

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CISCO SYSTEMS, INC.,
Petitioner

v.

DYNAMIC MESH NETWORKS, INC.
D/B/A MESHDYNAMICS,
Patent Owner

Inter Partes Review No. IPR2025-01569
U.S. Patent No. 7,894,385

PATENT OWNER'S PRELIMINARY RESPONSE

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TABLE OF AUTHORITIES

Cases	Page(s)
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PATENT OWNER'S EXHIBIT LIST

Exhibit No.	Description
2001	[Reserved]
2002	Cisco's Answer to Dynamic Mesh Networks, Inc.'s Complaint for Patent Infringement, <i>Dynamic Mesh Networks, Inc. et al. v. Cisco Systems, Inc.</i> , No. 2:25-cv-00781 (EDTX), Dkt. 29 (September 18, 2025)
2003	Declaration of Mr. Francis daCosta in Support of Patent Owner's Request for Discretionary Denial
2004	June 22, 2022 Letter to Chief Executive Officer of Cisco Systems, Inc., Charles H. Robbins, from Mr. Francis daCosta, founder of MeshDynamics
2005	August 2009 Presentation entitled "High Level Overview" provided to Cisco Systems, Inc.
2006	Cisco's Amended Complaint, <i>Cisco Systems, Inc. v. Dynamic Mesh Networks, Inc. d/b/a MeshDynamics et al.</i> , No. 5-25-cv-06441 (NDCA), Dkt. 5 (July 31, 2025)
2007	MeshDynamics' Notice of Readiness, <i>Dynamic Mesh Networks, Inc. et al. v. Cisco Systems, Inc.</i> , No. 2:25-cv-00781 (EDTX), Dkt. 32 (September 19, 2025)
2008	Judge Wise's Civil Standing Order in Northern District of California, available at https://cand.uscourts.gov/sites/default/files/standing-orders/NW-CivilStandingOrder_05-06-25.pdf
2009	Docket, <i>Cisco Systems, Inc. v. Dynamic Mesh Networks, Inc. d/b/a MeshDynamics et al.</i> , No. 5-25-cv-06441 (NDCA)
2010	[reserved]
2011	Judge Gilstrap's Order Setting Scheduling Conference, <i>Dynamic Mesh Networks, Inc. et al. v. Cisco Systems, Inc.</i> , No. 2:25-cv-00781 (EDTX), Dkt. 35 (October 29, 2025)

2012	Judge Gilstrap’s Patent Model Docket Control Order, available at https://coop.txed.uscourts.gov/?q=judge/district-judge-rodney-gilstrap
2013	MeshDynamics’ Local Rule 3-1 and 3-2 Initial Disclosures, <i>Dynamic Mesh Networks, Inc. et al. v. Cisco Systems, Inc.</i> , No. 2:25-cv-00781 (EDTX) (November 10, 2025)
2014	MeshDynamics’ Local Rule 3-1 and 3-2 Initial Disclosures, <i>Dynamic Mesh Networks, Inc. et al. v. Cisco Systems, Inc.</i> , No. 2:25-cv-00783 (EDTX) (November 10, 2025)
2015	MeshDynamics’ Response to Cisco’s Motion to Transfer or Stay Pursuant to First-to-File Rule, <i>Dynamic Mesh Networks, Inc. et al. v. Cisco Systems, Inc.</i> , No. 2:25-cv-00781, Dkt. 34 (EDTX) (October 28, 2025)
2016	Docket Control Order, <i>Dynamic Mesh Networks, Inc. et al. v. Cisco Systems, Inc.</i> , No. 2:25-cv-00781, (EDTX) Dkt. 40 (December 11, 2025)

Pursuant to 37 C.F.R. § 42.107, Dynamic Mesh Networks, Inc. d/b/a MeshDynamics (“MeshDynamics” or “PO”) files this preliminary response setting forth merits and non-discretionary reasons why institution of the Petition for *inter partes* review (“IPR”) of claims 1-3 (the “challenged claims”) of U.S. Patent No. 7,894,385 (“the ’385 patent”), as requested by Petitioner Cisco Systems, Inc. (“Cisco”), should be denied.

I. INTRODUCTION

The Petition fails to establish a reasonable likelihood that any of the challenged claims are unpatentable. The Petition relies on two and three reference combinations as allegedly disclosing the independent claims. But even using multiple references for every claim, many limitations are not expressly disclosed by any prior art of record.

The Petition relies on impermissible background knowledge of a POSITA to fill these missing limitations, sometimes repeatedly for a single limitation. For example, Petitioner admits that the prior art of record does not disclose any mesh nodes “configured to scan a Radio Frequency (RF) environment using a dedicated scanning radio to determine a new potential parent mesh node for connecting with said at least one mesh node” (limitation [2.2] and related limitations [1.1] and [3.5]). Instead, Petitioner argues it would be obvious to a POSITA to use a “scanning radio” to determine a new potential parent mesh node. But under the Acting Director’s July

31, 2025 Memo,¹ such reliance on knowledge of a POSITA is forbidden.

Likewise, for limitations [1.6] and [3.7], Petitioner admits that the prior art does not disclose “sampling of discovered potential new parent nodes is performed by an uplink relay radio.” Again, Petitioner impermissibly relies on knowledge of a POSITA to fill this gap.

As discussed below, the rationales Petitioner provides for using background knowledge of a POSITA also fail. The rationales are speculative and do not explain why a POSITA would implement the claimed functionality over the functionality described in the prior art of record. Moreover, the missing limitations involve complex technical issues (the discovery of potential parent nodes for wireless mesh networks) and are central to the claimed invention of the ’385 Patent. It is far from clear that the missing limitations would be part of the background knowledge of a POSITA. Thus, even without 37 C.F.R. § 42.104(B)(4), Petitioner’s arguments fail.

The Petition fails to demonstrate a reasonable likelihood that any of the challenged claims are unpatentable. Accordingly, the Director should decline to

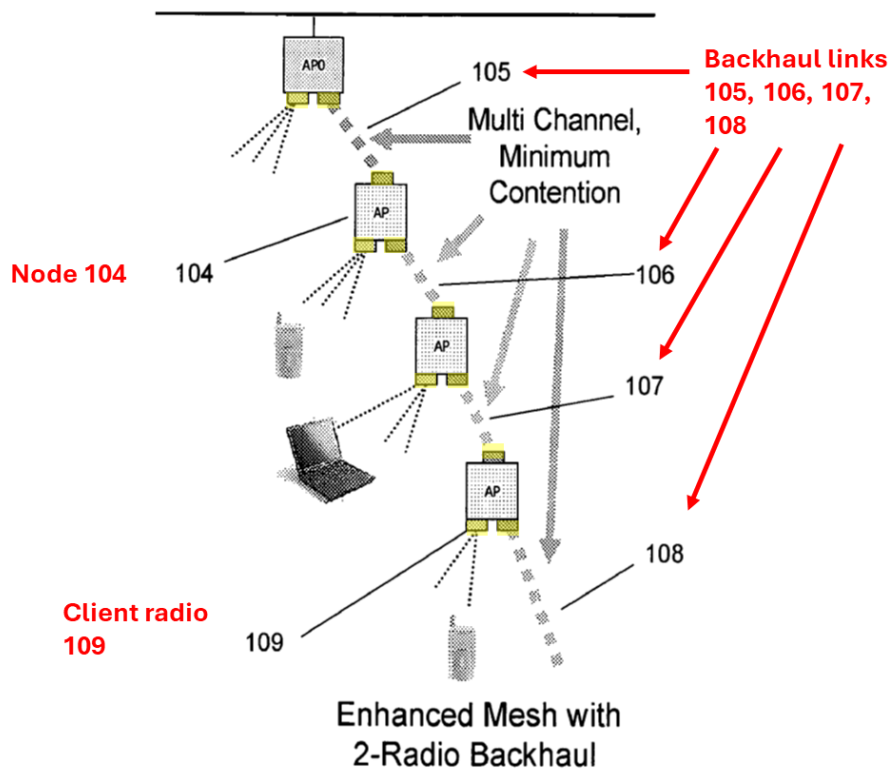
¹ The Acting Director’s July 31, 2025 Memorandum on Enforcement and Non-Waiver of 37 C.F.R. § 42.104(B)(4) And Permissible Uses of General Knowledge In Inter Partes Reviews (“July 31, 2025 Memo”) is available at:
https://www.uspto.gov/sites/default/files/documents/aapa_memo_final__signed.pdf.

institute on the merits.

II. THE '385 PATENT

A. Mobility Extensions For Wireless Multiple Radio Mesh Networks

The '385 Patent is directed to enhancing existing wireless mesh networks through the use of multiple radios for backhaul links. Exhibit 1001 ['385 Patent], Abstract. Existing mesh network nodes used one radio with a single frequency channel. *Id.*, 3:9-11. Because of this, each backhaul link was forced to contend with each other for the same spectrum, resulting in latency and jitter issues. *Id.*, 3:11-14. To reduce these issues, embodiments of the '385 Patent disclose using different noninterfering radios on mesh network nodes for backhaul uplink, backhaul downlink, and client service radios. *Id.*, 3:38-44. Figure 2 (annotated below) demonstrates an embodiment of this arrangement. To reduce spectrum competition in that embodiment, each node (access point (“AP”) 104) has a separate radio (highlighted in yellow) for the (1) upstream backhaul link, (2) downstream backhaul links and (3) client links:



The '385 Patent accounts for mobile nodes by incorporating a separate “scanning radio” in some embodiments that “scans the RF environment and discovers potential parent nodes.” Exhibit 1001 [’385 Patent], 3:64-65. The ’385 Patent discloses the use of a “round robin” sampling technique. *Id.*, 4:34-50; *see also id.*, Fig. 4.

In one embodiment, the scanning method operates as follows:

1. Scanning to discover all parent mesh nodes in the vicinity (if needed).
2. Place list of potential parent nodes in a to-be-sampled list.
3. Receive a token from current parent to commence sampling (packets buffered)

4. Sample downlink-uplink connectivity with a selection from sample list
5. Return to normal operation (no more buffering)
6. Continue in this mode till next sampling token is received from parent
7. Repeat with another parent from sample list
8. Repeat steps above till multiple samples have been got
9. Make a decision to stay with or switch parents

Id., 4:54-5:3. The '385 Patent provides for computing the maximum speed the mesh node can travel based on factors such as distance travelled and number of potential parents. Exhibit 1001 ['385 Patent], 5:7-56, Figs. 3, 4.

B. The Claims of the '385 Patent

Consistent with the specification, the claims of the '385 Patent are directed to the discovery of potential new parent nodes for wireless mesh networks. The '385 Patent contains only three independent claims. Exhibit 1001 ['385 Patent], claims 1-3. Claim 1 is a method for operating a mesh network having a plurality of mesh nodes. *Id.* at cl. 1. Claims 2 and 3 claim mesh networks.

Claim 2 is reproduced below:

[2.0]	A mesh network comprising:
[2.1]	a plurality of mesh nodes; wherein
[2.2]	at least one mesh node of the mesh network is configured to scan a Radio Frequency (RF) environment using a dedicated scanning radio

	to determine a new potential parent mesh node for connecting with said at least one mesh node; wherein
[2.3]	said at least one mesh node includes, in addition to the scanning radio, at least two relay radios in each mesh element and wherein said scanning radio and said at least two relay radios operate on different non-interfering channels;
[2.4]	wherein while said at least one mesh node samples potential new parent nodes, packets to be sent to said at least one mesh node from its current parent node are buffered by the current parent node, and
[2.5]	] packets to be sent from said at least one mesh node to its current parent are buffered by said at least one mesh node;
[2.6]	wherein sampling times are coordinated among multiple mesh nodes having a common current parent node whereby the common current parent node sends tokens to each of its children in a round-robin manner.

III. LEVEL OF ORDINARY SKILL

Petitioner alleges the following level of ordinary skill:

A Person of Ordinary Skill in The Art (“POSITA”) in June 2006 would have had a working knowledge of the wireless networking art that is pertinent to the ’385 patent, including familiarity with standards such

as IEEE 802.11. For example, the '385 patent uses (without explanation) the acronyms AP and BSS (Ex.1001, 3:4-6), which a POSITA would have been familiar with from the IEEE 802.11 standard. Ex.1003, ¶20 (citing Ex.1011, 3 (defining “access point” and “basic service set”)).

A POSITA would have had a bachelor's degree in computer science, computer engineering, electrical engineering, or equivalent training, and approximately two years of experience working in the field of network communications. Additional work experience could have been substituted for educational experience, and vice versa. Ex.1003, ¶21.

Pet., 12. For purposes of this preliminary response, Patent Owner does not dispute Petitioner's level of ordinary skill.

IV. CLAIM CONSTRUCTION

Petitioner alleges that “the second and third recitations of ‘*at a first point in time*’ [in claim 3] should be understood to refer to the first recitation, i.e., ‘*at [the] first point in time*’” such that “each of the actions recited as occurring ‘*at a first point in time*’ must all occur at the **same** point in time.” Pet., 13-14 (emphasis in Petition). Petitioner proposes no other claim terms for formal construction.

For purposes of this preliminary response, Patent Owner does not believe any claim terms need construed. For purposes of this preliminary response, Patent Owner

takes no position on Petition's construction for "at a first point in time."

**V. PETITIONER FAILS TO DEMONSTRATE A REASONABLE
LIKELIHOOD THAT THE CHALLENGED CLAIMS ARE
UNPATENTABLE**

The Petition presents two grounds. Ground 1 argues that claims 2 and 3 are unpatentable over Castagnoli (Exhibit 1005) and Bohm (Exhibit 1006). Pet., 15. Ground 2 argues that claim 1 is unpatentable over Castagnoli, Bohm, and Liu (Exhibit 1007). Petitioner added Liu to Ground 2 to support its argument regarding limitation 1.4: "wherein said at least one mesh node is moving sufficiently rapidly that it may lose connectivity with its current parent mesh node" Pet., 62-63. Both grounds fail to teach or suggest any of the challenged claims.

Petitioner's use of two or three reference obviousness combinations for the challenged independent claims is a tacit admission that none of the prior art discloses all the limitations of any claim. *See* Pet. at 15. Further, for many limitations, Petitioner admits that the prior art does not expressly disclose the limitation. This preliminary response addresses a few such deficiencies. *See, e.g.*, Pet. at 32 (limitations 2.2, 1.1, 3.5) ("Castagnoli does not expressly state that routing nodes in its Figure 1 network scan for neighbor routing nodes using the dedicated scanning radio described in Castagnoli's background"); 56 (limitation 3.7) ("Castagnoli does not expressly state which of a node's multiple radios is used for exchanging neighbor packets, but it would have been obvious to a POSITA..."); 64 (limitation 1.6)

(same).

In each case, Petitioner impermissibly attempts to fill the missing limitations using background knowledge of a POSITA in the form of expert testimony and alleged “material facts” that are nothing more than alleged background knowledge of a POSITA. Because knowledge of a POSITA cannot be used to provide a limitation that is missing from the prior art (*See* 37 C.F.R. § 42.104(b)(4); July 31, 2025 Memo), the Petition fails to show that any challenged claim is unpatentable.

Moreover, even if the July 31, 2025 Memo were not in effect, the grounds would still fail on the merits. As discussed below, the alleged rationales Petitioner provides for using background knowledge of a POSITA are unsupported hindsight reasoning. Nor are the missing limitations the sort of “unusually simple” limitations regarding “straightforward” technology that might be provided by background knowledge of a POSITA absent 37 C.F.R. § 42.104(b)(4). *See Arendi S.A.R.L. v. Apple Inc.*, 832 F.3d 1355, 1362 (Fed. Cir. 2016). Instead, the limitations here are central to the claimed technology and involve complex and novel wireless mesh concepts.

At least for these reasons, Petitioner has failed to demonstrate a reasonable likelihood that any of the Asserted Grounds renders the challenged claims obvious.

A. Statement of Material Facts

The Petition includes a section on alleged statements of material facts. Pet.,

16-20. These statements are alleged background knowledge of a POSITA recast as “material facts.” *Id.* To the extent a response is required for purposes of this preliminary response, Patent Owner denies each material fact. Patent Owner reserves its rights to respond further to Petitioner’s alleged material facts in its Patent Owner Response if this IPR is instituted.

B. Castagnoli does not teach or suggest “wherein at least one mesh node of the mesh network is configured to scan a Radio Frequency (RF) environment using a dedicated scanning radio to determine a new potential parent mesh node for connecting with said at least one mesh node” (limitation [2.2] and related limitations [3.5] and [1.1])

1. Castagnoli does not expressly disclose these limitations

The Petition relies on Castagnoli alone for limitation 2.2. Pet. 31. The Petition relies on its analysis of limitation [2.2] for similar limitation [1.1] (with respect to the “dedicated scanning radio to determine a new potential parent mesh node”) as well as the “dedicated scanning radio ... configured to scan a Radio Frequency (RF) environment ... to determine a new potential parent mesh node” portion of limitations [3.5]. Pet., 53, 61.

Castagnoli does not disclose these limitations. Petitioner admits that “Castagnoli does not expressly state that routing nodes in its Figure 1 network scan for neighbor routing nodes using the dedicated scanning radio described in Castagnoli’s background.” Pet., 32. That is, the embodiment of Castagnoli relied on by Petitioner does not disclose the limitation “at least one mesh node of the mesh

network is configured to scan a Radio Frequency (RF) environment using a dedicated scanning radio to determine a new potential parent mesh node for connecting with said at least one mesh node.” *Id.*

Petitioner argues that “[i]t would have been obvious to a POSITA for the Figure 1 nodes to incorporate a dedicated scanning radio” because “Castagnoli expressly states that employing a dedicated scanning radio is ‘typical[.]’” Pet., 32-33. Petitioner’s argument fails for several reasons.

First, Petitioner misstates Castagnoli. Castagnoli does not state that employing a dedicated scanning radio is typical. Instead, Castagnoli states radio designs “*may* also dedicate a radio for the purposes of monitoring the RF environment and other conditions on multiple radio frequencies.” Exhibit 1005 [Castagnoli], [0007] (emphasis added) (“Multiple radio designs typically dedicate one radio for access, one or more to service the backhaul, and may also dedicate a radio for the purposes of monitoring the RF environment and other conditions on multiple radio frequencies.”). The term “typically” in the quote from Castagnoli modifies “one radio for access” and “one or more [radios that] service the backhaul,” not the radio that monitors the RF environment. The term “may” modifies “dedicate a radio for the purposes of monitoring the RF environment.” *Id.* This indicates monitoring radios were not typical but rather were optional. Thus, Castagnoli does not support Petitioner’s assertion that scanning radios were “prevalent.” Pet., 33. Petitioner’s

rationale for attempted combination therefore fails.

Even if Castagnoli's monitoring radio were combined with other embodiments of Castagnoli, Petitioner never provides evidence (other than the unsupported statements of its expert) why the monitoring described in Castagnoli's background section meets the scanning limitation. Castagnoli does not disclose that its radio "monitoring the RF environment and other conditions" (Exhibit 1005 [Castagnoli], [0007]) is doing so for purposes of determining a new potential parent mesh node as required by the claim. Petitioner's unsupported expert statements do not constitute evidence that the prior art renders these claim limitations obvious. *See* Exhibit 1003, ¶¶63-71 (only citing Castagnoli or background references which are not part of the asserted Grounds).

Further, Castagnoli's routing nodes "maintain a list of ... tentative parent routing nodes" (Exhibit 1005 [Castagnoli], [0046]); they do not "determine a new potential parent mesh node" as required by the claim. Exhibit 1001 ['385 Patent], cl. 2. That is, Castagnoli teaches that the routing node maintains a list of candidate parent nodes while the claim requires a dedicated scanning radio determines a new potential parent mesh node.

The prior art does not disclose "using a dedicated scanning radio to determine a new potential parent mesh node" as required by each claim. Thus, limitations [2.2], [3.5] and [1.1] are missing from Castagnoli.

2. *Petitioner relies on impermissible background knowledge to fill the gap*

Because Castagnoli does not expressly teach scanning the Radio Frequency (RF) environment using a dedicated scanning radio to determine a new potential parent mesh node, Petitioner resorts to using background knowledge of a POSITA to provide the missing limitation. Pet., 33. Petitioner relies on alleged “material facts” to argue “a POSITA would have been motivated to employ the described monitoring radio for the purpose of scanning the RF environment for potential parent nodes.” *Id.* These material facts are just alleged background knowledge of a POSITA under a different name. Pet., 16-20. And, as discussed above, these limitations are missing from Castagnoli. Nothing in Castagnoli discloses “scan[ning] a Radio Frequency (RF) environment using a dedicated scanning radio to determine a new potential parent mesh node.”

Petitioner’s use of background knowledge of a POSITA is impermissible. *See* 37 C.F.R. § 42.104(b)(4) (“The petition must specify where each element of the claim is found in the prior art patents or printed publications relied upon”); July 31, 2025 Memo, 1 (“enforcement of Rule 104(b)(4) means that applicant admitted prior art (AAPA), expert testimony, common sense, and other evidence that is not ‘prior art consisting of patents or printed publications’ (collectively, ‘general knowledge’) may not be used to supply a missing claim limitation.”).

Moreover, the alleged material facts Petitioner relies upon do not lead to the

conclusion that “scan[ning] a Radio Frequency (RF) environment using a dedicated scanning radio to determine a new potential parent mesh node” would be part of the background knowledge of a POSITA. For example, Petitioner argues “A POSITA also would have known that while a radio is being used to scan an operating channel, the radio is unavailable to engage in data communication.” Pet., 33. But this does not mean that a radio that is used for scanning must be 100% dedicated to scanning at all times. A single radio is often used for different purposes (e.g., data communication and monitoring) by, for example, using different time slots on the same channel. Castagnoli itself discusses systems where “the radio unit is used for purposes of acting as an access point to its clients, as well as acting as a backhaul to a parent routing node.” Exhibit 1005 [Castagnoli], [0007]. Presumably, these systems divide the channel between access and backhaul communications and would use the same single radio for any other required purposes such as monitoring the RF environment.

Petitioner states this is how most radios operate. That is, most radios operate in half-duplex manner where they transmit and receive (or monitor) at different times. *See, e.g.*, Pet., 17-18, Exhibit 1026 [0015] (“Most wireless transceivers operate in a half-duplex mode.”). Thus, most radios already dedicate a portion of their time to receiving or monitoring channels. Contrary to Petitioner’s position, a POSITA would have no reason to assume that Castagnoli Fig. 1 should incorporate

a dedicated scanning radio for the specific purpose of determining a new potential parent mesh node when the existing radios in Castagnoli Fig. 1 are capable of implementing the same functionality without modification.

Finally, even assuming 37 C.F.R. § 42.104(b)(4) did not apply, the limitation “scan[ning] a Radio Frequency (RF) environment using a dedicated scanning radio to determine a new potential parent mesh node for connecting with said at least one mesh node” is not “unusually simple” and the technology discussed is not “particularly straightforward” such that background knowledge of a POSITA could be used to supply the limitation. *Arendi*, 832 F.3d at 1362. Instead, this limitation “is an important structural limitation that is not evidently and indisputably within the common knowledge of those skilled in the art.” *K/S HIMPP v. Hear-Wear Technologies, LLC*, 751 F.3d 1362, 1365-66 (Fed. Cir. 2014). Using a dedicated radio to scan for potential parent nodes is central to the claims of the ’385 Patent, which each relate to a novel process of detecting new parent nodes in a wireless mesh network. *See* Exhibit 1001 [’385 Patent], cls. 1-3. Thus, using background knowledge of a POSITA to supply this missing limitation is impermissible for this additional reason.

Accordingly, because Castagnoli does not expressly teach scanning the Radio Frequency (RF) environment using a dedicated scanning radio to determine a new potential parent mesh node, the Petition fails to demonstrate a reasonable likelihood

that claim 2 (and, by extension, claims 1 and 3) are unpatentable.

C. Castagnoli does not disclose “sampling of discovered potential new parent nodes is performed by an uplink relay radio of said at least one mesh node” (limitation [1.6]).

As discussed above, the Petition fails to show a reasonable likelihood that any of the challenged claims are unpatentable. *Supra*, § V.B. In addition, claim 1 fails for the additional reason discussed below.

1. Petitioner relies on impermissible background knowledge of a POSITA

Petitioner alleges that Castagnoli’s “neighbor packet exchange is Castagnoli’s mechanism for ‘*sampling of discovered potential new parent nodes.*’” Pet., 64 (emphasis in original). Even assuming Petitioner were correct, Petitioner admits that “Castagnoli does not expressly state which of a node’s multiple radios is used for exchanging neighbor packets.” Pet., 64. Thus, Castagnoli does not disclose limitation 1.6 because, as Petitioner admits, Castagnoli does not disclose that sampling of discovered potential new parent nodes is performed by an uplink relay radio as required by limitation 1.6. *Id.*

Because Castagnoli does not disclose that an uplink relay radio performs the sampling of discovered potential new parent nodes, Petitioner alleges that “it would have been obvious to a POSITA for Castagnoli’s mesh node to use an “*uplink*” radio (e.g., an upstream radio as discussed at [2.4]) to exchange neighbor packets with a potential parent node.” Pet., 64 (emphasis in original). But Petitioner may not rely

on alleged background knowledge of a POSITA to provide a limitation that is admittedly completely missing from the prior art. *See* 37 C.F.R. § 42.104(b)(4) (“The petition must specify where each element of the claim is found in the prior art patents or printed publications relied upon”); July 31, 2025 Memo, 1 (“enforcement of Rule 104(b)(4) means that applicant admitted prior art (AAPA), expert testimony, common sense, and other evidence that is not ‘prior art consisting of patents or printed publications’ (collectively, ‘general knowledge’) may not be used to supply a missing claim limitation.”). Thus, Petitioner fails to demonstrate a reasonable likelihood that Castagnoli teaches or suggests limitation 1.6.

2. *Petitioner’s rationales for using background knowledge of a POSITA fail on the merits*

Petitioner provides several rationales for why a POSITA would *sua sponte* use an uplink relay radio to perform sampling of discovered potential new parent nodes despite none of the prior art disclosing the limitation. Pet., 64-66. In addition to being impermissible under 37 C.F.R. § 42.104(b)(4), each rationale fails on the merits.

First, Petitioner argues that “a POSITA would have found it obvious to avoid using the scanning radio (discussed at [2.2]) for neighbor packet exchanges because Castagnoli states that the scanning radio is “dedicate[d]” to “monitoring the RF environment and other conditions.” Ex.1005, [0007]. As discussed above, Castagnoli does not expressly teach limitation [2.2]. *Supra*, § V.A. Petitioner’s arguments for [2.2] also rely on knowledge of a POSITA to supply the missing

limitation. *Id.* A dedicated scanning radio is not disclosed as part of the system disclosed in Castagnoli Figure 1. *Supra*, § V.A. Thus, Petitioner’s hypothetical system relies on background knowledge (to provide a dedicated scanning radio) within background knowledge (using an uplink relay radio rather than a scanning radio for sampling discovered potential new parent nodes).

But Petitioner’s rationale provides no reason to prefer one radio (an uplink relay radio) to be a dedicated scanning radio over other radios in a multi-radio system for neighbor packet exchanges. As Petitioner concedes, there is no reason why a monitoring radio could not also be used for transmitting neighbor packet requests—it would just “have to cease its ‘monitoring’ activity while transmitting a neighbor request packet and receiving a neighbor response packet.” Pet., 65. Indeed, Petitioner cites an alleged material fact that “[m]ost wireless transceivers operate in a half-duplex mode.” (*id.*) This means that most wireless transceivers transmit part of the time and receive (or monitor) part of the time.

Second, Petitioner argues that a POSITA’s background knowledge would supply this missing limitation because Castagnoli describes “directional antennas whose peak gains are oriented depending on the location of the parent and child routing nodes.” Pet., 65 (*quoting* Exhibit 1005 [Castagnoli], [0041]). But in the same paragraph, Castagnoli also describes embodiments where “the child and parent routing nodes are not associated with a particular antenna” (*id.*) and where “the peak

gains of the antennas are offset from one another in a manner that maximizes coverage in all directions.” And, in the next paragraph, Castagnoli describes an embodiment where “an omni-directional antenna can be used in place of first and second antennas.” *Id.*, [0042]. Petitioner provides no rationale for why a POSITA would prefer one embodiment (where peak gains are oriented to the location of the parent and child routing nodes) over several other embodiments that Castagnoli describes as equally suitable. And, more importantly, none of the embodiments (including the embodiment that orients peak gains to the location of parent and child nodes) actually teach using an uplink relay radio to sample discovered potential new parent nodes as required by the limitation.

Third, Petitioner argues that “a POSITA would have found it obvious to use an *uplink* radio because Castagnoli explains that neighbor request and response messages will include the MAC addresses of the sending and receiving interfaces.” Pet., 66 (emphasis in original). Petitioner argues that “[s]ince Castagnoli’s nodes use the MAC address as a key value for storing information related to neighbors (Ex.1005, [0057], [0062]), it would have been obvious for Castagnoli’s node to use its uplink radio when conducting neighbor discovery exchanges with potential parent nodes.” *Id.* But the claim already requires a dedicated scanning radio for determining new potential parent mesh nodes. Exhibit 1001 [’385 Patent], claim 1. And, as discussed above, Petitioner’s rationale for not using the scanning radio (let alone

other radios in the system) fails.

Moreover, as with limitation [2.2], “sampling of discovered potential new parent nodes is performed by an uplink relay radio” is central to the ’385 Patent’s claimed method and systems for discovery of potential new parent nodes for wireless mesh networks. Exhibit 1001 [’385 Patent], cls. 1-3. This is not a case where “the limitation in question was unusually simple and the technology particularly straightforward.” *Arendi*, 832 F.3d at 1362-1363. Thus, even if Petitioner’s argument were permissible under 37 C.F.R. § 42.104(b)(4) (it is not), it would not be appropriate to use background knowledge of a POSITA to supply missing limitation [1.6].

The prior art of record does not disclose “sampling of discovered potential new parent nodes is performed by an uplink relay radio.” Petitioner’s arguments impermissibly rely on the use of purported knowledge of a POSITA to fill this gap. And the rationales provided by Petitioner to use background knowledge of a POSITA are themselves flawed and provide no reason for a POSITA to prefer one radio interface over another for sampling discovered potential new parent nodes. Accordingly, the alleged prior art does not teach or suggest claim 1.

D. Castagnoli does not disclose “wherein after said dedicated scanning radio discovers a potential new parent node, said first relay radio samples the RF link to said potential new parent node using its uplink radio” (limitation [3.7])

Petitioner admits that “Castagnoli does not expressly state which of a node’s

multiple radios is used for exchanging neighbor packets.” Pet., 56. Instead, Petitioner relies on impermissible background knowledge of a POSITA to fill this gap, stating “it would have been obvious to a POSITA for Castagnoli’s mesh node to use the uplink radio (discussed at [3.3]) to exchange neighbor packets with a potential parent node.” *Id.*

Petitioner uses the same rationale as for limitation [1.6] to explain how a POSITA would have used its background knowledge to provide the missing limitation of “sample[] the RF link to said potential new parent node using its uplink radio.” Pet., 57. Thus, for the same reasons discussed above for limitation [1.6], the Petition fails to show the prior art of record teaches or suggests claim 3.

VI. CONCLUSION

For at least the foregoing reasons, Petitioner has failed to demonstrate a reasonable likelihood that any challenged claim is unpatentable. Thus, institution of this *inter partes* review must be denied.

Dated: January 2, 2026

Respectfully submitted,

By: /s/ Elizabeth Bernard]

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CERTIFICATE OF COMPLIANCE

Pursuant to 37 C.F.R. § 42.24(d), Patent Owner certifies that this Patent Owner Preliminary Response has 4,533 words as counted by the word-processing system used to prepare this document. This word count complies with the 14,000 word limit under 37 C.F.R. § 42.24(b)(1).

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CERTIFICATE OF SERVICE

The undersigned hereby certifies that the foregoing Patent Owner Preliminary Response was served electronically via email on January 2, 2026, on the following counsel of record for Petitioner:

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