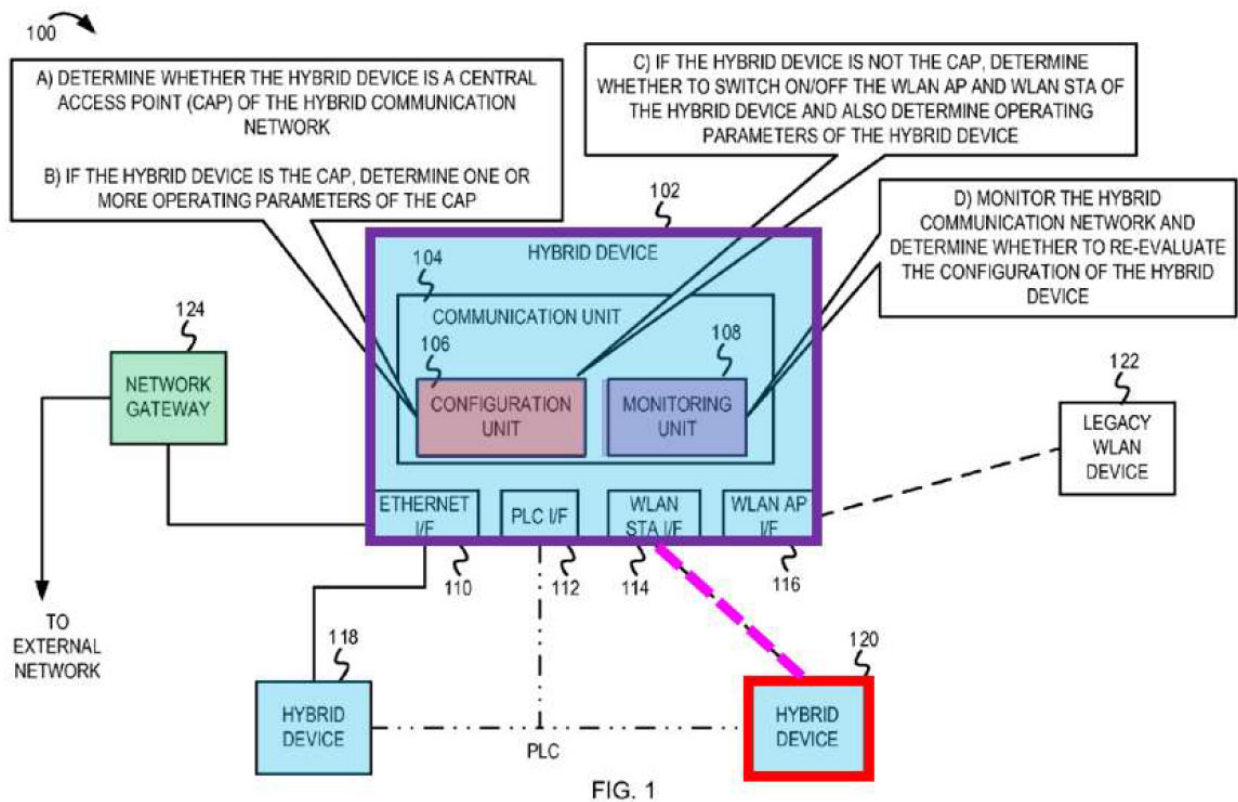
A. Petitioner fails to establish a reasonable likelihood that Ho discloses or renders obvious claim element [1.1]/[12.1].

Petitioner does not show that Ho discloses or renders obvious claim element [1.1]/[12.1]. Petitioner does not show disclosure or obviousness of a “backhaul” that is to “provide communication of management functions” and is not “a front haul that provides wireless data communication to clients.”

As discussed below, Petitioner does not identify any frequency band that is used as a backhaul to provide communication of management functions between

the nodes in the network, as opposed to a front haul that provides wireless data communication to clients in the network.

Petitioner annotates Figure 1 (reproduced below) to illustrate its claim mapping. Petition, 49. According to Petitioner, hybrid device 120 is a non-CAP device (**outlined in red**); hybrid device 102 is a CAP (**outlined in purple**), and “the backhaul communication between the CAP and non-CAP devices is highlighted in **magenta**.” Petition, 49 (emphasis in Petition).



Petition, 49 (annotating Ho Fig. 1)

The magenta link between hybrid devices 102 and 120 in Figure 1 is not a “backhaul” for at least three reasons.

First, Figure 1 does not illustrate hybrid device 120 as serving any clients and therefore the device has no need for backhaul. To the contrary, Ho teaches that hybrid device 120 can be a client (e.g., laptop, gaming console, smartphone, etc.). Ho, 4:9-14. The only client in Figure 1, aside from the hybrid devices themselves, is legacy WLAN device 122, which connects directly to the hybrid device 102. Thus, any WLAN link between hybrid devices 102 and 120 would be used for the hybrid device 102's own *client* data, and would therefore constitute a "front-haul that provides wireless data communication to clients in the network." Haas Decl., ¶ 53. This is consistent with Ho's own disclosures, which never describes the link between a non-CAP and CAP is a "backhaul" let alone the specific backhaul recited in claims 1 and 12. To the contrary, Petitioner repeatedly interjects the word "backhaul" into its description and quotations of Ho without justification. *See, e.g.*, Petition, 48 ("Ho teaches that backhaul establishment in the network starts with 'the CAP select[ing] one or more channels' in the 2.4 GHz or 5 GHz bands for backhaul communication and 'broadcast[ing] a message to indicate that it is in operation and to indicate the channel(s) it has selected.'" (inserting "backhaul" around quotations of Ho, 13:24-41). Ho itself only uses the term "backhaul" to refer to the link between the network gateway 124 and an external wide area network. Ho, 22:57-62.

Second, even if one were to consider Ho's connection between hybrid device 102 and 104 as the claimed backhaul, Petitioner has failed to show that the "default frequency band" used for backhaul is not also used for "front haul" as claimed. Indeed, Petitioner cannot make that showing based on Ho, because Ho teaches that the 5GHz and 2.4 GHz links that the Petition relies on as the claimed "backhaul" are expressly used for "STA" connections. Haas Decl., ¶ 55; *see* Petition 53-56 (alleging Ho's backhaul is in either or both of "the 2.4 GHz and 5 GHz bands"); Ho, 6:43-57, Figure 1; *cf.* '698 patent, 2:48-54, 3:45-4:7 (describing use of dedicated 5 GHz backhaul that is not used for fronthaul, as compared to 2.4 GHz band used for shared front haul and backhaul); Fig. 2.

Third, contrary to Petitioner's assertions, Ho does not describe hybrid device 102 as a CAP, nor hybrid device 120 as a non-CAP device. Haas Decl., ¶ 54. Rather, Ho states that Figure 1 includes "a mechanism for automatic configuration of a hybrid device 102." Ho, 3:24-26. As shown in Figure 1, the configuration unit of the hybrid device 102 will perform a method to determine its personality, including whether it is a CAP or a non-CAP device. *See* Ho, 4:64-66. In fact, the link Petitioner cites to as the "backhaul" in Figure 1 would not even exist if hybrid device 102 were configured as a CAP. As Ho explains, a hybrid device configured as *a CAP will disable its WLAN STA interface* if, as shown in Figure 1, the hybrid device also has a direct connection to the network gateway. Ho,

11:13-19; Haas Decl., ¶ 54. This is fatally deficient to Petitioner's analysis, as the Petition does not provide any alternative explanation for how element [1.1]/[12.1] is met if hybrid device 102 is *not* the CAP.

Petitioner also ignores the second-level personalities in Ho's non-CAP devices and merely assumes that any non-CAP to CAP link is a backhaul. *See* Ho, 8:13-23; Petition, 49. The Petition does not distinguish between these four personalities or argue that any particular personality meets the claims. Patent Owner and the Board are left to fill in the details of Petitioner's mapping. This is improper and cannot establish a reasonable likelihood of prevailing. *Adobe Sys. Inc. v. Grecia*, IPR2018-00419, Paper 9 at 15 (P.T.A.B. Sept. 7, 2018) ("Petitioner cannot expect the Board to make or complete its case.").

For at least these reasons, the Board should deny institution of Ground 2, consistent with the Examiner's determination that the claims were allowable over Ho during prosecution. *See* Sections II.B and IV above.

VII. Ground III: Petitioner failed to establish a reasonable likelihood that claims 9 and 20 are obvious in view of Ho in combination with Farid.

Claims 9 and 20 depend from independent claims 1 and 12, respectively. As shown above for Ground II, Petitioner failed to establish a reasonable likelihood that Ho renders obvious claims 1 and 12. Ground III relies on the deficient Ground II, and Petitioner does not rely on Farid to cure Ho's deficiencies with respect to the independent claims. *See* Petition, 72-74. Accordingly, claims 9 and 20 are

patentable over Ground II for at least the same reasons as claims 1 and 12 in Ground III.

VIII. Conclusion

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

Respectfully submitted,

Dated: January 4, 2024

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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 8,095 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 4th day of January, 2024, 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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