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Paper 11
Date: June 21, 2024

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS AMERICA, INC. and
SAMSUNG ELECTRONICS CO., LTD.,
Petitioner,

v.

COBBLESTONE WIRELESS, LLC,
Patent Owner.

IPR2024-00318
Patent 8,554,196 B2

Before BARBARA A. PARVIS, NATHAN A. ENGELS, and RUSSELL E. CASS, *Administrative Patent Judges.*

PARVIS, *Administrative Patent Judge*.

DECISION
Denying Institution of *Inter Partes* Review
35 U.S.C. § 314; 37 C.F.R. § 42.4

I. INTRODUCTION

Samsung Electronics America, Inc. and Samsung Electronics Co., Ltd. ("Petitioner") filed a Petition (Paper 3 ("Pet.")) requesting *inter partes* review of claims 1–5, 7, 8, 10, 12, 14, 17, 18, 20, and 21 ("challenged claims") of U.S. Patent No. 8,554,196 B2 (Ex. 1001, "the '196 patent"). Cobblestone Wireless LLC ("Patent Owner") filed a Preliminary Response (Paper 5 ("Prelim. Resp.")). Pursuant to Board authorization, Petitioner filed a Stipulation (Paper 8) and a Preliminary Reply to Patent Owner's Preliminary Response (Paper 9), and Patent Owner filed a Preliminary Sur-reply (Paper 10).

We have authority to determine whether to institute review under 35 U.S.C. § 314 and 37 C.F.R. § 42.4. We may institute an *inter partes* review if "the information presented in the petition . . . and any response . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition." 35 U.S.C. § 314(a).

Upon consideration of the contentions and the evidence of record, we conclude Petitioner does not establish a reasonable likelihood of prevailing in demonstrating the unpatentability of any of the challenged claims of the '196 patent. Accordingly, we do not institute an *inter partes* review.

II. BACKGROUND

A. Real Parties in Interest

Petitioner identifies Samsung Electronics America, Inc. and Samsung Electronics Co., Ltd. as real parties in interest. Pet. 71. Petitioner also identifies T-Mobile USA, Inc., AT&T Services Inc., AT&T Corp., AT&T Mobility LLC, and Cellco Partnership d/b/a Verizon Wireless, because

Petitioner's products "are accused of infringement in their respective patent infringement actions." *Id.* Patent Owner names itself as the real party in interest. Paper 5, 2.

B. Related Matters

Both parties identify, as matters involving or related to the '196 patent, the following district court proceedings: *Cobblestone Wireless, LLC v. T-Mobile USA, Inc.*, No. 2:22-cv-00477 (E.D. Tex.); *Cobblestone Wireless, LLC v. Cellco Partnership d/b/a Verizon Wireless*, No. 2:22-cv-00478 (E.D. Tex.); *Cobblestone Wireless, LLC v. AT&T Inc.*, No. 2:22-cv-00474 (E.D. Tex.); and *Cobblestone Wireless, LLC v. Samsung Electronics Co.*, No. 2:23-cv-00285 (E.D. Tex.). Pet. 71–72; Paper 5, 2. Related *inter partes* review proceedings are as follows: *T-Mobile USA, Inc. et al. v. Cobblestone Wireless, LLC*, IPR2024-00135 (PTAB Nov. 22, 2023); and *Samsung Electronics America, Inc. et al. v. Cobblestone Wireless, LLC*, IPR2024-00317 (PTAB Dec. 18, 2023).

C. The '196 Patent

The '196 patent is titled "Network Coverage by Cycling through Beam Shape Coverage Configurations." Ex. 1001, code (54). The '196 patent relates to wireless communication networks populated by devices that include both phone and data functionality. *Id.* at 1:11–13. The '196 patent describes providing coverage to continuous use devices that are actively involved in substantially continuous service with the network including a voice call, a download, or content streaming. *Id.* at 3:45–51. The '196 patent also describes providing coverage to interval use devices, which do not require continuous service. *Id.* at 3:51–54. Instead, service to an interval use device may be postponed and batched while the device is covered by a less

capable network and then service is performed when the device is covered by a more capable network. *Id.* at 6:44–56. Exemplary interval services include social networking applications, email, Really Simple Syndication ("RSS") feeds, map updates, game updates, and sports score updates. *Id.* at 6:59–62.

One embodiment of a method for providing network coverage for a group of devices is illustrated in Figure 2. *Id.* at 2:44–46.

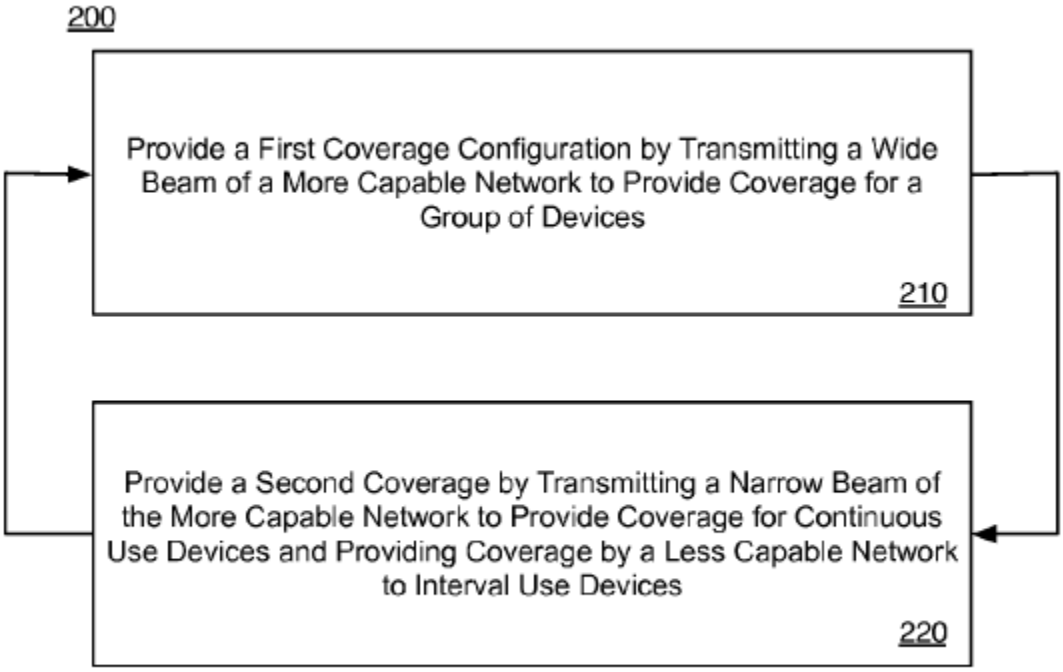


Fig. 2

Figure 2, above, illustrates method 200 for cycling over time through a coverage sequence that includes providing a first coverage configuration and a second coverage configuration. *Id.* at 8:21–24.

Method 200 begins at block 210, "Provide a First Coverage Configuration by Transmitting a Wide Beam of a More Capable Network to Provide Coverage for a Group of Devices," during which a first coverage configuration is provided. *Id.* at 8:24–28. Method 200 continues at block

220, "Provide a Second Coverage by Transmitting a Narrow Beam of the More Capable Network to Provide Coverage for Continuous Use Devices and Providing Coverage by a Less Capable Network to Interval Use Devices," during which a second coverage configuration is provided. *Id.* at 8:28–33. Method 200 continues at block 210 and may continue to cycle over time between the first and second coverage configurations. *Id.* at 8:34–36.

D. Illustrative Claim

Petitioner challenges claims 1–5, 7, 8, 10, 12, 14, 17, 18, 20, and 21 of the '196 patent. Pet. 3. Claims 1, 14, 17, and 20 are independent challenged claims. Claims 2–5, 7, 8, 10, and 12 depend directly from claim 1; claim 18 depends directly from claim 17; and claim 21 depends directly from claim 20. Independent claim 1, reproduced below, is illustrative of the claimed subject matter.

> 1. 1[pre][1] A method for providing network coverage for a group of devices in an area comprising:
>
> 1[a] cycling over time through a coverage sequence that includes providing a first coverage configuration and providing a second coverage configuration, wherein:
>
> 1[b] providing the first coverage configuration includes transmitting a first beam of a first network that is configured to provide coverage for the group of devices; and
>
> 1[c] providing the second coverage configuration includes transmitting a second beam of the first network that is narrower than the first beam and configured to provide coverage to at least one continuous use device of the group of devices, the at least one continuous use device

[1] Herein we use Petitioner's designations for the elements of claim 1. Pet. 10–20.

being actively involved in a substantially continuous service with the network,

1[d] and providing coverage by a second network to a plurality of interval use devices of the group of devices.

Ex. 1001, 19:31–48.

E. Evidence

Petitioner relies on the patent reference in the table below.

Name	Reference	Exhibit
Chitrapu	US 2005/0261028 A1, filed July 29, 2004, published Nov. 24, 2005	1005
Wong	US 8,548,525 B2, filed June 28, 2007, issued Oct. 1, 2013	1006
Dinan	US 8,285,291 B2, filed Feb. 2, 2010, issued Oct. 9, 2012	1007

Petitioner also relies on the Declaration of Dr. Kevin Almeroth (Ex. 1003) to support its contentions that the challenged claims are unpatentable.

F. Asserted Grounds

Petitioner asserts that the challenged claims of the '196 patent are unpatentable based on the ground in the table below (Pet. 3):

Claims Challenged	35 U.S.C. §[2]	Reference/Basis
1–5, 7, 10, 12, 14, 17, 18, 20, 21	103	Chitrapu
1–5, 7, 8, 10, 12, 14, 17, 18, 20, 21	103	Chitrapu, Wong

[2] The Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) ("AIA"), amended 35 U.S.C. § 103. Because the challenged claims of the '196 patent have an effective filing date before the effective date of the applicable AIA amendment, we refer to the pre-AIA version of 35 U.S.C. § 103. Ex. 1001, code (22). Our analysis would not change under the AIA version of § 103.

Claims Challenged	35 U.S.C. §[2]	Reference/Basis
1–5, 8, 10, 12, 14, 17, 20	103	Dinan, Wong

III. ANALYSIS

A. Legal Standards

A patent claim is unpatentable under 35 U.S.C. § 103(a) if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person of ordinary skill in the art to which said subject matter pertains. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) when in evidence, objective evidence of nonobviousness, i.e., secondary considerations.[3] *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

B. Level of Ordinary Skill in the Art

Petitioner asserts that a person of ordinary skill in the art

> would have had at least a bachelor's degree in electrical engineering, computer engineering, computer science, physics, or the equivalent, and at least two years of experience working in the field. Ex. 1003, ¶¶50–51. Less work experience may be compensated by a higher level of education or vice versa. *Id.* Relevant working experience would include experience with cellular telecommunications and networking, radio-access networking architectures, protocols and signal propagation in wireless networks. *Id.*

[3] Neither party presents objective evidence of nonobviousness.

Pet. 3 (citing Ex. 1003 ¶¶ 50–51).

Petitioner's proposal is undisputed. Prelim. Resp. 5. For purposes of this Decision, we adopt Petitioner's assessment of the level of skill for one of ordinary skill in the art, except we decline to adopt "at least" as that language is vague and open-ended. Otherwise, we find that Petitioner's proposed definition is consistent with the level of skill reflected in the specification of the '196 patent and the asserted prior art references.

C. Claim Construction

We interpret the challenged claims

> using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. 282(b), including construing the claim in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent.

37 C.F.R. § 42.100(b). Under this standard, the words of a claim generally are given their "ordinary and customary meaning," which is the meaning the term would have had to a person of ordinary skill at the time of the invention, in the context of the entire patent including the specification. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (en banc). "In determining the meaning of the disputed claim limitation, we look principally to the intrinsic evidence of record, examining the claim language itself, the written description, and the prosecution history, if in evidence." *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1014 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312–17).

Petitioner states that it "do[es] not believe any term needs to be expressly construed beyond its plain and ordinary meaning." Pet. 10. Patent

Owner agrees that "no explicit claim construction is necessary for the purposes of deciding institution." Prelim. Resp. 5.

For purposes of this decision, we use the plain and ordinary meaning of the terms of the claims. Based on the record before us, we need not make express determinations regarding claim construction to resolve a dispute between the parties. *See Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) ("The Board is required to construe 'only those terms . . . that are in controversy, and only to the extent necessary to resolve the controversy.'" (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

D. Overview of the Asserted Art

1. Chitrapu (Ex. 1005)

Chitrapu is titled "Smart Antenna for Generating Nested Beams." Ex. 1005, code (54). Chitrapu "is related to smart antennas for generating nested beams." *Id.* ¶ 2.

Figure 3A, reproduced below, shows a wireless communication with nested beams that are used to enhance wireless communications. *Id.* ¶ 9.

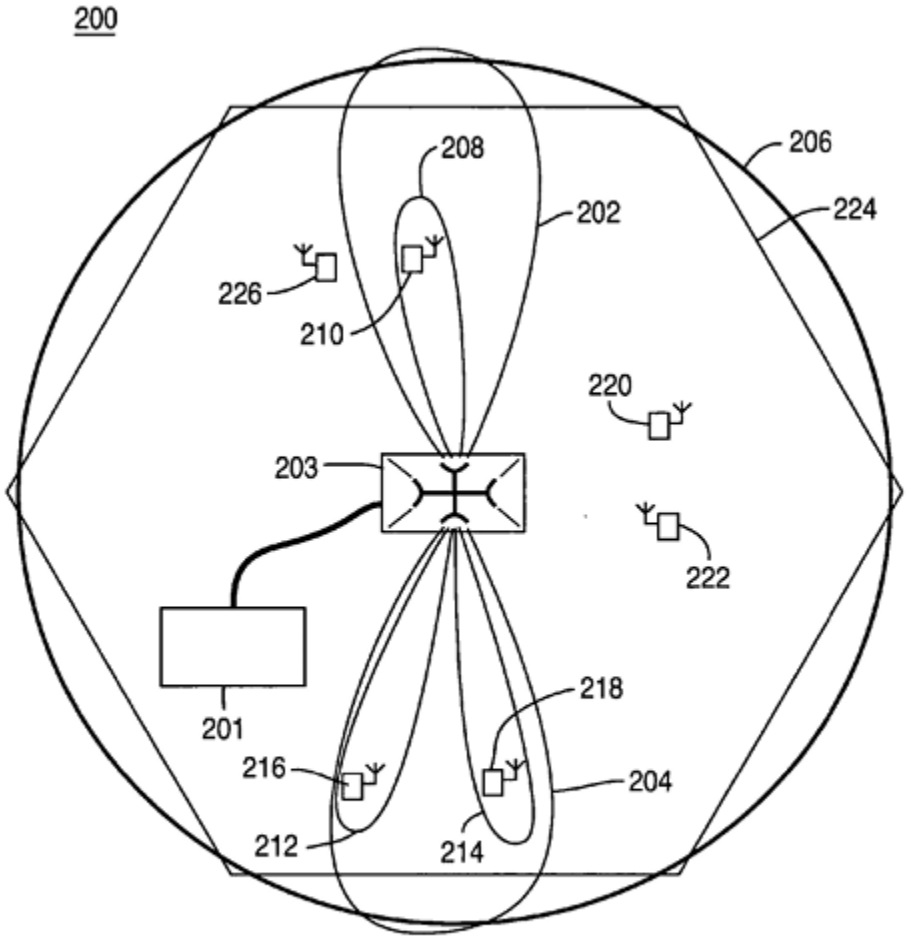


FIG. 3A

Figure 3A shows wireless communication system 200 that includes base station 203, controller 201, and wireless transmit/receive units (WTRUs) 210, 216, 218, 220, 222, 226. *Id.* ¶ 18.

As shown in Figure 3A, base station 203 emanates two cover beams 202, 204 and omni-directional beam 206. *Id.* Cover beam 202 includes one center beam 208 servicing WTRU 210 and cover beam 204 includes two center beams 212, 214 serving WTRUs 216, 218, respectively. *Id.* WTRUs 220, 222, and 226 operate outside the range of cover beams 202 and 204. *Id.* ¶ 19. Omni-directional beam 206 is preferably used for initial handshaking

procedures when WTRUs such as 220 and 222 begin operating within the coverage area 224 provided by base station 200. *Id.*

2. Wong (Ex. 1006)

Wong is titled "Systems and Methods Using Antenna Beam Scanning for Improved Communications." Ex. 1006, code (54). Wong "relates generally to wireless communications, and more particularly, to use of antenna beam scanning to facilitate desired wireless communications." *Id.* at 1:7–9.

Figure 2, reproduced below, shows a base station. *Id.* at 4:26–27.

FIG. 2

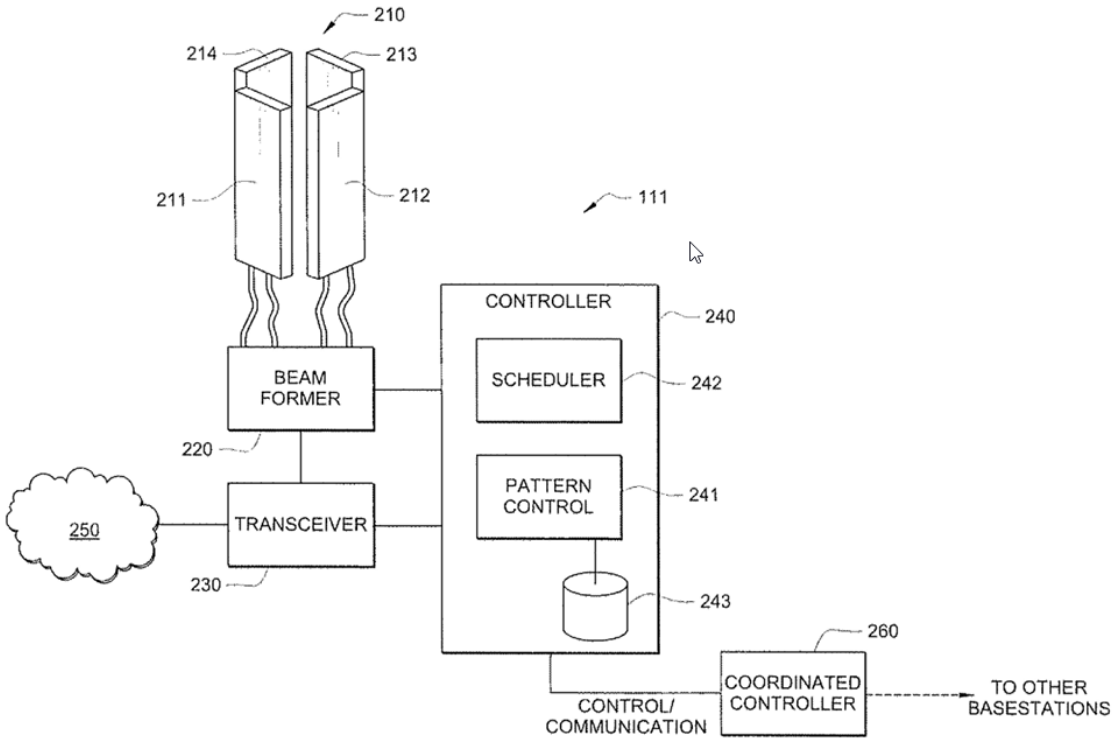


Figure 2 illustrates base station 111 having antenna array 210 coupled to transceiver 230 through beam former 220. *Id.* at 5:10–12. Base station 111 also has controller 240, which is coupled to beam former 220 and transceiver 230 to provide control. *Id.* at 6:18–20.

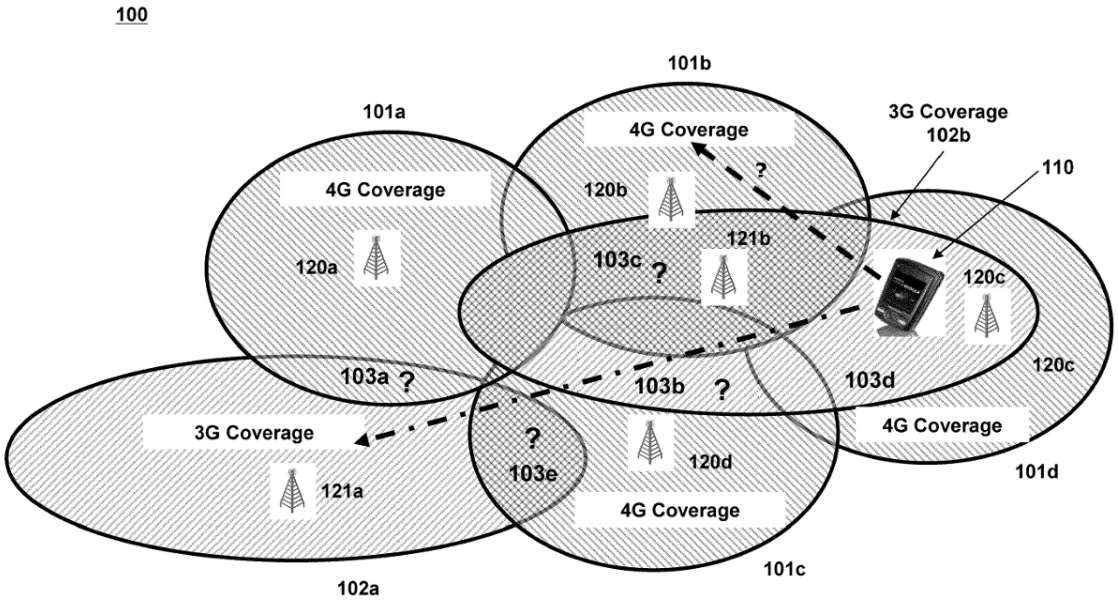
Antenna array 210 includes antenna array panels 211–214 configured for providing antenna patterns. *Id.* at 5:12–36. Beam former provides a phase shifting network for communication of a signal (e.g., data stream signal) associated with transceiver 230 within desired antenna patterns. *Id.* at 5:39–42. Transceiver 230 places subscriber stations in communication with other devices coupled to transceiver 230, such as through network 250. *Id.* at 6:28–30. Transceiver 230 provides "communications according to the IEEE . . . 802.16 (commonly referred to as WiMAX . . .) standard[]." *Id.* at 6:37–40.

Controller 240 includes scheduler 242, pattern control 241, and database 243. *Id.* at Fig. 2. Phase shift and signal weighting information for signal paths of beam former 220 suitable for forming particular antenna patterns may be obtained from database 243 by pattern control 241 for use in controlling components of beam former 220 to provide antenna patterns 411–414 (not shown in Figure 2). *Id.* at 8:61–65. Scheduler 242 implements antenna pattern scanning and traffic timing by controlling the succession, of antenna patterns, active times of antenna patterns, and periodicity or repetition of particular antenna patterns. *Id.* at 9:18–23.

3. Dinan (Ex. 1007)

Dinan is titled "System and Method for Multimode Device Handover." Ex. 1007, code (54). Dinan relates to "multimode devices capable of operating in both third and fourth generation ('3G' and '4G') wireless networks." *Id.* at 1:7–10.

Figure 1, reproduced below, depicts the architecture of communications network 100, which includes multimode 3G/4G device 110. *Id.* at 10:4–6.



Communication network 100 shown in Figure 1 includes 4G Base Stations (BSs) 120*a*–120*d* with associated 4G coverage areas 101*a*–101*d*. *Id.* at 10:16–18. As also shown in Figure 1, communication network 100 includes 3G BSs 121*a*–121*b* associated with 3G coverage areas 102*a*–102*b*. *Id.* at 10:16–21.

Dinan explains that when dual-mode device 110 is in a coverage overlap area with acceptable 3G and 4G network access, for example, one of the cross-hatched areas 103*a*–103*e* shown in Figure 1, dual-mode device 110 is configured to proceed in accordance with steps that evaluate network loading and quality of service requirements, among other things, to determine whether dual-mode device 110 stays on the 4G network or is handed-off to the 3G network. *Id.* at 12:45–49. For instance, if "4G BS 120 is 'heavily' loaded at step 422, and if step 424 determines that the application category is lower than the highest category, e.g., application categories 'C2' and 'C3,'" then depending on the Multiple-Input-Multiple-Output (MIMO) type, dual-mode device 110 may be "handed off to 3G BS

121." *Id.* at 15:28–38. Dinan describes quality of service categories as including a "highest category" of "C1" for "streaming of high definition (HD), video, video conferencing, and voice." *Id.* at 11:47–51. Dinan describes that "applications of lesser relative importance or with less stringent data latency requirements may be assigned lower QoS [quality of service] 'C2' or 'C3.'" *Id.* at 11:52–54. Exemplary application types mapped to the "C3" quality of service category include "Email, fax, ftp," and "web browsing." *Id.* at Fig. 7.

E. Asserted Obviousness over Chitrapu

Petitioner argues that claims 1–5, 7, 10, 12, 14, 17, 18, 20, and 21 are unpatentable as obvious over Chitrapu. Pet. 3. Patent Owner disputes Petitioner's arguments relating to limitations 1[c], 1[d], 14[d], 14[e], 17[c], 17[d], 20[c], and 20[d]. Prelim. Resp. 6–12.

1. Independent Claim 1

Based on the record before us, we find that the parties' dispute regarding limitation 1[d] is dispositive. Limitation 1[d] recites "providing coverage by *a second network* to a plurality of interval use devices of the group of devices" (emphasis added). Petitioner argues the "***omni-directional beam*** is on a different, ***second network*** than the cover and center beams of the first network." Pet. 20 (citing Ex. 1003 ¶ 75). Petitioner argues that the omni-directional beam is on a "second network" because (1) "it is not part of the nested beam that comprises the cover and center beams," (2) it "a[l]ways provides coverage within the coverage area 224" in contrast to cover and center beams and, therefore, "generally" constitutes "coverage of a different set of network devices than the cover and center beams," and (3) it "provides less capable coverage (*e.g.*, initial handshaking) compared to the cover and

center beams." *Id.* (citing Ex. 1003 ¶ 75; Ex. 1005 ¶ 25). As we discuss in more detail below, Petitioner's arguments are conclusory and lack explanation and evidentiary support in the record.

Because the disputed recitation is "a second network," which differs from the "first network" recited in the claim, we begin with an overview of claim 1 and Petitioner's arguments relating to both the "first network" and the "second network." Claim 1 requires "transmitting a first beam of a *first network*," "transmitting a second beam of the *first network*," and "providing coverage by a *second network* to a plurality of interval use devices." Claim 1 requires that these are provided in first and second coverage configurations, which Petitioner discusses with respect to annotated versions of Figure 3B.

Figure 3B illustrates base station 203, which emanates all beams relied on by Petitioner to teach "transmitting a first beam of a *first network*," "transmitting a second beam of the *first network*," and "providing coverage by a *second network* to a plurality of interval use devices." Ex. 1005 ¶ 18 (describing that "base station 203" emanates "two cover beams 202, 204 along with an omni-directional beam 206"), ¶ 24 (describing that "cover beam 202" may be adjusted to "deploy an additional center beam 228"). Petitioner provides two annotated versions of Figure 3B that Petitioner argues illustrate the two claimed coverage configurations. Pet. 15, 19.

Petitioner argues its first annotated version of Figure 3B shows providing "a first coverage configuration" transmitting "a first beam of a first network." Pet. 14. Petitioner's argument is that the "first beam of a first network" is taught by cover beam 202 shown in red below.

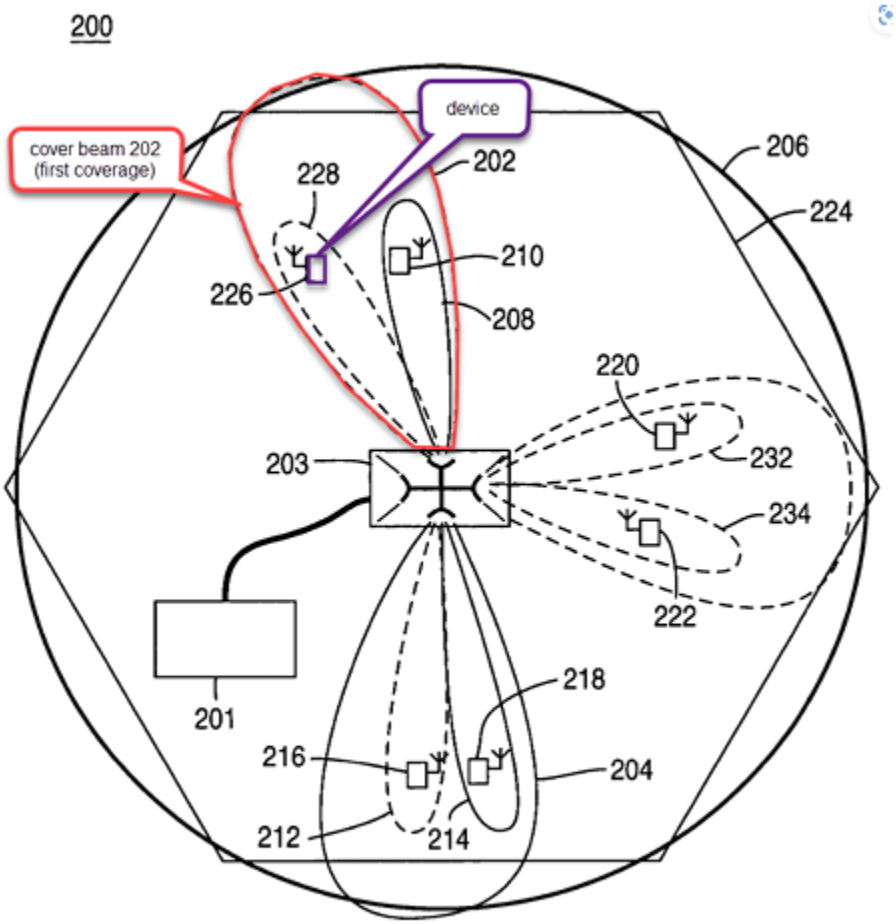


FIG. 3B

The first annotated version of Figure 3B of Chitrapu, above, shows wireless communication system 200 that includes, among other things, base station 203 (Ex. 1005 ¶ 18, Fig. 3B) and includes Petitioner's annotation of red highlighting of cover beam 202 emanating from base station 203 with the textual annotation "first coverage" and purple highlighting of device 226 with the textual limitation "device." Pet. 15.

Petitioner argues its second annotated version of Figure 3B shows providing "a second coverage configuration," which includes transmitting "a second beam of the *first network* that is narrower than the first beam" and

"providing coverage by a *second network* to a plurality of interval use devices." *See, e.g.*, Pet. 19. Petitioner's argument is that the "second beam of the *first network*" is taught by center beam 228 shown in green below and "providing coverage by a *second network*" is taught by omni-directional beam 224 also shown in green below. *Id.* at 18–19.

An initial deficiency in Petitioner's argument is that Chitrapu does not describe "omni-directional beam 224." The green highlighted "224" below corresponds to "coverage area 224." Ex. 1005 ¶ 19, 25. Chitrapu describes "omni-directional beam 206," which is shown in Figure 3B as a circle around "coverage area 224." *Id.* ¶¶ 18, 19, 24, 25. Herein, we discuss Petitioner's contentions with respect to "omni-directional beam 206" (*id.*) rather than "omni-directional beam 224" (Pet. 18–19).

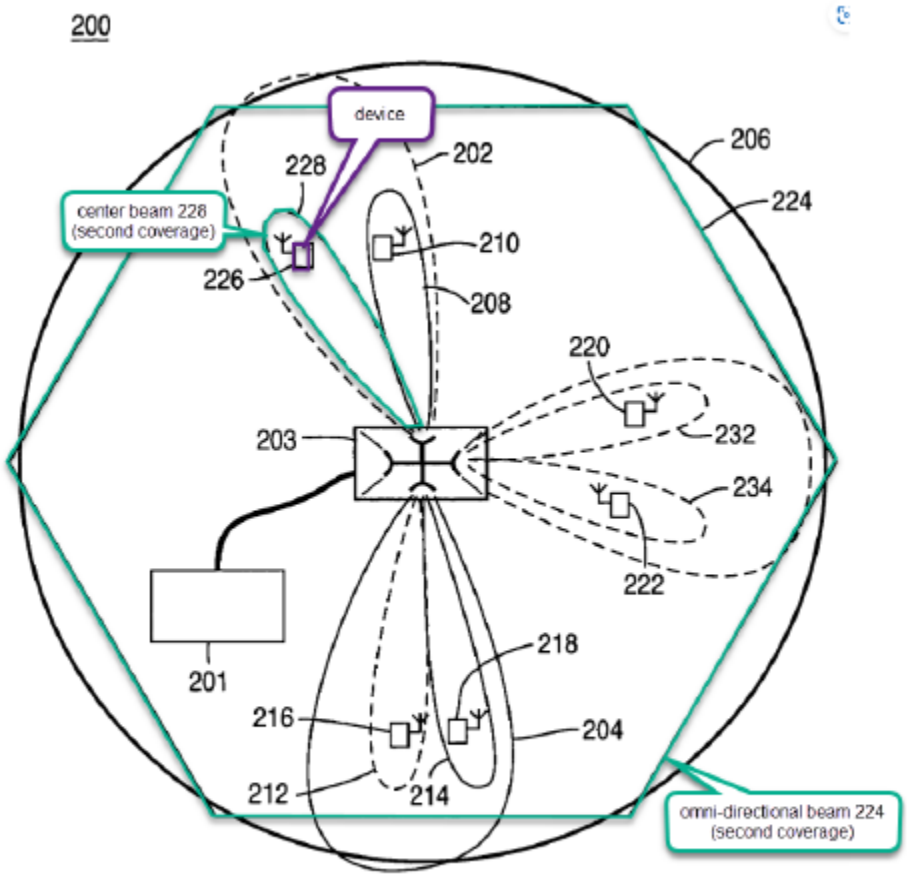


FIG. 3B

The second annotated version of Figure 3B of Chitrapu, above, shows wireless communication system 200 that includes, among other things, base station 203. Ex. 1005 ¶ 18, Fig. 3B. Petitioner's annotation includes green highlighting of center beam 228 and what Petitioner refers to as omni-directional beam 224 with textual annotations of "second coverage" next to both 228 and 224. Petitioner's annotation also includes purple highlighting of device 226 with the textual limitation "device." Pet. 19.

We now turn to the deficiencies in Petitioner's arguments that Chitrapu teaches the "first network" and the "second network" recited in claim 1. We start with Petitioner's first argument that Chitrapu's omni-directional beam is on a "second network" because "it is not part of the

nested beam that comprises the cover and center beams." Pet. 20. Petitioner's first argument is deficient because consistent with Patent Owner's argument (Prelim. Resp. 9), Petitioner has not shown that being deployed "along with a nested beam" (Ex. 1005 ¶ 18) results in omni-directional beam 206 being on a different network than the nested beam. As discussed above, Chitrapu's base station 203 emanates all beams for both the "first network" and what Petitioner points to as the "second network" that is different from the "first network." Ex. 1005 ¶¶ 18, 24, Fig. 3B. Also, Chitrapu teaches that omni-directional beam 206 may be used to obtain location information of a WTRU that is used to adjust cover beam 202. Ex. 1005 ¶ 24. In light of these teachings of Chitrapu, Petitioner does not provide sufficient argument or evidence supporting Petitioner's argument that merely not being part of the nested beam results in omni-directional beam 206 being on a different network.

We turn to Petitioner's second argument that Chitrapu's omni-directional beam is on a "second network" because it "a[l]ways provides coverage within the coverage area 224" in contrast to cover and center beams and therefore "generally" constitutes "coverage of a different set of network devices than the cover and center beams." Pet. 20. Petitioner's second argument is deficient because, as Patent Owner points out (Prelim. Resp. 10), Petitioner contradicts its argument that cover beam 202 and center beam 228 are on the first network (Pet. 15, 19) by arguing that Chitrapu's center and cover beams provide coverage to different sets of network devices. Ex. 1005, Fig. 3B. If covering a different group of devices meant that a beam was, by definition, on a different network, the center beam could not part of the same "first network" as the cover beam. Furthermore,

Petitioner's second argument (Pet. 20) is deficient because it contradicts Chitrapu's teaching that in an embodiment in which "no omni-directional beam 206 is provided," cover beams "may be swept through coverage area 224 to pick up new users." *Id.* ¶ 25.

Finally, we turn to Petitioner's third argument that Chitrapu's omni-directional beam is on a "second network" because it "provides less capable coverage (*e.g.*, initial handshaking) compared to the cover and center beams." Pet. 20. Petitioner's third argument is deficient because, as argued by Patent Owner (Prelim. Resp. 11–12), it is not consistent with Chitrapu's teaching that that the cover beam also performs handshaking. Ex. 1005 ¶ 25 ("[I]f no omni-directional beam 206 is provided, the cover beams 202, 204 may be swept through the coverage area 224 to pick up new users so that existing cover beams may be adjusted or additional cover beams may be deployed, where necessary. . . . [W]here an omni-directional beam is not provided, the initial ***handshaking functions*** will need to be performed ***at the cover beams***."). Also, consistent with Patent Owner's argument (Prelim. Resp. 9), Petitioner's third argument is not consistent with Chitrapu's teaching that omni-directional beam 206 provides other functions, such as paging and location functions, that overlap with the functions provided by the cover beam. Ex. 1005 ¶ 16 (describing a cover beam that "may be used for paging purposes"), ¶ 19 (describing that omni-directional beam 206 may be used for "paging, broadcasting, or multicasting purposes"), ¶ 24 (describing omni-directional beam 206 as obtaining location information for WTRU 226 outside of cover beam 202) ¶ 25 (describing cover beams as locating new users).

Dr. Almeroth's testimony is substantially the same as the contentions in the Petition. Ex. 1003 ¶¶ 64–75. We find that Dr. Almeroth's testimony does not remedy the deficiencies discussed above with respect to the Petition.

For the foregoing reasons, we determine that Petitioner has not shown that Chitrapu teaches limitation 1[d]. Accordingly, we determine that Petitioner has not demonstrated a reasonable likelihood that it would prevail in showing that claim 1 is unpatentable under 35 U.S.C. § 103 as obvious over Chitrapu.

2. Independent Claims 14, 17, and 20

Each of claims 14, 17, and 20 recite a limitation similar to limitation 1[d]. Specifically, claim limitation 14[e] recites "providing coverage by the second network to at least a plurality of interval use devices of the group." Limitations 17[d] and 20[d] are the same as limitation 1[d]. Pet. vi, ix, x. Petitioner's arguments and evidence for claims 14, 17, and 20 do not remedy the deficiency discussed with respect to claim 1. Pet. 27–33, 34–35.

For the foregoing reasons, we determine that Petitioner has not shown that Chitrapu teaches all limitations recited in claims 14, 17, and 20. Accordingly, we determine that Petitioner has not demonstrated a reasonable likelihood that it would prevail in showing that any of claims 14, 17, or 20 is unpatentable under 35 U.S.C. § 103 as obvious over Chitrapu.

3. Dependent Claims 2–5, 7, 10, 12, 18, and 21

Claims 2–5, 7, 10, and 12 depend directly from claim 1; claim 18 depends directly from claim 17; and claim 21 depends directly from claim 20. Petitioner's arguments and evidence for dependent claims 2–5, 7, 10, 12,

18, and 21 do not remedy the deficiencies discussed with respect to claims 1, 17, and 20. Pet. 20–26, 34, 35.

Accordingly, we conclude that Petitioner has not demonstrated a reasonable likelihood that it would prevail in showing that claims 2–5, 7, 10, 12, 18, and 21 are unpatentable under 35 U.S.C. § 103 as obvious over Chitrapu.

F. Asserted Obviousness over Chitrapu and Wong

Petitioner argues that claims 1–5, 7, 8, 10, 12, 14, 17, 18, 20, and 21 are unpatentable as obvious over Chitrapu and Wong. Pet. 3. Patent Owner disputes Petitioner's arguments on the same bases as claim 1. Prelim. Resp. 12.

In its arguments and evidence presented for obviousness of independent claims 1, 14, 17, and 20 over Chitrapu and Wong, Petitioner does not rely on Wong for limitation 1[d], 14[e], 17[d], or 20[d] and does not remedy the aforementioned deficiency discussed with respect to obviousness over Chitrapu. Pet. 40. Petitioner also does not provide arguments or evidence for dependent claims 2–5, 7, 8, 10, 12, 18, and 21 that remedy the deficiencies discussed with respect to obviousness over Chitrapu. Pet. 40–42. Accordingly, we determine that Petitioner has not demonstrated a reasonable likelihood that it would prevail in showing that claims 1–5, 7, 8, 10, 12, 14, 17, 18, 20, and 21 are unpatentable under 35 U.S.C. § 103 as obvious over the combination of Chitrapu and Wong.

G. Asserted Obviousness over Dinan and Wong

Petitioner argues that claims 1–5, 8, 10, 12, 14, 17, and 20 are unpatentable as obvious over Dinan and Wong. Pet. 3, 42–66. Patent Owner disputes Petitioner's arguments. Prelim. Resp. 12–29.

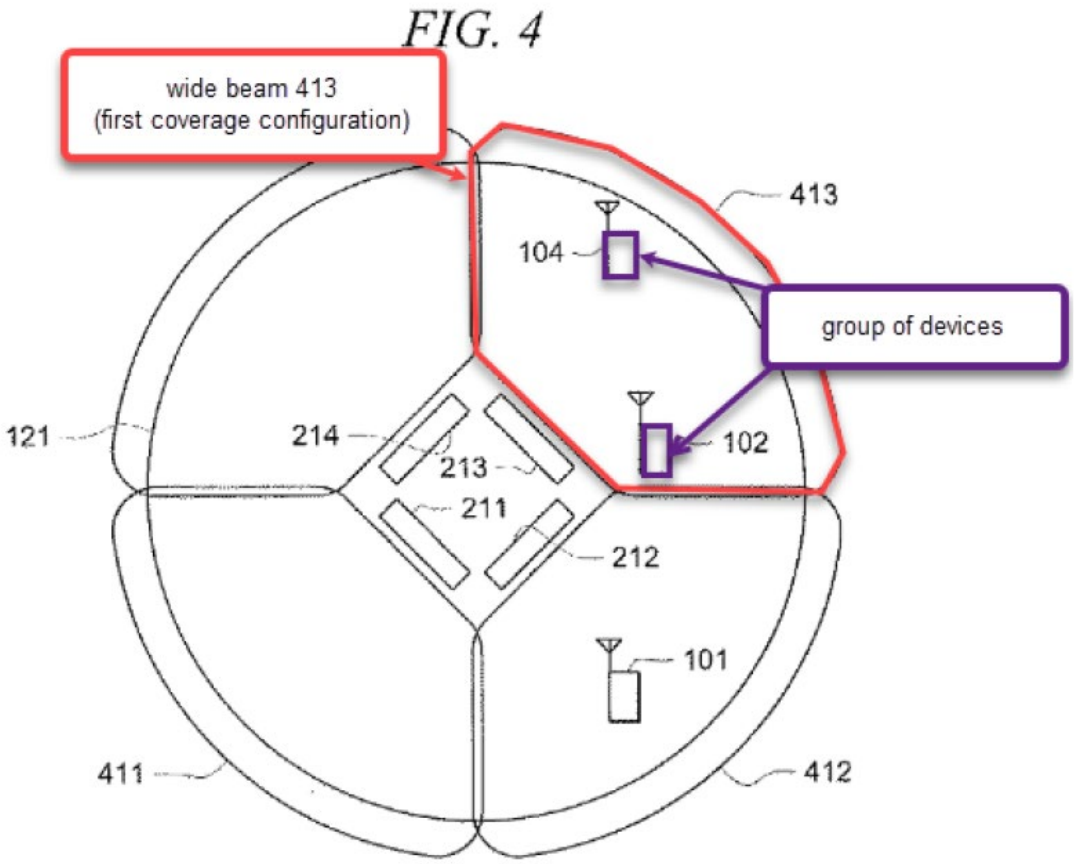
1. Independent Claim 1

Based on the record before us, we find that the parties' dispute regarding limitations 1[a] and 1[d] is dispositive. Limitation 1[a] recites "cycling over time through a coverage sequence that includes providing a first coverage configuration and providing a second coverage configuration." Limitation 1[d] recites "providing coverage by a second network to a plurality of interval use devices of the group of devices." Petitioner relies on Wong's scheduler for teaching "cycling over time" recited in limitation 1[a]. Pet. 46–49 (citing, e.g., Ex. 1006, 9:18–22). Petitioner does not provide sufficient argument or evidence supporting that Wong's scheduler for invoking schedule plans for antenna patterns in a 4G network would have been used to cycle over time in a sequence that includes providing a second coverage configuration that provides coverage by Dinan's 3G network, which Petitioner relies on for teaching limitation 1[d].

We start by providing an overview of Wong and its scheduler for invoking schedule plans. As discussed with respect to Figure 2 of Wong provided in the summary of Wong above (*see* § III.D.2), base station 111 has antenna array 210 coupled to transceiver 230 through beam former 220 (Ex. 1006, 5:10–12) and controller 240, which is coupled to beam former 220 and transceiver 230 to provide control. *Id.* at 6:18–20. Scheduler 242 is within controller 240. *Id.* at Fig. 2. Wong describes providing service to devices in a single network, for example, by explaining that "transceiver 230 may be utilized to place subscriber stations in communication with other devices coupled to transceiver 230, such as *through network 250*." *Id.* at 6:28–30. Petitioner argues that "Wong's teachings are fully applicable and compatible with the *4G provision* in Dinan's system." Pet. 44 (emphasis added). Petitioner's arguments are supported by Dinan's and Wong's

teachings of the provision of 4G services. *See* Ex. 1007, 10:16–19 (describing using "4G BaseTransceiver Stations or Base Stations ('BS') (e.g., 4G BS 120*a*–120*d*, or 120), with associated 4G coverage areas 101*a*–101*d*, e.g., WiMAX or LTE coverage areas"); Ex. 1006, 6:36–40 (describing transceiver 230 providing "communications according to . . . 802.16 (commonly referred to as WiMAX and WiBro)").

Petitioner provides an annotated version of Figure 4 of Wong in support of its argument that Wong's wide beam 413 teaches the first coverage configuration recited in claim 1.



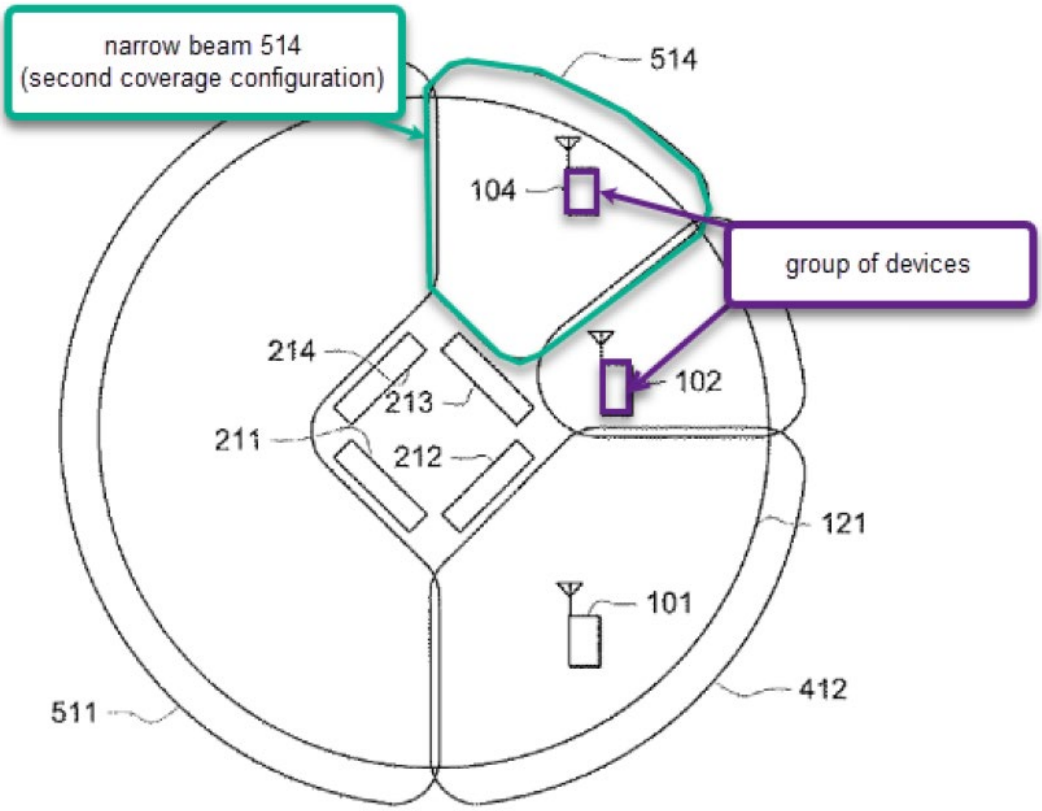
Petitioner's annotated version of Figure 4 of Wong (Pet. 48), above, illustrates an exemplary set of antenna patterns 411–414 that are successively formed by base station 111. Ex. 1006, 4:32–34, 10:5–6.

Petitioner's annotations include red highlighting of wide beam 413 with the textual annotation "first coverage configuration" and purple highlighting to devices 102 and 104 with the textual annotation "group of devices." Pet. 48.

As can be seen in Petitioner's annotated version of Figure 4 above, as well as Wong's Figure 2, wide beam 413 emanates from antenna array panels 211–214 that make up antenna array 210 in base station 111. Pet. 48; Ex. 1006, Figs. 2, 4. As discussed above, Petitioner relies on (*see, e.g.*, Pet. 46–49), Wong's teachings of the provision of 4G services by base station 111. *See* Ex. 1006, 6:36–40 (describing transceiver 230 providing "communications according to . . . 802.16 (commonly referred to as WiMAX and WiBro)").

Petitioner provides an annotated version of Figure 5 of Wong in support of its argument that Wong's narrow beam 514 teaches the second coverage configuration recited in claim 1.

FIG. 5



Petitioner's annotated version of Figure 5 of Wong (Pet. 49), above, illustrates another exemplary set of antenna patterns 412, 511, 513, and 514 that are successively formed by base station 111. Ex. 1006, 4:35–37, 12:54–59. Petitioner's annotations include green highlighting of narrow beam 514 with the textual annotation "second coverage configuration" and purple highlighting to devices 102 and 104 with the textual annotation "group of devices." Pet. 49.

As can be seen in Petitioner's annotated version of Figure 5 above, as well as Wong's Figure 2, narrow beam 514 also emanates from antenna array panels 211–214 that make up antenna array 210 in base station 111. Pet. 49; Ex. 1006, Figs. 2, 5. Again, Petitioner relies on (*see, e.g.*, Pet. 46–49), Wong's teachings of the provision of 4G services by base station 111.

See Ex. 1006, 6:36–40 (describing transceiver 230 providing "communications according to . . . 802.16 (commonly referred to as WiMAX and WiBro)").

With respect to "cycling over time" through a sequence that includes "providing a *second* coverage configuration" (emphasis added) recited in limitation 1[a], Petitioner argues the following:

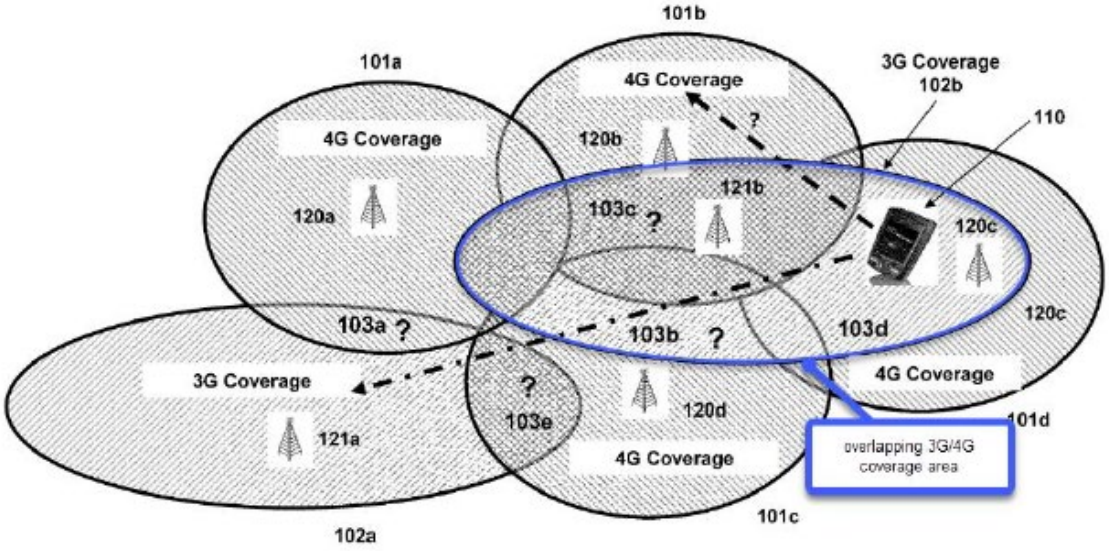
> Wong teaches that the scheduler could cycle to another coverage configuration which uses narrow beams by selecting antenna patterns depicted in Figure 5 (annotated below), where "antenna pattern 413 has been ***replaced with*** antenna patterns 513 and 514," both of which are narrower than the beam in antenna pattern 413. Ex. 1006, 12:58-59; Ex. 1003, ¶166. In particular, "[a]ntenna pattern 514 provides a more ***narrow beam*** antenna pattern consistent with the higher utilization of the corresponding portion of service area 121." *Id.*, 12:64-67. Antenna pattern 514, along with 3G coverage described in Dinan, constitutes the ***second coverage configuration***. Ex. 1003, ¶166.

Pet. 48.

Claim 1, however, requires that the second coverage configuration includes "transmitting a second beam of the *first network*" and "providing coverage by a *second network* to a plurality of interval use devices." Petitioner's reliance on Wong's scheduler 242 for scheduling antenna patterns in base station 111 that provides 4G communications is deficient in that the "cycling over time" is between coverage configurations for 4G communications. Petitioner's argument relying on "[a]ntenna pattern 514, *along with* 3G coverage described in Dinan" (Pet. 48 (emphasis added)) does not show sufficiently that its proposed combination would perform "cycling over time" to a "second coverage configuration" that provides

coverage by Dinan's 3G network, which Petitioner relies on for the "second network" recited in claim 1.

Petitioner's arguments for limitation 1[d], which recites "providing coverage by a second network to a plurality of interval use devices of the group of devices," do not remedy the aforementioned deficiency. Petitioner relies on Dinan's teaching of areas "with ***overlapping 3G and 4G coverage***," as shown in an annotated version of Figure 1 of Dinan. Pet. 53 (citing Ex. 1007, 7:19–22).



Petitioner's annotated version of Figure 1 of Dinan, above, shows communication network 100 including 4G BSs 120*a*–120*d* with associated 4G coverage areas 101*a*–101*d*, 3G BSs 121*a*–121*b* associated with 3G coverage areas 102*a*–102*b*, and coverage overlap areas 103*a*–103*e* with 3G and 4G network access. Ex. 1007, 10:16–21, 12:45–46. Petitioner's annotation includes blue highlighting on 3G coverage area 102*b* and a textual annotation of "***overlapping 3G and 4G coverage area***." Pet. 53.

Figure 1 illustrates that 4G coverage is provided by base stations operating in accordance with only 4G, specifically "4G BS 120*a*–120*d*" and

3G coverage being provided by different base stations, specifically "3G BS 121*a*–121*b*." Ex. 1007, 10:16–21, Fig. 1. Wong's schedule 242 relied on by Petitioner for "cycling over time" (Pet. 46–48) is within base station 111, which provides 4G communications. Ex. 1006, 6:36–40, Fig. 2. The Petition is deficient in that it does not show that Wong's scheduler 242 would have been used to invoke schedule plans for antenna patterns emanated by base stations in Dinan's 3G network.

With respect to limitation 1[d], Petitioner also relies on Dinan's teaching that "'applications of lesser relative importance or with less stringent data latency requirements may be assigned lower QoS categories "C2" or "C3",' with devices using application category C3 being assigned 3G service if 4G service is loaded." Pet. 54 (citing Ex. 1007, 11:49–54; 15:28–38). Assigning 3G service based on QoS categories does not teach "cycling over time" to a second coverage configuration that provides coverage by a second network, which is Dinan's 3G network, based on Petitioner's contentions. Pet. 53–54. Petitioner does not provide further argument or evidence regarding limitations 1[a] and 1[d] to remedy the aforementioned deficiency.

Dr. Almeroth's testimony is substantially the same as the contentions in the Petition. Ex. 1003 ¶¶ 151–177. We find that Dr. Almeroth's testimony does not remedy the deficiencies discussed with respect to the Petition.

For the foregoing reasons, we determine that Petitioner has not shown that its proposed combination of Dinan and Wong teaches limitation 1[d]. Accordingly, we determine that Petitioner has not demonstrated a reasonable likelihood that it would prevail in showing that claim 1 is unpatentable under 35 U.S.C. § 103 as obvious over the combination of Dinan and Wong.

2. Independent Claims 14, 17, and 20

Each of claims 14, 17, and 20 recite limitations similar to limitations 1[a], 1[c], and 1[d]. Specifically, claim 14 includes limitations 14[a], 14[d], and 14[e]; claim 17 includes limitations 17[a], 17[c], and 17[d]; and claim 20 includes limitations 20[a], 20[c], and 20[d]. Pet. vii–x. Petitioner's arguments for claims 14, 17, and 20 do not remedy the deficiency discussed with respect to claim 1. Pet. 58–66.

For the foregoing reasons, we determine that Petitioner has not shown that the combination of Dinan and Wong teaches all limitations recited in claims 14, 17, and 20. Accordingly, we determine that Petitioner has not demonstrated a reasonable likelihood that it would prevail in showing that any of claims 14, 17, or 20 is unpatentable under 35 U.S.C. § 103 as obvious over the combination of Dinan and Wong.

3. Dependent Claims 2–5, 8, 10, and 12

Claims 2–5, 8, 10, and 12 depend directly from claim 1. Petitioner's arguments and evidence for dependent claims 2–5, 8, 10, and 12 do not remedy the deficiencies discussed with respect to claim 1. Pet. 55–58.

Accordingly, we conclude that Petitioner has not demonstrated a reasonable likelihood that it would prevail in showing that claims 2–5, 8, 10, and 12 are unpatentable under 35 U.S.C. § 103 as obvious over the combination of Dinan and Wong.

IV. CONCLUSION

We have reviewed the parties' arguments and have considered all of the evidence presented by Petitioner and Patent Owner. For the foregoing reasons, we conclude that the information presented in the Petition does not establish a reasonable likelihood that Petitioner would prevail in showing

that any of the challenged claims of the '196 patent is unpatentable on the grounds asserted in the Petition.[4]

V. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that the Petition is *denied*, and no trial is instituted.

[4] Because we deny the Petition on the merits, we do not reach Patent Owner's request that we exercise our discretion to deny the Petition based on the either state of the related litigation or the filing of multiple petitions challenging the '196 patent.

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