

Filed on behalf of: Cellco Partnership d/b/a Verizon Wireless

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CELLCO PARTNERSHIP D/B/A VERIZON WIRELESS
Petitioner

v.

GENERAL ACCESS SOLUTIONS, LTD.
Patent Owner

IPR2023-01147
U.S. Patent No. 9,426,794

PETITIONER'S REPLY

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EXHIBIT LIST

Ex. No.	Description
1001	U.S. Patent No. 9,426,794 (“’794 patent”)
1002	Declaration of Kevin Almeroth, Ph.D.
1003	<i>Curriculum Vitae</i> of Kevin Almeroth, Ph.D.
1004	U.S. Patent No. 6,556,553 (“Palmer”)
1005	U.S. Patent No. 6,816,706 (“Hohnstein”)
1006	U.S. Patent No. 5,790,536 (“Mahany”)
1007	U.S. Patent No. 5,722,051 (“Agrawal”)
1008	Prosecution History of U.S. Patent No. 9,426,794
1009	U.S. Patent No. 9,225,555
1010	<i>Unified Patents Inc. v. General Access Solutions, Ltd., f/k/a/ Access Solutions, Ltd.</i> , IPR2017-01178, Paper 21 (Final Written Decision) (PTAB Sept. 25, 2018) (“’555 FWD”)
1011	Excerpts from Newton’s Telecom Dictionary, 16 th Expanded and Updated Edition (2000)
1012	Wikipedia, “Rack Unit” (last visited June 26, 2023)
1013	Charles S. Demarest, “Telephone Equipment for Long Cable Circuits”, Bell System Technical Journal. Vol. 2, No. 3, pp. 112-140 (July 1923)
1014	Excerpts from William C. Y. Lee, Mobile Cellular Telecommunications, 2 nd ed. (1995)
1015	Excerpts from Roger L. Freeman, Fundamentals of Telecommunications (1999)
1016	Stipulation by Petitioner

Ex. No.	Description
1017	Deposition Transcript of Douglas A. Chrissan, Ph.D. (July 26, 2024)
1018	Excerpts from Roger L. Freeman, Telecommunications System Engineering, 3rd Ed. (1996)
1019	<i>What is a WAN? Wide-Area Network</i> , Cisco.com, https://www.cisco.com/c/en/us/products/switches/what-is-a-wan-wide-area-network.html (retrieved Aug. 7, 2024)
1020	Excerpts from Microsoft Computer Dictionary, 3rd Ed. (1997)
1021	Excerpts from IBM Dictionary of Computing, 10th Ed. (1993)
1022	Complaint in <i>General Access Solutions, Ltd. v. Verizon Communications, Inc., et al.</i> , Case No. 2:22-cv-394-JRG (EDTX)
1023	Trial Transcript Excerpts in <i>General Access Solutions, Ltd. v. Verizon Communications, Inc., et al.</i> , Case No. 2:22-cv-394-JRG (EDTX)
1024	Reply Declaration of Kevin C. Almeroth, Ph.D

I. INTRODUCTION

The '794 Patent does not mention “4G,” “5G,” cellular networks, “Wi-Fi,” or “IEEE 802.11” (the “Wi-Fi” technical standard). Nonetheless, Patent Owner (“GAS”) attempts to frame the claims as directed to a present-day “hotspot” device providing Wi-Fi connectivity over a 4G/5G cellular connection.¹ Patent Owner Response (“POR”), 5, 6, 38, 53.

GAS’s motivation is as transparent as it is erroneous—GAS seeks to import limitations into the claims in an effort to distinguish the prior art. But reading these limitations into the claims—even if the features appeared in the specification, which they do not—is “one of the cardinal sins of patent law.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1320 (Fed. Cir. 2005); *see also Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1347 (Fed. Cir. 2005) (citation omitted) (“claims must ‘not be read restrictively unless the patentee has demonstrated a clear intention to limit the claim scope using words ... of manifest exclusion’”).

GAS seeks to confine what constitutes a wide area network (WAN) and wireless WAN (WWAN)—terms not recited in the claims or specification—and any accompanying protocols, in order to limit the “wide area wireless communication protocol” recited in the claims. GAS’s argument contradicts its

¹ The '794 Patent predates 4G/5G technology. EX1017, 64:8-12; EX2012, 4.

own expert’s testimony, who opined that WANs are simply networks providing long-distance coverage, *e.g.*, across a city. EX2007, ¶35. GAS also ignores that the ’794 Patent lacks any disclosure of WAN/WWAN protocols. Indeed, beyond references in claims 1 and 6 and the abstract—which were not in the priority application—the ’794 Patent does not mention the term “wide,” “WAN,” or “protocol.” Notably, GAS presents no claim construction on these points, as doing so would further expose the error. POR, 26-27.

Additionally, GAS seeks to distinguish the claimed monitoring and routing from corresponding functions in the prior art. In doing so, GAS ignores that the ’794 Patent describes the **same** methodology (and purpose) for monitoring and routing as in the prior art. Moreover, the sole inventor testified at trial that there was no need to provide written description of routing based on monitoring because “**all** WLANs” at the time performed that function.

Thus, GAS’s arguments are meritless.

II. GROUND 1 (PALMER)

A. Claim 1

1. Palmer Discloses and/or Renders Obvious a Wide Area Wireless Communication Protocol (Limitation [1.a])

GAS argues that Palmer does not disclose the RF link between central antenna 32 and remote antenna 34 being a WWAN or using a wide area wireless

communication protocol. POR, 28-35. The '794 specification does not mention those concepts—it merely shows a first transceiver covering a larger area than a second transceiver, just as Palmer discloses. Palmer's teaching of the same is reinforced by *GAS's own expert's* testimony. Dr. Chrissan confirms that a WAN differs from a local area network ("LAN") based on coverage distance—WANs connect across "large geographical areas such as a campus *or city*," whereas LANs "connect ... devices in smaller areas, such as a single building." EX2007, ¶35²; EX1020, 504 (WAN), 507 (defining WAN as a "communications network that connects geographically separated areas"), 267 (LAN), 287 (*compare* local area network); EX1021, 744 ("a geographic area larger than that served by a local area network"); EX1024, ¶¶5-8. Palmer's RF link between central antenna 32 and remote antenna 34 connects "several buildings" or even a "*city*" (EX1004, 4:53-57), squarely reading on Dr. Chrissan's own definition of a WWAN.

Regarding GAS's argument that Palmer does not disclose a WWAN "protocol"—a word not used in the '794 specification—GAS's own expert, Dr. Chrissan, explains that a POSA would understand every network uses a communication protocol:

² Emphasis added, unless otherwise noted.

- (i) “[a] *‘protocol’* is ... an *established set of rules* for transmissions to and from devices” (EX2007, ¶45), and
- (ii) “devices communicat[ing] with each other ... *need* to have an *established set of rules. Otherwise they won’t understand each other.*” (EX1017, 36:2-15).

GAS’s arguments that Palmer allegedly does not disclose a WWAN or the associated protocol are unavailing.

First, GAS argues that “Palmer focuses on a network of LANs connected to a *wired* network,” referencing Palmer’s Fig. 1 embodiment. POR, 28-29. But the Petition does not rely on Fig. 1 for this limitation, but the Fig. 2 embodiment. Petition, 16-19. Palmer’s Fig. 2 embodiment provides a wireless communication link between remote antenna 34 (in building 36) and central antenna 32 (in building 33), which the Petition establishes has a wide area wireless communication protocol based on Palmer’s reference to “the use of industry standard network protocols by the wireless media” and given the ’794 Patent’s lack of any reference to a protocol. Petition, 16-19; EX1004, 2:52-55. GAS’s effort to focus on features not relied upon in the Petition, while ignoring Palmer’s wireless communication link, is misdirection that the Board already dismissed. Institution Decision (Paper 14), 28-29.

Second, GAS argues that Palmer does not explicitly describe the communication link between antennas 32 and 34 as a WWAN. POR, 29-30. That cannot be required to meet the claims, as the '794 specification does not mention a WWAN. Moreover, this argument is belied by (i) Dr. Chrissan's testimony confirming that a network connecting a "city" is a WAN (EX2007, ¶35) and (ii) Palmer's teaching that its wireless network connects a "city" (EX1004, 4:53-57; Petition, 18-19; EX1002, ¶¶78-79).

Third, GAS argues that "Palmer considers a WWAN to be something external to its device" and questions whether "Palmer considered its antennas 32 and 34 to be part of a WWAN." POR, 30-31. However, the relevant inquiry is whether a POSA would have understood Palmer's antennas 32/34 to constitute a WWAN as the term is understood *in the context of the '794 Patent*, in which it means no more than having a larger coverage area than a WLAN.

Given the lack of disclosure within the '794 specification on what constitutes a "wide" area network, and accepting Dr. Chrissan's testimony (EX2007, ¶35), Palmer's disclosure that the network link between antennas 32 and 34 can span a city (EX1004, 4:53-57) establishes a WWAN.

Fourth, GAS argues that because Palmer allegedly does not disclose a WWAN, it does not disclose a WWAN protocol, and that Petitioner "cites no evidence" on this point. POR, 31-32. Palmer has at least as much disclosure of

protocols as the '794 Patent, which neither uses the word “protocol” in the specification, nor offers a single example protocol. Petition, 19, n.5. Moreover, GAS’s argument is belied by its own expert’s testimony that (i) a protocol is an “established set of rules for transmissions to and from devices” (EX2007, ¶45), (ii) network communication “*need[s]* to have an *established set of rules*[,] *[o]therwise they won’t understand each other*” (EX1017, 36:2-15), and (iii) “communication devices [*e.g.*, transmitter/receiver] ... *do have to operate by established set of rules* ... in order that the receiver can receive a reasonably good ... copy of what the transmitter intended to send” (EX1017, 37:21-38:14). EX1024, ¶¶9-10. As such, a POSA would have understood that Palmer’s network would communicate using a protocol (in addition to Palmer referencing such protocols, as discussed next).

Fifth, GAS incorrectly alleges that Palmer “disparages” existing protocols. POR, 33-34. GAS mischaracterizes Palmer, which teaches that its invention *complements* the protocols. The cited Palmer passage describes using industry standard network protocols with the invention to “reduce network connection losses.” EX1004, 2:52-55. Thus, Palmer indicates that its invention will accompany these protocols such that there is no teaching away from the protocols.

Therefore, Palmer discloses or at least renders obvious this limitation.

2. Palmer Discloses and/or Renders Obvious a Second Wireless Transceiver Coupled to a First Wireless Transceiver (Limitations [1.preamble]-[1.b])

GAS argues that Palmer does not satisfy these limitations because (i) Palmer's transceivers are individual devices rather than "the same device" and (ii) the '794 Patent specification does not disclose the particular coupling utilized by Palmer. POR, 35-39. Both arguments fail.

First, GAS's own admissions contradict its argument that Palmer does not disclose a "device" encompassing both transceivers. GAS admits that the scope of claim 1's "device" encompasses at least transceivers located in "separate enclosures" and connected via a "cable." POR, 36 (conceding claims 2-3 respectively encompass the transceivers "connected by a **wireline** connection (i.e., **a cable**)" and being "**in separate enclosures** that are detachable from each other"); EX1001, 10:45-50; *see Littelfuse, Inc. v. Mersen USA EP Corp.*, 29 F.4th 1376, 1380 (Fed. Cir. 2022).

GAS also alleges that a "POSA would further recognize that different devices connected by a wired network 38, i.e., a wired LAN, are in fact different devices, rather than a single device. POR, 37. This argument is also contradicted by the '794 Patent specification, which describes the first transceiver alone as its own individual "device" (i.e., integrated access device 24) and the integration of this first transceiver with the second transceiver (i.e., WLAN transceiver 38) as a

different “device” (“integrated device”). EX1001, 7:36-37 (“integrated access device (IAD) 24”), 7:65-8:2 (WLAN transceiver 38), 8:33-36.

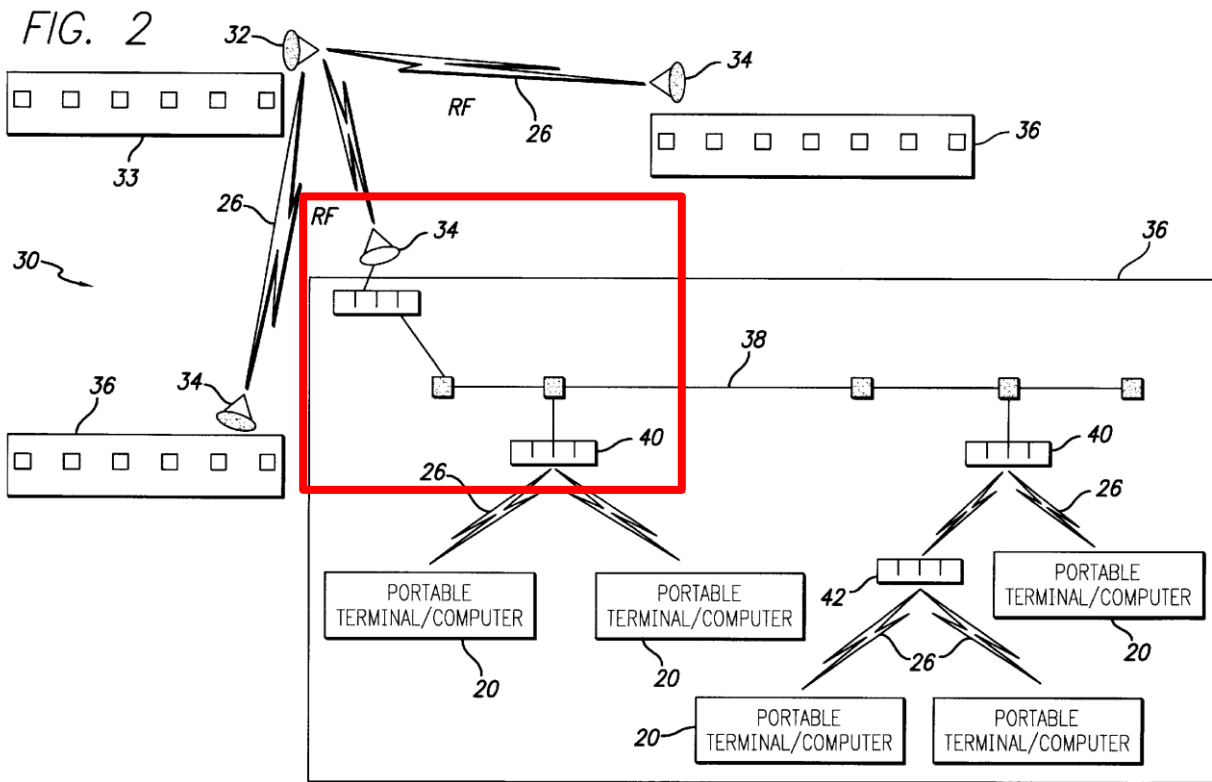
Second, GAS seeks to carve out Palmer’s “coupling” of transceivers from claim 1’s scope by attaching an exclusion neither claimed nor disclosed in the specification. GAS argues that because “there is no embodiment in the ’794 patent ... whereby the first and second wireless transceivers are separated by an entire additional network” (POR, 36), claim 1 should be narrowly read to exclude such an arrangement. But the Federal Circuit has rejected that patent claim scope is limited to disclosed embodiments. *Hill-Rom Servs., Inc. v. Stryker Corp.*, 755 F.3d 1367, 1371 (Fed. Cir. 2014) (“expressly rejected the contention that if a patent describes only a single embodiment, the claims of the patent must be construed as being limited to that embodiment”); *Arlington Indus., Inc. v. Bridgeport Fittings, Inc.*, 632 F.3d 1246, 1254 (Fed. Cir. 2011).

Notably, the POR does not cite—and cannot cite, since none exists—any ’794 Patent disclosure that first and second wireless transceivers connected via a “network” are excluded from the claimed invention. Indeed, the ’794 Patent teaches the **opposite**, that a “wireline” connection (see claim 2) **includes** a network connection. EX1001, 4:16-26 (referencing a “conventional, **wireline** communication system” (i.e., a wired network)). Therefore, “wireline” in the

context of the '794 Patent (including claim 2) encompasses wired connections such as Palmer's wires connecting its first and second wireless transceivers.

Moreover, the '794 Patent does not exclude *any* type of connection between the first and second transceivers—in fact, it lacks *any* detailed disclosure regarding the connection. The '794 specification simply refers to a rack assembly. EX1001, 8:28-36; *see also id.*, claim 5 (reciting that these components “are part of an integrated device,” so as to exclude narrowing claim 1 to that scope under claim differentiation).

Regardless, Palmer would still render obvious GAS's alleged arrangement. *See* Petition, 14-16 (stating that “to the extent the Board finds that claim 1 requires the device be an integrated one ... such integration would have nonetheless been an obvious variant”).



Petition, 14 (annotating EX1004, Fig. 2).

In response to the Petition, GAS argues that Palmer discloses multiple access points 40 for each remote antenna that are meant to be spread around the building and geographically away from remote antenna 34, and as such a POSA “would have found no motivation to combine these distinct devices into one.” POR, 38. GAS’s argument rests on an incorrect assumption that Petitioner’s combination involves integrating **all** access points 40 and remote antenna 34 into a single unit (as well as the incorrect assumption that the claims require a single unit). However, as clearly indicated by the annotations to Palmer’s Fig. 2 reproduced above, Petitioner’s proposed combination involves integrating the

remote antenna 34 with the left instance of the access point 40 (*i.e.*, the components within the red-annotated box), without the remaining access points 40. Dr. Almeroth articulated reasons as to why a POSA would have done so, including that rack assemblies have been known and widely employed for decades, and that “providing the device as a single dual-function product would have provided a benefit of avoiding the purchase of two separate components.” EX1002, ¶¶70-72. Thus, the element would have been obvious.

GAS also argues that “Palmer requires there to be a LAN, and for the remote antenna 34 to be a distinct device from each access point 40.” POR, 38. Neither “requirement” is availing. Regarding the first “requirement,” GAS does not dispute that components are interconnectable via a LAN even when housed within a rack assembly, thereby lacking any tension with Petitioner’s obviousness rationale. EX1024, ¶¶11-13. Regarding the second “requirement,” as discussed above, this argument is belied by the ’794 Patent’s description of the integrated access device 24 (*i.e.*, the claimed first wireless transceiver) as initially its own distinct device, but then forming an “integrated device” when combined with the WLAN transceiver 38.

Therefore, Palmer satisfies or at least renders obvious this claim limitation.

3. Palmer Discloses Limitation [1.c]

GAS relies on its argument for limitations [1.a] and [1.b]. POR, 39.

Petitioner already responds to these arguments *supra* in Sections II.A.1 and II.A.2.

4. Palmer Teaches Monitoring and Routing (Limitation [1.d])

GAS argues that, while Palmer performs monitoring, such monitoring is not being performed by access point 40. POR, 40-46. GAS also argues that Palmer does not perform the claimed routing. *Id.* Both arguments fail.

Palmer's access point 40 provides a wireless link with portable devices 20, connecting them with computers in administration building 33. EX1004, Fig. 2, 5:1-9. Palmer monitors the downlink connection from the access point 40 to each of its connected portable devices 20, to monitor properties including received signal strength indicator ("RSSI"), signal to noise ratio, and bit error rate. Petition, 24-26 (citing EX1004, 5:34-49, 6:45-47). Palmer uses such monitored properties to determine whether to adjust the wireless link's data rate ("rate shift") or whether to roam ("handoff"/"handover") the portable device to another access point 40. Petition, 26-27 (citing EX1004, 5:20-36).

Palmer's use of monitoring this downlink connection is the same as the use described in the '794 Patent—to determine whether to handover a terminal 20 to another access point 40. Petition, 26-27 (citing EX1004, 5:20-36; EX1001, 8:50-9:3 (describing monitoring for handover)).

Palmer explains that the monitoring operation may be performed “by the network.” Petition, 25-27 (citing EX1004, 5:30-36). A POSA would have understood Palmer’s explanation to indicate to a POSA that the access point 40 performs such monitoring, since the access point 40 forms part of the network and actually performs the relevant communication. EX1002, ¶95. Regardless, a POSA would have found it obvious to select the access point 40 to perform such monitoring. Petition, 25-27 (citing EX1002, ¶96).

(a) Monitoring

Palmer discloses three options concerning which component may perform the monitoring:

- (i) these determinations “could be made by the wireless communication device 20” (*i.e.*, the portable device 20), or
- (ii) “[a]lternatively ... may be performed centrally, for example,
 - [a] by the network or
 - [b] a central host processor.”

EX1004, 5:30-36. As established, a POSA would have understood Palmer’s reference to “by the network” as being the access point 40, as “the access point 40 is part of the network and the specific component directly interacting wirelessly with the portable terminals 20 and therefore collecting such measurements.”

EX1002, ¶95. In other words, it is the network component directly receiving the relevant communications.

Despite Palmer’s wireless signals between access point 40 and terminal 20 being confined to within remote building 36, GAS argues that Palmer’s reference to “the network” performing the monitoring means that only the administration building 33—not the access point 40—performs the monitoring. POR, 42-43. This argument fails for at least three reasons.

First, GAS conflates the “monitoring” operation with subsequent determinations, focusing on which component in Palmer performs “the predictive method,” even though distinct from monitoring. POR, 42-43. The ’794 specification describes the measuring (*i.e.*, monitoring) performed by the WLAN transceiver simply by the fact that such information is reported back to the transceiver. EX1001, 8:61-9:3; EX1017, 56:21-58:12. The “[d]etermination is made responsive to measurements of signal characteristics,” potentially by “control circuitry.” EX1001, 8:61-9:3. Therefore, Palmer’s access point 40 satisfies the claimed monitoring simply by receiving measurement data from portable terminals 20. EX1017, 86:19-90:18, 74:8-75:20; EX1024, ¶¶14-22.

Second, GAS’s reasoning combines two of the three possible options disclosed by Palmer (*i.e.*, “the network” and “a central host processor”), equating both of these options to the administration building 33. But Palmer lists these two

options separately such that “the network” must refer to a different component from “a central host processor.” Dr. Chrissan even conceded that “the network” is not necessarily confined to administration building 33 but “[p]ossibly, it [*i.e.*, ‘the network’] could be that unmarked box in Palmer” within remote building 36 (*i.e.*, the box in Fig. 2 between remote antenna 34 and access point 40). EX1017, 90:4-6, 72:21-73:16, 86:19-90:3.

Third, Dr. Chrissan testified that a network component satisfies the claimed monitoring simply by **receiving** the monitored data, which Palmer’s access point 40 does. EX1017, 86:19-90:18 (confirming that, where administration building 33 performs the monitoring, such monitoring is performed “by that building **receiving** the measurement information”), 88:22-89:10 (admitting that the administration building 33 “would not be directly measuring the Radio Signal 26, but they could collect measurements from Portable Terminal Computer 20”). And the only description of implementing “monitoring” in the ’794 Patent mirrors Palmer’s arrangement (*i.e.*, by receiving measurements from a mobile station). EX1001, 8:64-9:1; EX1023, 1119:4-1120:6.

Therefore, Palmer indicates that access point 40 performs the claimed monitoring.

(b) Routing

Palmer also teaches the access point 40 performing the claimed routing of information to portable terminals 20. As discussed above, Palmer uses routing to maintain network connectivity for a portable terminal 20 when roaming, and the '794 Patent likewise describes routing for the same purpose. EX1001, 9:15-19 (“when a handover is effectuated, information ... is rerouted to the WLAN transceiver to which communications have been handed over”).

GAS advances several arguments, none of which are persuasive.

First, GAS argues that “Palmer only teaches making a decision *by one mobile station* to rate shift or roam.” POR, 43 (emphasis in original). GAS’s argument fails as Palmer’s Fig. 2 depicts multiple portable terminals 20 wirelessly connected to an access point 40 and all operating in the same manner. EX1004, Fig. 2, 4:65-5:3. Palmer contains no suggestion that the rate shift/roaming capabilities are limited to only one of the multiple connected portable terminals 20, which would be senseless. EX1024, ¶¶23-25.

Second, GAS refers to Petitioner’s arguments advanced in district court regarding the IEEE 802.11 wireless standard (also known as “Wi-Fi”), alleging those arguments are inconsistent with Petitioner’s arguments in this IPR. POR, 44-46. Those arguments were rejected by the district court at summary judgement and not advanced at trial. Regardless, no inconsistency exists. Petitioner’s summary

judgment argument—that the IEEE 802.11 standard, specifically, lacks routing capabilities—has no relevance here where the '794 Patent lacks any reference to “IEEE 802.11,” Palmer does not require use of IEEE 802.11, and Dr. Chrissan acknowledges that IEEE 802.11 is simply one of multiple WLAN protocols existing at the time of the '794 Patent. EX1017, 50:15-51:5, 51:14-22; EX2007, ¶37. GAS mischaracterizes “Petitioner’s litigation position” as that “no WLAN transceiver has ever routed information and therefore it does not infringe.” POR, 45. But as evident even from the excerpts in the POR, Petitioner’s position relates specifically to the IEEE 802.11 standard, and **not** to (i) Palmer (which lacks any reference to IEEE 802.11) or (ii) routing in the context of a roaming/handover operation.

Even if Palmer did disclose IEEE 802.11 as the WLAN protocol, Petitioner’s unpatentability ground does not rely on any routing functionality within the WLAN itself, but rather relies on Palmer’s performing of the routing when a mobile device 20 roams from one WLAN transceiver to another. This aspect is distinguishable from the accused devices at issue in the District Court, which are 4G/5G cellular hotspots providing Wi-Fi connectivity but lacking any Wi-Fi handoff/roaming ability between different hotspots. EX1022, ¶36.

Third, during trial, which resulted in a finding of infringement, the sole inventor, Mr. Struhsaker, testified that “**all** WLANs” at the time of the '794 Patent

used the claimed “second transceiver performing routing to the first and second mobile stations.” EX1023, 269:9-21, 188:13-189:3. Dr. Chrissan agrees that Palmer’s link between access point 40 and device 20 is a WLAN. EX1017, 76:12-78:4. Therefore, GAS’s arguments fail.

B. Claims 2-4 and 6

GAS relies upon its claim 1 argument for claims 2-4 and 6. POR, 46. As discussed above, the wireline connection of claim 2 is satisfied by Palmer. Regarding claims 3-4, GAS does not appear to dispute that Palmer teaches these features or present any substantive arguments for these claims. *Id.*

III. GROUND 2 (HOHNSTEIN AND PALMER)

GAS incorrectly characterizes this ground as obviousness based on “Palmer+Hohnstein,” whereas Hohnstein is the primary reference. Petition, 4, 42-44. GAS’s arguments also fail on their merits.

A. Claim 1

1. Hohnstein Teaches a Base Station Communicating According to a Wide Area Wireless Communication Protocol (Limitation [1.a])

Despite claim 1 not requiring a “point-to-multipoint WWAN protocol,” GAS argues that Hohnstein “does not use one point-to-multipoint WWAN protocol as recited by the Challenged Claims.” POR, 48. In effect, GAS manufactures an artificial requirement that *each* of multiple antennas and modems within the base

station (rather than the base station as a whole) provide “point-to-multipoint” connections, and argues that Hohnstein’s distribution point 40, while communicating simultaneously with multiple access points 22, does not satisfy the unclaimed “point-to-multipoint” concept. POR, 50, 12.

Claim 1’s base station simply communicates with the first wireless transceiver and a plurality of other wireless communication devices according to a wide area wireless communication protocol—it does **not** recite a “point-to-multipoint WWAN protocol” or “remote modem,” much less any language precluding multiple point-to-point links for communicating with wireless devices. Nor has GAS advanced any claim construction requiring the same. Therefore, claim 1’s base station simply requires the ability to communicate with multiple devices (including the first wireless transceiver) using a wide area wireless communication protocol. Moreover, as the Institution Decision recognized, the recited “base station” is not an “affirmatively claimed structure” and the claim merely requires the first wireless transceiver be “operable to communicate with a base station according to a ... protocol.” Paper 14, 14-15.

GAS’s argument is also contradicted by its own expert. Dr. Chrissan acknowledges that “[a]t the time of the ’794 Patent, **WANs typically *only provide point-to-point communications.***” EX2007, ¶36 (internal citations omitted); EX1023, 458:6-9. The ’794 Patent does not purport to establish a novel point-to-

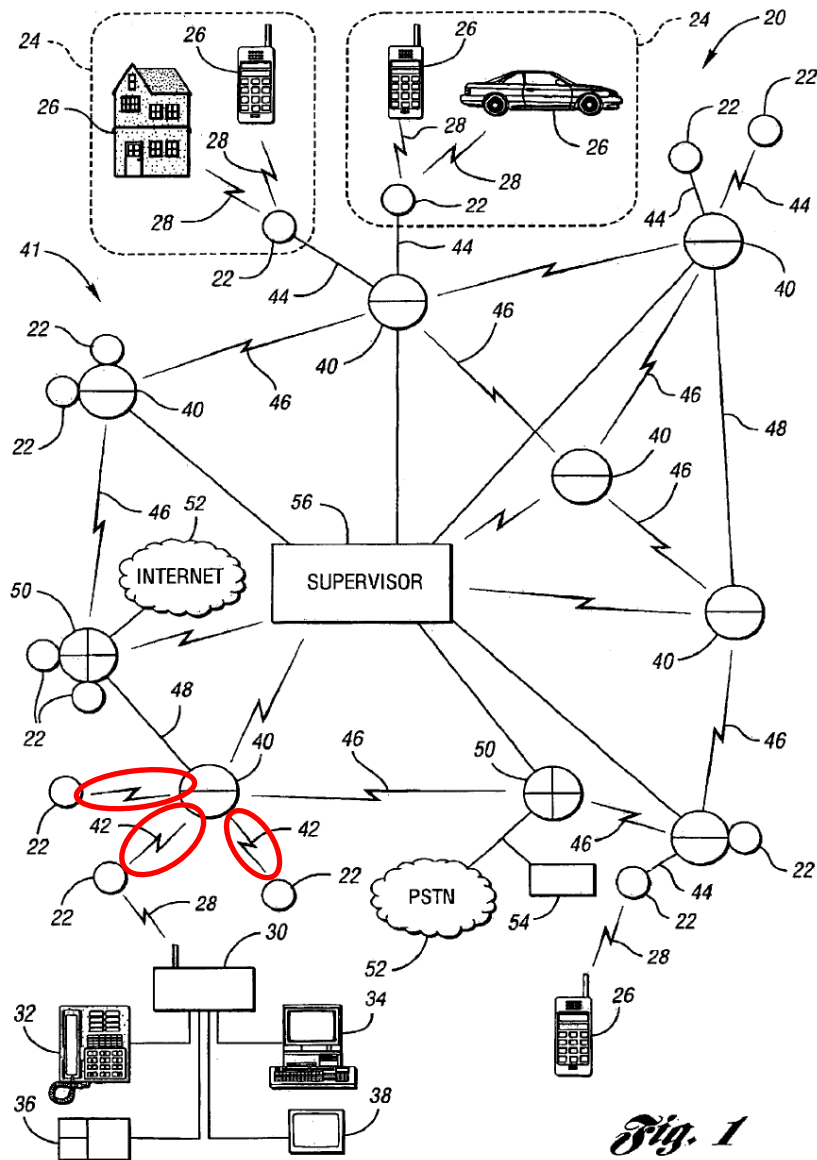
multipoint wireless architecture, let alone exclude existing WAN technology (*e.g.*, “point-to-point communications”), and simply incorporates existing cellular technology. EX2007, ¶36; EX1001, 4:33-63.

As GAS’s expert acknowledges, Hohnstein’s distribution point 40 communicates wirelessly with multiple access points 22. EX1017, 94:13-95:2, 97:7-98:1. That disclosure overcomes GAS’s arguments. GAS’s other attempts to distinguish Hohnstein are unavailing.

First, GAS argues that Hohnstein’s wireless connections (between distribution point 40 and multiple access points 22) do not use a “wide area wireless communication protocol” because “Hohnstein never refers to” that specific terminology. POR, 50-51. As discussed above, that cannot be required to disclose the claim limitation where the ’794 specification also lacks this terminology. Moreover, GAS admits that “Hohnstein’s links are point-to-point **microwave links**” (POR, 56), which are WAN links under Dr. Chrissan’s own definition. See EX1018, 267 (microwave links provide “**broadband** bearer connectivity over a link,” where each link “can be up to 30 miles” and can even “extend over 100 miles”); EX1020, 63 (“Broadband communication is found in **wide** area networks”); EX2007, ¶35 (“large geographical areas”); EX1017, 100:3-19 (acknowledging Hohnstein’s microwave links have at least a one-mile range); EX1024, ¶¶26-28. Regardless of whether Hohnstein explicitly uses the terms

“WAN,” “WWAN,” or “wide,” given the coverage distance, a POSA would have understood Hohnstein’s link as a WAN utilizing an associated protocol, for the same reason a POSA would understand the same from the ’794 specification.

Second, GAS argues that Hohnstein’s wireless connections (between distribution point 40 and multiple access points 22) “us[e] different protocols.” POR, 51. This argument strains credulity, given that Hohnstein utilizes the same reference numeral 42 to refer to these radio links:



EX1005, Fig. 1 (annotated); EX1017, 94:3-95:3, 92:13-94:2 (Dr. Chrissan confirming that Hohnstein's Fig. 1 shows distribution point 40 has three wireless links 42).

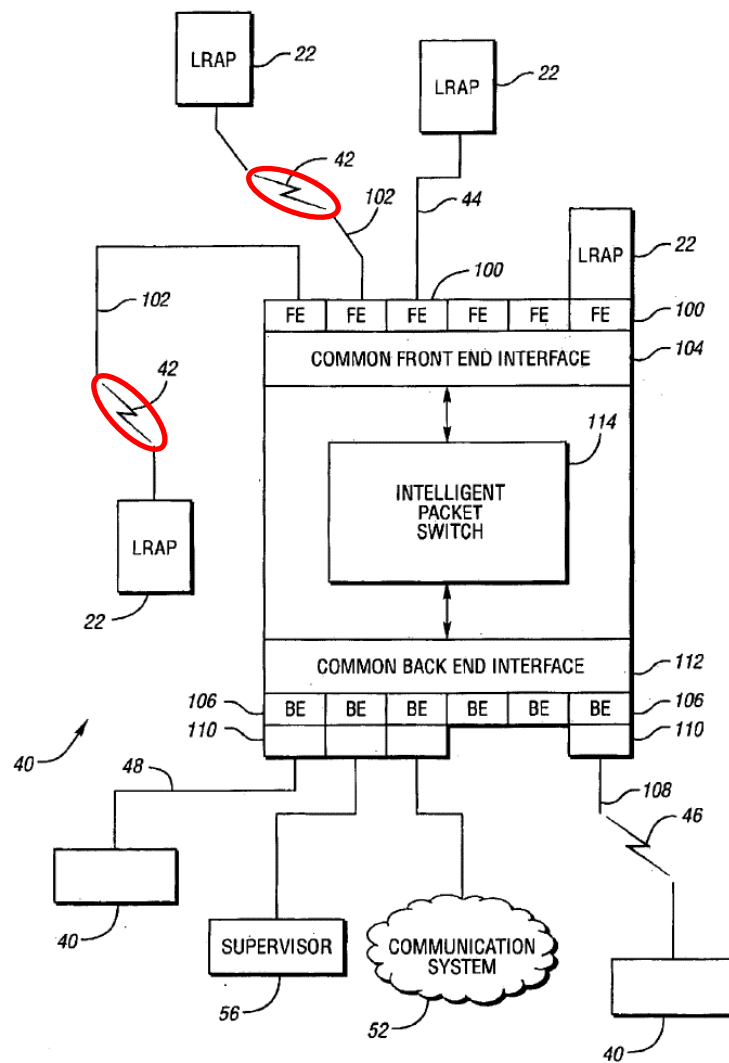


Fig. 2

EX1005, Fig. 2 (radio links 42 annotated); EX1017, 95:6-98:1 (admitting that, in Hohnstein's Fig. 2, distribution point 40 has wireless communication with access points 22); EX1024, ¶¶29-31 (explaining that a POSA would not expect different protocols absent a statement on the issue). Moreover, Hohnstein does not describe different protocols for each wireless link 42, which would be irreconcilable with

GAS's "mesh networks" argument (addressed *infra*) which GAS alleges "utilize[] a **single** wireless technology across the network." POR, 53.

Regardless, any use of different protocols for additional connections in Hohnstein does not avoid Hohnstein's wireless connections 42 still reading on the claimed wide area wireless communication protocol.

Third, GAS argues that Hohnstein's arrangement is a "mesh network" which "ha[s] a different architectural design than cellular networks utilizing base transceiver stations" (POR, 53) and therefore cannot include a WAN and associated protocol. POR, 51-55. A "mesh" network has no bearing on whether it contains both WAN and LAN links. In fact, Dr. Chrissan acknowledges that "a mesh network is **simply a topology** to be distinguished from, for example, hub and spoke. That's **independent of WAN or LAN**." EX1017, 102:19-21, 101:9-102:5.

Fourth, GAS argues that "Hohnstein utilizes a single wireless technology across the network," whereas "the '794 patent uses two different wireless technologies" including "a 'cellular backhaul' wireless signal ... transmitted ... according to a WAN protocol" and "a Wi-Fi wireless signal ... transmitted ... according to a LAN protocol." POR, 53-55. This argument fails. First, claim 1 does **not** recite "cellular backhaul" or "Wi-Fi," and Dr. Chrissan concedes that the '794 Patent does not even reference "Wi-Fi." EX1017, 50:16-51:5. Second, Hohnstein indisputably discloses different wireless technologies across the

network, including at least (i) a wireless backhaul link for communications between a distribution point 40 and access point 22 (EX1005, 16:8-26; EX1002, ¶¶117-18, 137-41) and (ii) a local wireless link for communications between access point 22 and portable subscriber units 26 (EX1005, 16:30-32; EX1002, ¶¶142-45).

Fifth, GAS argues that “[i]n the ’794 patent, each remote modem has a **single** backhaul connection to a core network, rather than all the remote modems being connected in a mesh network,” implying the claimed base station is limited to this arrangement. POR, 53 (citing EX1001, Figs. 2-3). This argument likewise fails. First, claim scope is not limited to disclosed embodiments. *See Hill-Rom*, 755 F.3d at 1371; *Arlington Indus.*, 632 F.3d at 1254. Second, although the ’794 Patent specification discloses an “exemplary implementation” along these lines, it also states that “[i]n **other implementations**, the ... base transceiver station is **configured in other manners**.” EX1001, 7:44-49. Third, GAS has provided no claim construction that even attempts to limit the claims in this manner.

Sixth, GAS argues that “Hohnstein’s invention does not encompass expanding cellular WWAN using WLAN hot spots, and therefore is distinct from the ’794 patent.” POR, 53. But the claims lack any reference to “cellular” or “hot spots.” GAS ignores the actual claim language and instead improperly focuses on technology it desires the ’794 Patent to ensnare.

Seventh, GAS incorrectly argues that Petitioner “misrepresent[s]”

Hohnstein’s references to backhaul and Internet communication. POR, 55-56.

The Petition simply explains that Hohnstein’s reference to “backhaul communication” (*e.g.*, Internet connectivity) indicates communication over a wide area network. Petition, 51-52.

Thus, Hohnstein’s wireless links between distribution point 40 and access points 22 constitute a wireless WAN utilizing a wide area wireless communication protocol. EX2007, ¶45; EX1017, 36:2-38:14.

2. **“a second wireless transceiver coupled to the first wireless transceiver...wherein the second wireless transceiver communicates with the first mobile station and the second mobile station according to a local area wireless communication protocol” (limitation [1.b])**

GAS argues that Hohnstein’s wireless links between an access point 22 and subscriber units 26 do not “communicate according to a local area wireless communication protocol” because such claim language “requires use of a single WLAN protocol” and Hohnstein discloses “a plurality.” POR, 58-59 (citing EX1005, 4:29-46).

While Hohnstein teaches that multiple forms of wireless technology may be used to implement its invention, Hohnstein does **not** disclose each access point 22 utilizing separate protocols for each connected subscriber unit 26. Such scenario would be inconsistent with Hohnstein’s teaching that each access point 22 defines

a coverage area 24, *e.g.*, using an “omnidirectional antenna.” EX1005, 4:12-28, Figs. 1-2. A POSA would have recognized that such omnidirectional antenna uses the same protocol for communicating with its connected devices. EX1024, ¶¶32-33.

3. Limitation [1.c]

GAS does not present any separate arguments for this limitation. POR, 59. The arguments are unpersuasive for the reasons as discussed *supra* in Sections III.A.1 and III.A.2.

4. “wherein the second transceiver monitors ... characteristics ..., and based on the first signal characteristics and the second characteristics, routes information ...” (limitation [1.d])

GAS argues that Hohnstein’s access point 20 does not perform the claimed monitoring or routing and that it would not have been obvious to combine Palmer. POR, 60-62. With respect to monitoring, GAS alleges that Hohnstein “teaches only that an access point transmits a signaling channel that subscriber stations monitor.” POR, 61. But the only example in the ’794 Patent specification of a transceiver performing “monitoring” is likewise where a mobile station reports measurements to the transceiver. EX1001, 8:61-9:3. Therefore, Hohnstein’s monitoring matches that of the ’794 Patent.

With respect to routing, Hohnstein teaches an access point 22 performing a handoff operation of the subscriber unit 26 to another access point. After a handoff, “[i]f original access point 22 subsequently receives any packets for subscriber unit 26, original access point **forwards** these packets back into distribution point network 41” and onward to the new access point 22. EX1005, 13:33-37. This matches the routing described in the ’794 Patent, where “when a handover is effectuated, information routed to a mobile station but not yet delivered is **rerouted** to the WLAN transceiver to which communications have been handed over.” EX1001, 9:15-19. Therefore, Hohnstein’s routing meets the claimed routing. Moreover, according to the inventor’s sworn testimony, **all** prior art WLANs performed the claimed function of routing to mobile stations based on monitoring, which is why he did not think he needed to write it down in the ’794 Patent. EX1023, 269:9-21, 188:13-189:3.

B. Claims 2-6

GAS fails to present any arguments for claims 2-6 beyond those presented for claim 1. POR, 62-63.

IV. GROUND 3 (PALMER AND MAHANY)

GAS does not dispute that Mahany discloses a device with integrated WAN and LAN transceivers, but nonetheless argues that Mahany “disparages” WAN networks and discloses the WAN transceiver as being “optional.” POR, 63-64.

Regarding incorporating Mahany's disclosed "base station" teachings with Palmer, GAS argues "there is no reason a POSITA would use Mahany to integrate Palmer's distinct remote antenna 34 and access point 40." POR, 65-68. Regarding incorporating Mahany's teaching of wide and local area wireless communication protocols, GAS does not dispute that Mahany teaches these elements but argues without any cohesive explanation that these elements are insufficient. POR, 67-68. These arguments fail.

First, Mahany does not "disparage[]" WAN networks. Mahany simply notes general limitations of using a WAN, which the '794 Patent itself acknowledges. EX1006, 3:15-18 (wireless "WANs require relatively higher transmission power" to wireless LANs); EX1001, 4:64-5:2 ("relatively low-power signals are originated at the mobile stations" for wireless LANs). Moreover, even if Mahany discloses the disclosed WAN transceiver as "optional" (it does not), an "optional" feature does not diminish obviousness. EX1017, 109:1-21 (agreeing that Mahany discloses the WAN transceiver providing the benefit of longer range); *Bayer Pharma AG v. Watson Labs., Inc.*, 874 F.3d 1316, 1327 (Fed. Cir. 2017) ("the teaching away inquiry does not focus on whether a person of ordinary skill in the art would have merely favored one disclosed option over another"); EX1024, ¶¶34-37.

Second, GAS mischaracterizes Petitioner’s basis for incorporating Mahany’s base station teachings, which does not propose a bodily incorporation of a specific base station but just concepts of base station architecture. Petition, 70-71.

Third, GAS’s argument regarding WLAN and WWAN protocols (POR, 67-68) is largely unintelligible. The Petition speaks for itself. Petition, 71-73.

V. GROUND 4 (PALMER AND AGRAWAL)

GAS incorrectly frames this ground as one of bodily incorporation of Agrawal’s components rather than drawing from Agrawal’s principles. POR, 68-70. The Petition relies on Agrawal’s teaching of a wireless transceiver performing monitoring by receiving the monitored information from the mobile unit—the same approach disclosed in the ’794 Patent. Petition, 75-78; EX1001, 8:61-9:3.

GAS’s attempt to pigeon-hole Agrawal’s teachings to a cellular system inapplicable to Palmer’s WLAN is misdirection. Palmer and Agrawal both disclose using monitored signal characteristics to determine whether a downlink connection has degraded to necessitate reducing the data rate, while Palmer additionally utilizes these monitored signal characteristics to determine whether to switch (*e.g.*, roam) a portable terminal 20 to another access point. Petition, 78-79. Any differences in the specific network infrastructure between Palmer and Agrawal are irrelevant to the combination. EX1024, ¶¶38-40.

VI. GROUND 5 (PALMER, AGRAWAL, AND MAHANY)

GAS fails to present any separate arguments for this ground, and cross-references back to its previous arguments. POR, 70-71.

VII. GROUND 6 (HOHNSTEIN AND AGRAWAL)

GAS presents the same arguments concerning Agrawal as for Ground 3, addressed above, including monitoring being applicable to a variety of network architectures. EX1024, ¶¶41-43.

VIII. CONCLUSION

For these reasons, claims 1-6 are unpatentable.

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

I hereby certify that this Reply complies with the word count limitation of 37 C.F.R. § 42.24(a)(1)(i) because the Reply contains a total of 5,574 words. This total excludes the cover page, signature block, and the parts exempted by 37 C.F.R. § 42.24(a)(1).

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The undersigned certifies that a complete copy of this Reply and all Exhibits and other documents filed together with this Reply were served on the Patent Owner at:

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