

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CORNING OPTICAL COMMUNICATIONS LLC,
Petitioner,

v.

DALI WIRELESS, INC.,
Patent Owner.

IPR2021-00408
Patent 10,506,454 B2

Before MELISSA A. HAAPALA, *Senior Lead Administrative Patent Judge*,
and KARL D. EASTHOM and SHARON FENICK, *Administrative Patent Judges*.

FENICK, *Administrative Patent Judge*.

DECISION
Granting Institution of *Inter Partes* Review
35 U.S.C. § 314

I. INTRODUCTION

A. *Background and Summary*

Corning Optical Communications LLC (“Petitioner”) filed a Petition requesting *inter partes* review of claims 1–19 (the “challenged claims”) of U.S. Patent No. 10,506,454 B2 (Ex. 1001, “the ’454 patent”). Paper 2

(“Pet.”), 1. Dali Wireless, Inc. (“Patent Owner”), filed a Preliminary Response. Paper 6 (“Prelim. Resp.”).

The Board has authority to determine whether to institute an *inter partes* review. See 35 U.S.C. § 314(b); 37 C.F.R. § 42.4(a). Under 35 U.S.C. § 314(a), we may not authorize an *inter partes* review unless the information in the Petition and the Preliminary 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.” For the reasons that follow, we institute an *inter partes* review as to the challenged claims of the ’454 patent on all grounds of unpatentability presented.

B. Real Parties in Interest

Petitioner identifies Corning, Inc., and Corning Research and Development Corp. as additional real parties in interest. Pet. 1. Patent Owner identifies no additional real parties in interest. Paper 4, 1.

C. Related Matters

Petitioner and Patent Owner each identify *Dali Wireless Inc. v. Corning Optical Communications LLC*, Case No. 3:20-cv-06469-EMC (N.D. Cal.) (“the related district court action”) as a related action involving the ’454 patent.¹ Pet. 1; Paper 4, 1.

D. The ’454 Patent

The ’454 patent, titled “Optimization of Traffic Load in a Distributed Antenna System,” describes dynamically routing signals in a Distributed

¹ According to Petitioner, the case is in the early stages, a stay is likely, and no trial date has yet been set. See Pet. 81–83. Patent Owner did not present arguments towards exercising discretion to deny institution under 35 U.S.C. § 314(a). See *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 (PTAB Mar. 20, 2020) (precedential). We do not consider this issue further.

Antenna System (DAS) as part of a distributed wireless network. Ex. 1001, codes (54), (57), 1:15–17. The patent describes traffic monitoring and optimization to provide flexibility to manage, control, enhance, and facilitate radio resource efficiency and usage, and the overall performance of the distributed wireless network. *Id.* at 1:17–19, 4:13–17. One example of a DAS is provided in Figure 1, reproduced below.

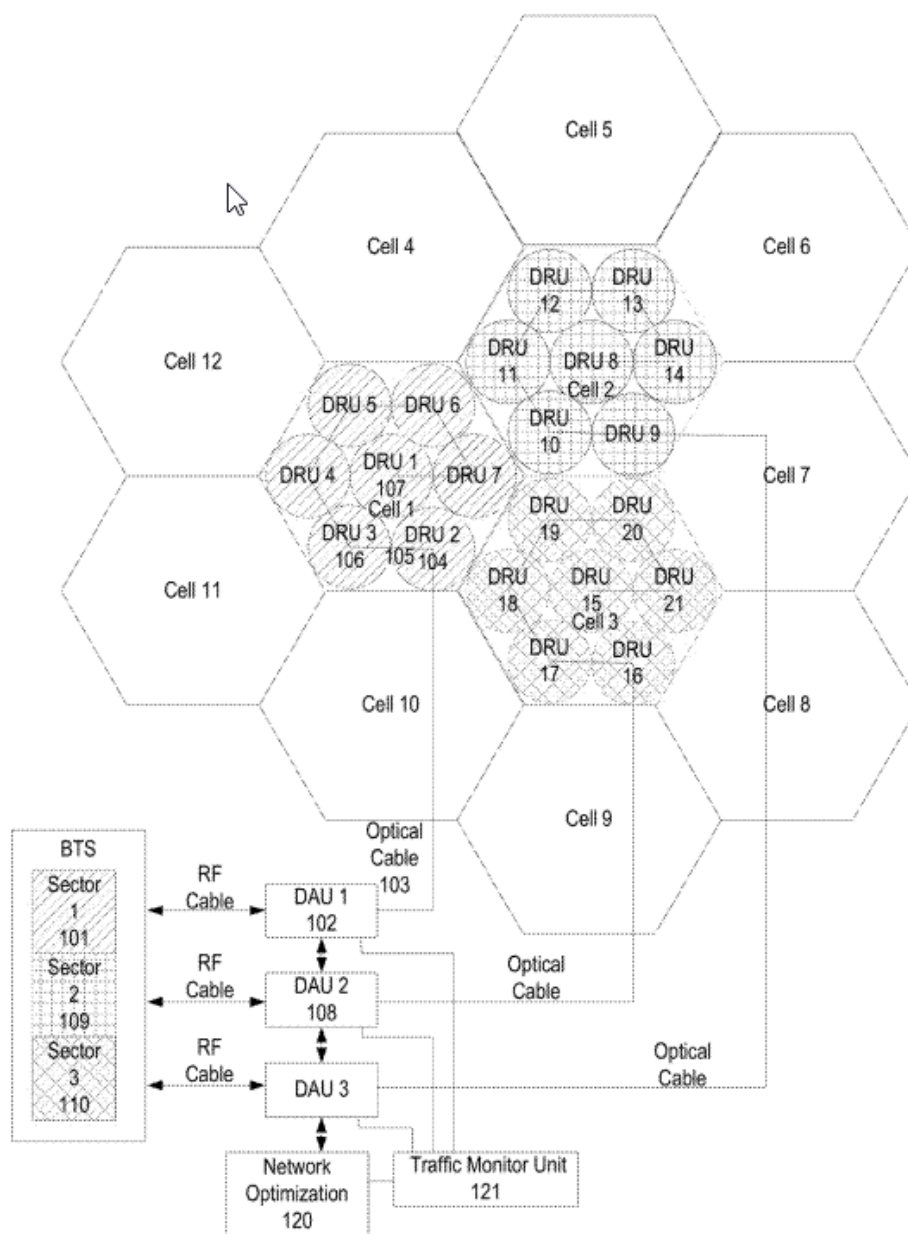


FIG. 1

Figure 1 is a block diagram showing a DAS system employing multiple Digital Access Units (DAUs) and Digital Remote Units (DRUs).

In the example according to one embodiment of the invention, as shown in Figure 1, a three-sector base station (BTS) includes sectors 101, 109, and 110, which provide downlink signals to DAU 1 102, DAU 2 108 and DAU 3, respectively. *Id.* at 2:20–24, 5:2–4 (“A typical base station comprises 3 independent radio resources, commonly known as sectors.”), 5:60–65, 6:62–63, 7:2–4. The DAUs “function as the interface between the base stations and digital remote units (DRUs).” *Id.* at 4:60–63. DAU 1 102 is connected to and transports signals to DAU 2 108, and DAU 2 108 is connected to DAU 3. *Id.* at 6:23–24, 7:2–4. The inter-networking of the DAUs facilitates the routing of DRU signals among the multiple DAUs and supports transport of radio frequency (RF) downlink and uplink signals between the base station (BTS) and the DRUs. *Id.* at 6:23–29, 7:4–7, 17:41.

Groups of DRUs, such as DRU 1 107, DRU 2 104, DRU 3 106, and DRU 4 through DRU 7 in Figure 1 are daisy chained together to achieve network coverage for a specific geographical area, which is identified as a cell (e.g. Cell 1). *Id.* at 5:65–6:1, 6:48–60. In this way each individual base station sector’s radio resources are transported to a given geographical area through the daisy-chained DRUs in that area. *Id.* at 6:54–60. Thus, for example, downlink RF signals from BTS Sector 1 101 are received by DAU 1 102. *Id.* at 6:62–63. DAU 1 102 translates these signals to optical signals that are transported via optical cable 103 to DRU 2 104. *Id.* at 6:63–66. Optical cable 105 transports the optical signals to DRU 3 106, from where they are passed to each DRU in the daisy chain of Cell 1, ending at DRU 1 107. *Id.* at 6:66–7:4.

Additionally, traffic monitoring unit 121 tracks and collects traffic load at each DAU in the network, and stores this information in the network optimization unit 120. *Id.* at 7:8–12, 10:31–38, Fig. 9 (element 910).

Network performance may be expressed by key performance indicators (KPIs) collected from different parts of the network. *Id.* at 5:52–54, 10:31–38, 11:48–50. Quality of service (QoS) metrics are determined by KPIs. *Id.* at 5:52–59, 11:25–31, 11:48–50, 11:54–55, 14:41–42, 14:50–51, Fig. 10.

Optimization of the network is performed in one embodiment as per a method illustrated in Figure 9, reproduced below.

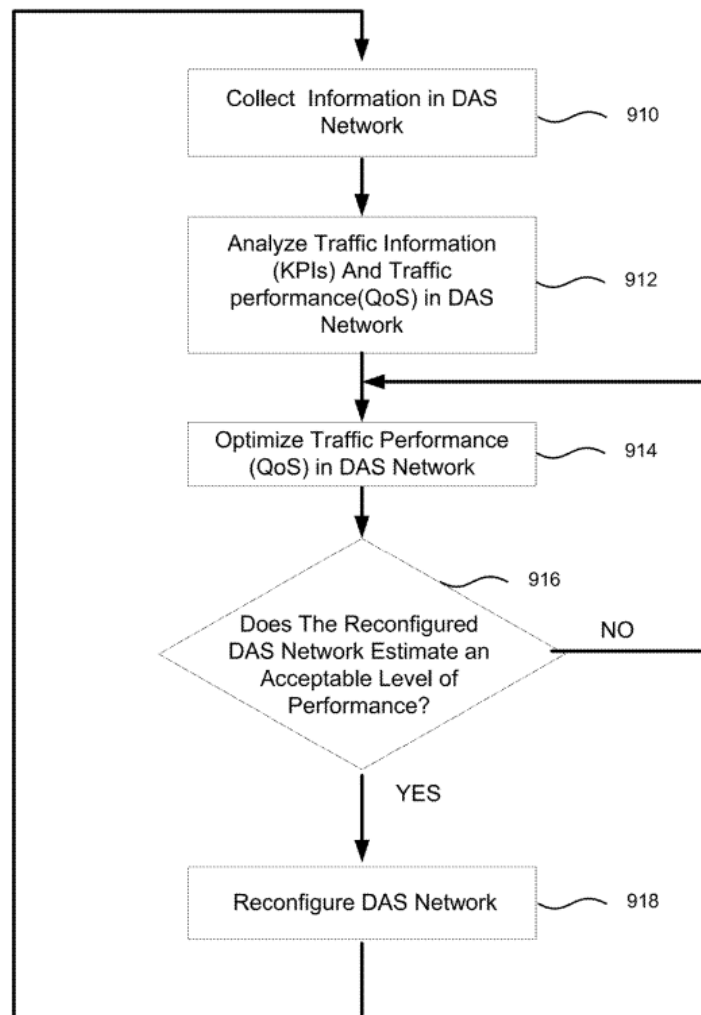


FIG. 9

Figure 9 is a flowchart illustrating a method of optimizing the DAS network. *Id.* at 2:63–64.

As shown in Figure 9, KPIs of the network traffic are collected in the DAS network. *Id.* at 10:30–38. Network optimization unit 120 “calculates the overall DAS network performance and determines the optimum reconfigured network to improve or maximize performance.” *Id.* at 7:12–14, 10:39–47, Fig. 9 (elements 912, 914, 916). Network optimization unit 120 can “implement[] load rebalancing by communicating with the DAUs and shifting traffic between sectors.” *Id.* at 7:27–32, 10:47–54, Fig. 9 (element 918).

In other embodiments, multiple cells share the radio resources of one sector of the base station. *Id.* at 7:55–60, Fig. 2. Still other embodiments include a base station hotel with multiple BTSs or a base station hotel comprised of multiple Picocells. *Id.* at 8:23–47, 9:58–60, 10:5–6, 10:27–29, Fig. 3, Figs. 6–8.

E. Illustrative Claims

The Petition challenges independent claims 1 and 10 and dependent claims 2–9 and 11–19. Claim 1 illustrates the challenged claims at issue:

1. A system for dynamically routing signals in a Distributed Antenna System (DAS) operable to communicate with a plurality of signal sources, the system comprising:

one or more Digital Access Units (DAUs) operable to receive at least one signal from at least one of a first signal source and a second signal source from the plurality of signal sources, each DAU of the one or more DAUs including an input port configured as an uplink/downlink port and an output port configured as an uplink/downlink port;

a plurality of Digital Remote Units (DRUs) coupled to the one or more DAUs and operable to transport signals

between the plurality of DRUs and the one or more DAUs;

a plurality of sectors formed from the plurality of DRUs comprising a first sector and a second sector different from the first sector, each sector comprising a subset of the plurality of DRUs; and

a traffic monitoring unit coupled to at least one of the DAUs comprising the input port and output port each configured as an uplink/downlink port, wherein the traffic monitoring unit is configured to:

determine one or more key performance indicators (KPIs) and a quality of service (QoS) of a network traffic for the one or more DAUs, wherein the QoS is a function of the one or more KPIs; and

reconfigure the plurality of sectors based on the one or more KPIs and QoS by allocating at least one DRU from the first sector to the second sector.

Ex. 1001, 17:50–18:11.

F. Asserted Grounds

Petitioner asserts that claims 1–19 would have been unpatentable on the following grounds:

Claim(s) Challenged	35 U.S.C. §²	Reference(s)/Basis
1–17, 19	102	Kummetz-464 ³
7	103	Kummetz-464

² The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284, 287–88 (2011), amended 35 U.S.C. §§ 102, 103. Because the effective filing date for the claims of the ’454 patent appears to be before the effective date of the applicable AIA amendment, we refer to the pre-AIA version of 35 U.S.C. § 102 and § 103. *See* Ex. 1001, code (60) (provisional application filing date of July 31, 2012). Our institution determination would not change under the post-AIA version of these statutes.

³ Kummetz et al., US 9,398,464 B2, iss. July 19, 2016 (Ex. 1005).

Claim(s) Challenged	35 U.S.C. § ²	Reference(s)/Basis
7	103	Kummetz-464, Kummetz-579 ⁴
17	103	Kummetz-464
17	103	Kummetz-464, Kummetz-999 ⁵
15, 16, 18	103	Kummetz-464
15, 16, 18	103	Kummetz-464, Evans ⁶

Petitioner additionally relies on the declaration of James A. Proctor, Jr. (Ex. 1003).

II. ANALYSIS

A. Legal Standards

“In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable.” *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (requiring [*inter partes*] review petitions to identify “with particularity . . . the evidence that supports the grounds for the challenge to each claim”)). This burden never shifts to Patent Owner. *See Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (citing *Tech. Licensing Corp. v. Videotek, Inc.*, 545 F.3d 1316, 1326–27 (Fed. Cir. 2008)) (discussing the burden of proof in *inter partes* review). Furthermore, Petitioner must explain with particularity how the prior art would have rendered the challenged claims unpatentable. 35 U.S.C. § 312(a)(3); 37 C.F.R. § 42.104 (“The petition must specify where each element of the claim is found in the prior art patents or printed publications relied upon.”).

⁴ Kummetz et al., US 2011/0281579 A1, pub. Nov. 17, 2011 (Ex. 1006).

⁵ Kummetz et al., US 9,735,999 B2, iss. Aug. 15, 2017 (Ex. 1007).

⁶ Evans et al., US 2012/0057572 A1, pub. Mar. 8, 2012 (Ex. 1008).

A claim is unpatentable under 35 U.S.C. § 102(b) “if each and every [claim] limitation is found either expressly or inherently in a single prior art reference.” *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 851 F.3d 1270, 1273 (Fed. Cir. 2017) (citation omitted). “A claim limitation is inherent in the prior art if it is necessarily present in the prior art, not merely probably or possibly present.” *Akamai Techs., Inc. v. Cable & Wireless Internet Servs., Inc.*, 344 F.3d 1186, 1192 (Fed. Cir. 2003) (citing *Rosco, Inc. v. Mirror Lite, Co.*, 304 F.3d 1373, 1380 (Fed. Cir. 2002)).

A claim is unpatentable under 35 U.S.C. § 103 if the differences between the subject matter sought to be patented 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 having 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 skill in the art; and (4) objective evidence of nonobviousness, i.e., secondary considerations⁷. See *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

B. Level of Ordinary Skill in the Art

Relying on the testimony of Mr. Proctor, Petitioner contends that one of ordinary skill in the art at the time of the invention “would have had: (1) a bachelor’s degree in electrical engineering; and (2) a minimum of 3-4 years of industry experience in wireless communications networks and

⁷ The preliminary record does not include any evidence of secondary considerations of nonobviousness. See Pet. 83.

engineering” but that “an individual with an advanced degree in electrical engineering would require less industry experience (e.g., 1-2 years).” Pet. 14 (citing Ex. 1003 ¶ 28).

Patent Owner submits that prong (2) of Petitioner’s definition should be modified to specify that one of ordinary skill in the art “should also have a minimum of 3-4 years of industry experience in wireless communications networks and engineering *including knowledge and experience with DAS*,” citing testimony given by Mr. Proctor in the related district court action. Prelim. Resp. 23 (emphasis added) (citing Ex. 2019, 101:7–17). Reading the relevant portion of Mr. Proctor’s testimony in its entirety, Mr. Proctor testifies that one of ordinary skill in the art would “understand the [DAS] art” and agrees that a person of ordinary skill “would have some experience or knowledge with DAS” at least to the extent that they would be aware of DAS art. Ex. 2019, 100:15–102:8 (emphasis added).

On the present record, requiring “knowledge and experience with DAS” as part of industry experience does not appear to be supported. Rather, for the purposes of institution and on the present record, we adopt Petitioner’s definition for one of ordinary skill in the art, with the addition of the requirement that the person of ordinary skill at the time of the invention would additionally possess some experience with or knowledge of DAS. This level of skill comports with the disclosures of the ’454 patent and the asserted prior art. We note that our current analysis and determinations with respect to unpatentability would be the same if we had adopted Petitioner’s proposed definition or Patent Owner’s proposed definition.

C. Claim Construction

Petitioner argues that, “unless stated otherwise in the discussion of particular limitations [in the Petition],” we should give all terms their plain

and ordinary meaning under the standard articulated in *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2015) (en banc). Pet. 15. Patent Owner argues that we should construe “sector[.]” as used in claims 1 and 10 to mean “a grouping of DRUs in a particular area or region.” Prelim. Resp. at 24–33.

1. Compliance with 37 C.F.R. § 42.104(b)(3)–(4)

Patent Owner argues that in the related district court action, “the term ‘sectors’ is hotly disputed and fully briefed by the parties,” and that, in not providing a specific claim construction for “sectors,” Petitioner has failed to comply with 37 C.F.R. § 42.104(b)(3)–(4). Prelim. Resp. 1–2, 19–23 (citing *Orthopediatrics Corp. v. K2M, Inc.*, IPR2018-01548, Paper 9, 9–11 (PTAB Mar. 1, 2019)). We note that the nonprecedential decision cited by Patent Owner was limited to the circumstances of that case, which included the petitioner advocating only for “how the claim limitations at issue *should not be construed*,” “tak[ing] conflicting positions [in the IPR] and the related district court litigation,” and not presenting any positive argument with respect to construction in a case where the interpretation of a claim limitation as a means-plus-function limitation was likely to be at issue. *Orthopediatrics Corp. v. K2M, Inc.*, IPR2018-01548, Paper 9, 9–10. Additionally in that proceeding “Petitioner advocated for a different claim construction in the related district court litigation.” *Id.* at 10–11.

Thus, that decision is distinguishable for those reasons. Petitioner here, while initially asserting that all claim terms “unless stated otherwise in the discussion of particular limitations,” should be interpreted according to their plain and ordinary meaning, does proceed to provide indications (though not clearly stated discussion) regarding its understanding of that plain and ordinary meaning. Pet. 15, 26–27, 42 n.5. Additionally, no

means-plus-function construction is implicated here. *See* 35 C.F.R. § 42.104(b)(3) (specifically discussing requirements for identification of how a challenged claim should be construed where the claim contains a means-plus-function limitation). Lastly, while consistency between proceedings is not necessarily required⁸, Petitioner appears to be advocating for a construction (here as “plain and ordinary”) consistent with what it proposed in the related district court action. *Compare* Pet. 26, 42 n.5 (“[A] ‘sector’ refers to independent sets of radio resources”), *with* Ex. 2017, 9–12 and Ex. 2021⁹, 10–15 (Petitioner’s position in the related district court action proposing, e.g., “a plurality of independent radio resources” as the proper construction for “a plurality of sectors”). While we agree that the rules place an affirmative burden on petitioners to show how the challenged claims should be construed and how the construed claims are unpatentable, in this case, we do not agree that the Petition has failed to meet its burden.

2. “*sector*” terms – claims 1 and 10

Claim 1 and claim 10 each recite a system comprising, *inter alia*, “a plurality of sectors formed from the plurality of DRUs comprising a first sector and a second sector different from the first sector, each sector comprising a subset of the plurality of DRUs” and a traffic monitoring unit “configured to . . . reconfigure the plurality of sectors based on the one or

⁸ The Board does, however, “consider statements regarding claim construction made by patent owners and by a petitioner filed in other proceedings, if the statements are timely made of record.” Patent Trial and Appeal Board Consolidated Trial Practice Guide (“Trial Practice Guide”) (Nov. 2019) (available at <https://www.uspto.gov/sites/default/files/documents/tpgnov.pdf>), 48–49.

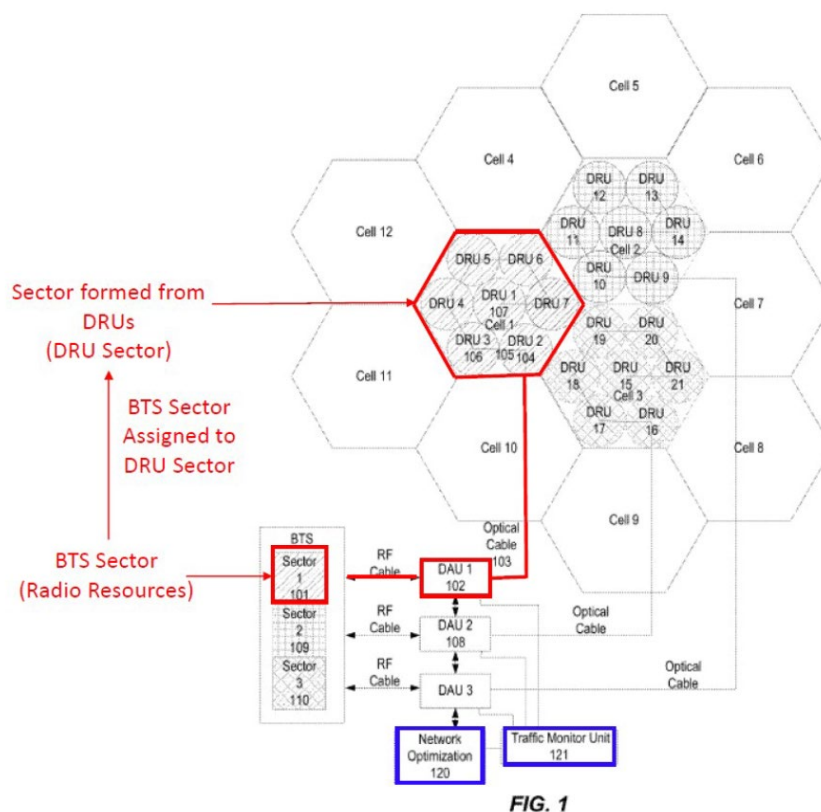
⁹ In citations to papers from the related district court action, consistent with Patent Owner’s citations, we cite to the original page numbers of the document rather than the numbers added at bottom right.

more KPIs and QoS by allocating at least one DRU from the first sector to the second sector.” Ex. 1001 17:64–67, 18:9–11, 18:50–53, 18:62–64.

As discussed *supra*, Petitioner requests only that we give terms their “plain and ordinary meaning” under *Phillips*. Pet. 15. Patent Owner directs us to Petitioner’s arguments in the related district court action that the term “sectors” should be construed as “independent radio resources.” Prelim. Resp. 19–20 (citing Ex. 2017; Ex. 2021, 10–15).

Patent Owner argues that the proper construction for “sector” in these claims is “a grouping of DRUs in a particular area or region.” *Id.* at 24–33. Patent Owner argues that one of ordinary skill in the art “would understand that a sector is a subset or ‘group’ of DRUs” from the claim language itself, in which the sectors are “formed from the plurality of DRUs” and in which each of first and second sectors “compris[e] a subset of the plurality of DRUs.” *Id.* at 25 (citing Ex. 1001, 17:66–67, 18:52–53). Patent Owner additionally cites the claim limitation describing “reconfiguring the plurality of sectors” as “simply allocat[ing]” a DRU “to another group of DRUs or subset of DRUs.” *Id.* (citing Ex. 1001, 18:9–11, 18:62–64).

Patent Owner describes the specification of the ’454 patent as supporting this definition, describing Figure 1 as illustrating “DRU sectorization” “with groupings of DRUs in ‘sectors’ (‘DRU sectors’) identified as cells 1–12 in contrast to BTS sectors 1–3. *Id.* at 27 (citing Ex. 1001 11:37–39, 11:57–62 (“Given the sectorization of DRUs at time period *t*, our problem is to obtain new sectorization at time period *t*+1 that adaptively balances the change in traffic demands.”), 12:8–10, Figs. 9–11). Patent Owner annotates Figure 1, as reproduced below.



Annotated Figure 1 illustrates Patent Owner’s interpretation in which a “BTS sector” is assigned to a “Sector formed from DRUs (DRU Sector).” *Id.* at 26.

With reference to the embodiment of Figure 1, Patent Owner argues that, according to the ’454 patent, “DRUs 1-7 in cell 1 are daisy-chained together to achieve coverage in a specific geographic area referred to as a ‘sector’ and each individual sector covers an independent geographical area which is identified as a ‘Cell.’” *Id.* at 27 (citing Ex. 1001, 5:65–6:1, 17:64–65; Ex. 2002 ¶ 33). Patent Owner contends that, with reference to this embodiment, “the ’454 Patent uses ‘sector’ synonymously with ‘the DRUs’ as in a group of DRUs covering a specific area or region.” *Id.* Patent Owner also relies on portions of a provisional application incorporated by reference into the ’454 patent (Provisional US 61/600,530 (Ex. 2004)), an argument

made during prosecution, and a declaration of an inventor of the '454 patent (Ex. 2002).¹⁰ *Id.* at 25–29, 31–33 (citing Ex. 1002, 421; Ex. 2002 ¶¶ 8, 9, 16, 27–51; Ex. 2004 ¶¶ 18, 21, 22, Figs. 2–6); *see* Ex. 1001, 10:60–65. The provisional application discusses “a three sector” base station, and then describes how to “dynamically sectorize the DRUs” in order “to balance the traffic for each sector.” Ex. 2004 ¶¶ 19, 20, 21, 23, 25.

Patent Owner additionally cites references applied by the Examiner describing “how the term ‘sectors’ has traditionally meant a particular ‘coverage area.’” Prelim. Resp. 29–31 (citing Ex. 2002 ¶¶ 10–15; Ex. 2007 ¶¶ 2, 3, Fig. 1; Ex. 2008, 9:36–37, Fig. 4). This usage, argues Patent Owner, is consistent with its argued construction of “sector.” *Id.*

As discussed above, Petitioner presents an argument consistent with its construction from the related district court action, noting that Kummets-464 describes sectors as “represent[ing] an amount of telecommunication capacity that can be allocated to wireless devices in one or more coverage zones,” and that “a ‘sector’ refers to independent sets of radio resources.”

¹⁰ Patent Owner argues that its declaration of an inventor (Dr. Stapleton) “should be considered by the board to understand the invention.” Prelim. Resp. 32 (citing *Solomon v. Kimberly-Clark Corp.*, 216 F.3d 1372, 1379–80 (Fed. Cir. 2000)). That case holds that an inventor’s statements should be considered during prosecution of an application, but describes that such testimony, at a time when claims have been issued, is given “little or no probative weight” in a determination of claim construction. *Solomon*, 216 F.3d at 1377–1380. We consider Exhibit 2002, keeping in mind that inventor testimony “cannot be relied on to change the meaning of the patent claims” but also “may be pertinent as a form of expert testimony, for example, as to understanding the established meaning of particular terms in the relevant art.” *Howmedica Osteonics Corp. v. Wright Medical Tech., Inc.*, 540 F.3d 1337, 1346–47 & n.5 (Fed. Cir. 2008) (citing *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 983 (Fed. Cir. 1995) (en banc) and *Phillips*, 415 F.3d at 1318).

Pet. 26–27 (quoting Ex. 1005, 3:16–24, citing Ex. 1005, 5:19–23, 5:35–39), 42 n.5. However, Petitioner argues that the sectors are disclosed by Kummetz-464’s remote antenna units “divided into a plurality of different sectors,” and by the disclosure that subsets of remote antenna units are “allocated to” or “associated with” sectors of one or more telecommunication systems operators. *Id.* at 26–27 (citing Ex. 1003 ¶¶ 87–88; Ex. 1005, 10:30–38), 33–35 (reconfiguration of sectors occurs “by allocating at least one DRU (remote antenna unit) from one sector to a different sector”). Thus, it appears that Petitioner’s arguments with respect to Kummetz-464 are also consistent with Patent Owner’s proposed construction of “sector.”

We determine that Patent Owner’s construction is consistent with the use of the term in the intrinsic and extrinsic evidence in the record, including the claim limitation relating to “allocating at least one DRU from the first sector to the second sector.” Ex. 1001, 18:10–11, 18:63–64. We therefore preliminarily adopt that construction (“a grouping of DRUs in a particular area or region”) for the term “sector” for the purposes of this Institution Decision. We reiterate the preliminary nature of this construction. As a trial is being instituted in this IPR, the parties may address this initial claim construction determination during the course of the proceeding.¹¹ Trial Practice Guide, 49.

¹¹ In particular, we note that, in the final week of the period set forth for institution, *see* 35 U.S.C. § 314(b)(1), a claim construction order has issued in the related district court action and Petitioner has requested permission to file that claim construction order in this proceeding. We invite the parties to address at trial, to the extent permissible under our rules, whether our preliminary construction is correct.

D. Anticipation of Claims 1–17 and 19 by Kummetz-464

Petitioner argues that claims 1–17 and 19 are anticipated by Kummetz-464. Pet. 20–60. Patent Owner contends that Petitioner has not shown how Kummetz-464 discloses certain features required in independent claims 1 and 10. Prelim. Resp. 36–50.

1. Kummetz-464

Kummetz-464 is titled “Base Station Router for Distributed Antenna Systems” and describes a DAS, through which cellular communication systems provide data services via remote antenna units. Ex. 1005 codes (54), (57), 1:14–27, 1:40–56. Figure 1 of Kummetz-464 is reproduced below:

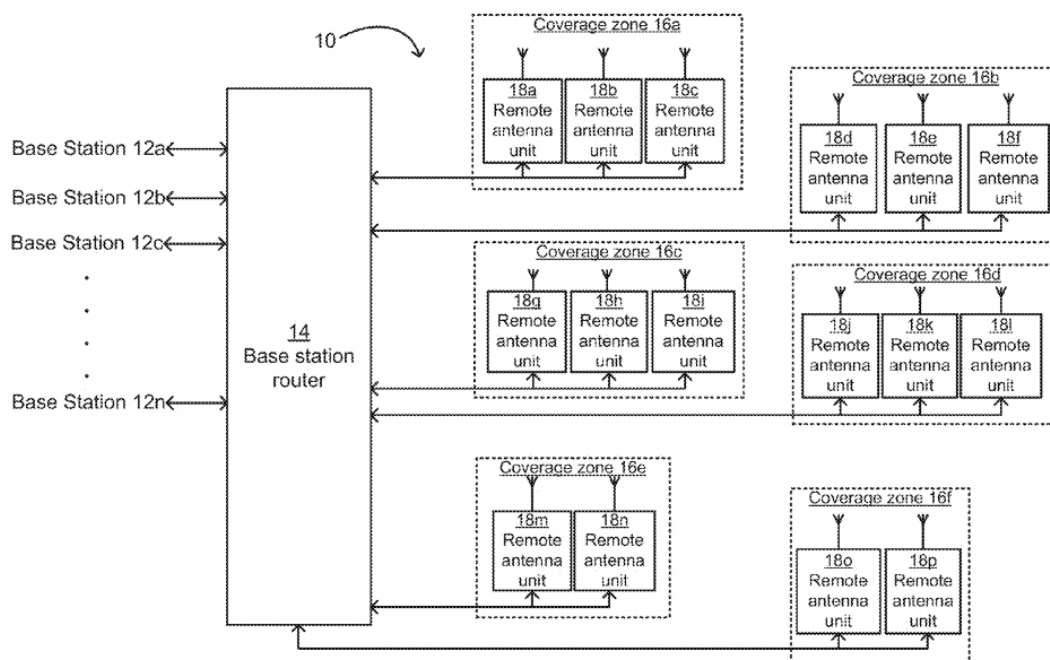


FIG. 1

Figure 1 illustrates a schematic view of a DAS. *Id.* at 2:14–15.

Kummetz-464 describes that, in the downlink direction, base stations 12a–12n send signals to base station router 14. *Id.* at 5:14–31. These

signals are associated with one or more sectors, where each sector includes communication channels and represents an amount of telecommunication capacity. *Id.* at 1:43–46, 1:64–67, 3:20–24, 5:19–23, 5:28–31. Different sectors may also be associated with different telecommunications system operators. *Id.* at 4:5–7, 5:19–23. Base station router 14 can route signals between base stations 12a–12n and coverage zones 16a–16f. *Id.* at 5:32–33, 5:50–62.

Base station router 14 includes circuitry for routing signals from base stations 12a–12n to remote antenna units in coverage zones 16a–16f. *Id.* at 5:50–52. Each of coverage zones 16a–16f contains one or more remote antenna units (*e.g.* remote antenna units 18a–18c for coverage zone 16a) that wirelessly communicate (radiate) the signals received from base station router 14 to wireless devices positioned in their physical area. *Id.* at 3:7–8, 3:12–14, 3:28–30, 3:51–53, 5:37–39, 7:4–8. All remote units in one coverage zone receive the same group of signals from base station router 14. *Id.* at 7:8–10. These coverage zones thus provide extended signal coverage for base stations 12a–12n. *Id.* at 1:21–25, 5:16–19, 6:63–7:3.

Base station router 14 includes an input interface that receives signals from and provides signals to the base stations 12a–12n, allowing uplink and downlink functionality. *Id.* at 7:45–48, 7:50–52, 7:66–8:1, 8:8–10, Fig. 2. Base station router 14 also includes an output section that receives signals from and provides signals to the remote antenna units, similarly allowing uplink and downlink functionality. *Id.* at 7:45–49, 8:23–24, 8:27–32, 8:41–42, Fig. 2.

Base station router 14 includes a controller that itself includes executable instructions for a configuration engine. *Id.* at 2:19–20, 8:54, 8:63–67, 9:22, Fig. 2, Fig. 3. Alternatively, the controller could be a

separate device external to and in communication with base station router

14. *Id.* at 8:60–62. The controller 108 can re-configure the configurable digital signal processing circuitry of a backplane in the base station router to change the routing of signals from the base stations 12a–12n to coverage zones 16a–16f. *Id.* at 8:55–58.

The controller can receive data describing the routing of signals by the base station router 14, including data relating to the determined demand on each of coverage zones 16a–16f. *Id.* at 9:34–39. “The configuration engine . . . can include a configuration management function for determining how to redistribute signal capacity among coverage zones . . . in response to the detection of a traffic indicator.” *Id.* at 9:40–44. This redistribution changes which sectors are provided to which coverage zones. *Id.* at 3:15–16. For example, one sector may be distributed to a decreased number of coverage zones, which will increase the capacity density for those zones (how many mobile devices can use telecommunications services in the zones). *Id.* at 3:43–49, 3:54–68. Figures 4 and 5 are reproduced below:

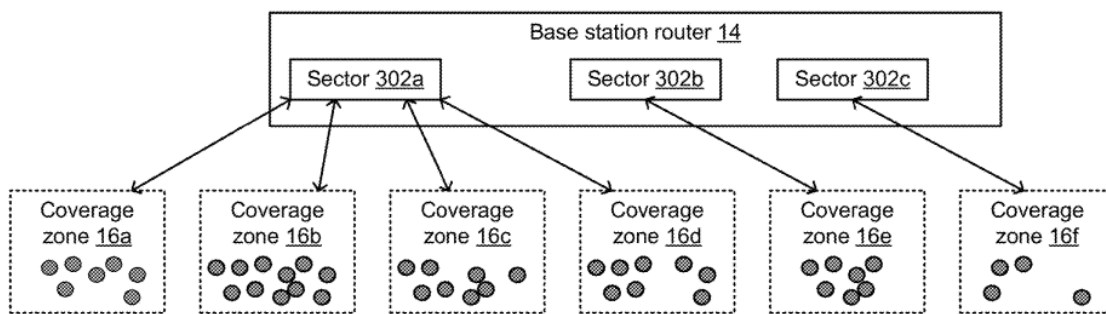


FIG. 4

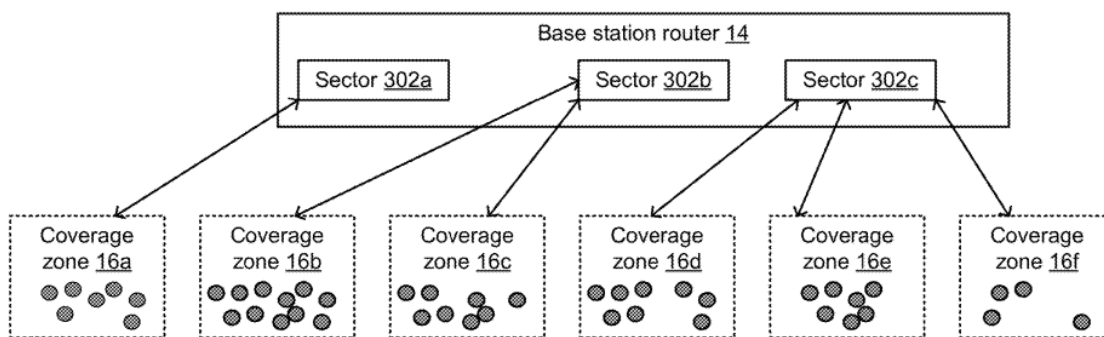


FIG. 5

Figures 4 and 5 provide an example of an initial configuration and a changed configuration of signal routing. *Id.* at 2:21–26, 10:30–32.

In these figures, coverage zones 16a–16f include remote antenna units, depicted as darkened circles. *Id.* at 10:35–38. As seen in Figure 4, base station router 14 distributes sectors 302a–302c among coverage zones 16a–16f communicating the signals of sector 302a to coverage zones 16a–16d, the signals of sector 302b to coverage zone 16e, and the signals of 302c to coverage zone 16f. *Id.* at 10:46–49. Thus the capacity of sector 302a is divided among coverage zones, while the capacity of sectors 302b and 302c are each devoted to one respective coverage zone. *Id.* at 10:49–53. Figure 5 depicts a change in this configuration, in which base station 14 communicates the signals of sector 302a to only one coverage zone

(coverage zone 16a) and the signals of sectors 302b and 302c each are communicated to two coverage zones per sector. *Id.* at 11:21–25. This change in configuration may better serve users of wireless devices if, for example, fewer wireless devices are located in the area of coverage zones 16a–16d at a first time (thus requiring less capacity) and subsequently at a second time, more capacity is required in coverage zones 16a–16d because more wireless devices are in coverage zones 16a–16d relative to coverage zones 16e and 16f. *Id.* at 3:43–4:19, 10:64–11:28.

This redistribution may be in response to the detection of a traffic indicator. *Id.* at 1:46–1:48, 1:60–1:63, 9:42–44. “A traffic indicator can include data describing or otherwise corresponding to a number of mobile devices in each coverage zone. Examples of a traffic indicator can include a scheduled event of a game, concert, or other type of event, a scheduled sequence of events with pre-game, game, and post-game configurations, traffic measurements passing low or high thresholds, base transceiver station failure events, and loss of capacity due to high inter-sector interference.” *Id.* at 9:44–52.

2. Analysis of Claim 1

Petitioner argues that claim 1 is anticipated by Kummetz-464. Pet. 20–40. Patent Owner presents several arguments asserting that Kummetz-464 does not anticipate. Prelim. Resp. 35–50.

a) Preamble

The preamble of claim 1 describes “[a] system for dynamically routing signals in a Distributed Antenna System (DAS) operable to communicate with a plurality of signal sources.” Ex. 1001, 17:50–52. Petitioner argues that even if the preamble is limiting, Kummetz-464 discloses it. Pet. 20–21.

Petitioner argues that Kummetz-464 discloses a system for dynamically routing signals in a DAS through its disclosure of a DAS “that can redistribute capacity among coverage zones services by the DAS” and that includes circuitry to route signals between a plurality of base stations (which are associated with different sectors of one telecommunications system operator or of a number of telecommunications system operators) and a plurality of remote antenna units, and that can dynamically change the routing of signals. *Id.* (quoting Ex. 1005, 2:40–46; citing Ex. 1005, 5:19–23, 5:43–45, 8:54–58, 9:40–54, Figs. 1–5).

At this stage, Patent Owner does not dispute these contentions regarding the preamble of claim 1.

On the present record and for the purposes of institution, we determine that Petitioner has a reasonable likelihood of succeeding in showing that Kummetz-464 discloses the subject matter of the preamble of claim 1 in its disclosure of a DAS that dynamically routes signals and communicates with a plurality of sectors from telecommunications systems operators.

b) “*one or more Digital Access Units . . .*” and “*one or more Digital Remote Units . . .*”

Claim 1 requires that the system comprise “one or more Digital Access Units (DAUs) operable to receive at least one signal from at least one of a first signal source and a second signal source from the plurality of signal sources, each DAU of the one or more DAUs including an input port configured as an uplink/downlink port and an output port configured as an uplink/downlink port” (“the DAU limitation”) and “a plurality of Digital Remote Units (DRUs) coupled to the one or more DAUs and operable to

transport signals between the plurality of DRUs and the one or more DAUs” (“the DRU limitation”). Ex. 1001, 17:53–63.

Petitioner argues that the DAU limitation of claim 1 is disclosed by Kummetz-464’s base station router and that the DRUs of claim 1 are disclosed by Kummetz-464’s remote antenna units. Pet. 22–25.

Petitioner argues that the base station routers of Kummetz-464 are operable to receive signals from different sectors of one telecommunications system operator or from different sectors from more than one telecommunications system operator. *Id.* at 22–23 (citing Ex. 1005, 4:20–24, 5:19–23; Ex. 1003 ¶ 81). Petitioner further argues that Kummetz-464’s base station routers include bidirectional input and output ports that can carry uplink and downlink signals. *Id.* at 23–24 (citing Ex. 1005, 7:50–8:1, 8:23–54, Fig. 2; Ex. 1003 ¶ 82).

Petitioner argues that Kummetz-464’s remote antenna units disclose the DRU limitation. *Id.* at 24–25. Petitioner asserts that these remote antenna units are described as sending and receiving signals to the base station router. *Id.* (citing Ex. 1005, 6:16–43, 8:23–54, 11:39–52, Fig. 1, Fig. 6; Ex. 1003 ¶ 85).

At this stage, Patent Owner does not dispute Petitioner’s contentions regarding the disclosures of Kummetz-464 and these two limitations of claim 1.

On the present record and for the purposes of institution, we determine that Petitioner has a reasonable likelihood of succeeding in showing that Kummetz-464 discloses the subject matter of the DAU limitation of claim 1 in its disclosure of base station routers that receive signals from different base stations and including input and output ports that provide uplink and downlink between remote antenna units and base

stations. Additionally, on the present record and for the purposes of institution, we determine that Petitioner has a reasonable likelihood of succeeding in showing that Kummetz-464 discloses the subject matter of the DRU limitation of claim 1 in its disclosure of remote antenna units that communicate with the base station router.

c) *“a plurality of sectors formed from the plurality of DRUs” and*

Claim 1 further requires that the system comprises “a plurality of sectors formed from the plurality of DRUs comprising a first sector and a second sector different from the first sector, each sector comprising a subset of the plurality of DRUs” (“plurality of sectors limitation”). Ex. 1001, 17:64–67.

Petitioner argues that “Kummetz[-464] discloses a plurality of ‘remote antenna units’ that may be divided into a plurality of different sectors” and, in support of its argument, Petitioner reproduces and discusses Kummetz-464’s Figure 4 and Figure 5 and the associated disclosure. Pet. 26–27 (citing Ex. 1005 10:30–38, Figs. 4, 5; Ex. 1003 ¶¶ 87–88). Petitioner also discusses the use of the term “sectors” in Kummetz-464 as representing “an amount of telecommunication capacity” and including “analog RF channels or digital signals,” arguing that this use is consistent with the base station sectors described in the ’454 patent. *Id.* (citing Ex. 1001, 5:2–6; Ex. 1005, 3:16–24, 5:19–23, 5:35–39).

Patent Owner argues that in Kummetz-464 does not show its remote antenna units being divided into sectors, but rather that the Kummetz-464 remote antenna units “formed coverage zones.” Prelim. Resp. 36–38. Patent Owner argues that neither Kummetz-464’s base station sectors 302a–302c nor Kummetz-464’s coverage zones 16a–16f are groupings of DRUs that can be reconfigured, and thus that neither of these disclose “sectors” as

per this claim limitation. *Id.* (citing Ex. 1005, 1:43–46, 2:48–52, 3:16–24, 10:44–11:26, Figs. 4–5, Ex. 2002 ¶¶ 17–20, 23–26).

We have preliminarily determined that “sector” should be construed as “a grouping of DRUs in a particular area or region.” *Supra* § II.C.2. With that in mind, we analyze whether Kummetz-464 discloses a plurality of groupings of remote antenna units in a particular area or region formed from the plurality of remote antenna units.

On the current record, we agree with Petitioner that it does. Kummetz-464 discloses coverage zones that include one or more remote antenna units in a physical area, providing communications coverage to mobile devices in the coverage zones. Ex. 1005, 1:43–45, 3:25–30, 3:51–53 (describing that coverage zones may be one remote antenna unit), 10:35–38. Kummetz-464 gives specific examples in which coverage zones may correspond to different sections of a stadium and the parking lot surrounding the stadium or different floors of an office building. *Id.* at 6:63–7:3. Kummetz-464 additionally describes that the coverage zones (and thus the antenna unit(s) in each coverage zone) may be grouped together. For example, where there are six coverage zones 16a–16f, coverage zones 16a–16d (“different sections of the stadium”) may be grouped together and provided the same signals, as shown in Figure 4 and described in the accompanying written description. *Id.* at 10:30–38, 10:44–53. This describes a grouping of remote antenna units of these coverage zones, and discloses the grouping of DRUs in a particular area or region. Patent Owner’s argument that remote antenna units are not divided into (base station) sectors 302a–302c does not address Petitioner’s contentions regarding Kummetz-464’s disclosure that remote antenna units in coverage

zones are grouped together by being “allocated to” or “associated with” the different base station sectors. Pet. 26–27, 33.

Thus, on the present record and for the purposes of institution, we determine that Petitioner has a reasonable likelihood of succeeding in showing that Kummetz-464 discloses the plurality of sectors limitation.

d) “a traffic monitoring unit” limitation

(1) the traffic monitoring unit

The system of claim 1 also comprises “a traffic monitoring unit coupled to at least one of the DAUs comprising the input port and output port each configured as an uplink/downlink port.” Ex. 1001, 18:1–4. With respect to the traffic monitoring unit, Petitioner argues that the controller of the base station router in Kummetz-464 and its included configuration engine disclose a traffic monitoring unit. Pet. 27–29 (citing Ex. 1005, 8:54–58, 8:63–9:25, 9:34–565, Figs. 2, 3; Ex. 1003 ¶ 90).

At this stage of the proceeding, Patent Owner does not dispute Petitioner’s contentions regarding the disclosures of Kummetz-464 and this portion of this limitation.

On the present record and for the purposes of institution, we determine that Petitioner has a reasonable likelihood of succeeding in showing that Kummetz-464 discloses a traffic monitoring unit coupled to at least one DAU as claimed in claim 1.

(2) traffic monitoring unit configured to determine KPI(s) and a QoS

The traffic monitoring unit is configured to “determine one or more key performance indicators (KPIs) and a quality of service (QoS) of a network traffic for the one or more DAUs, wherein the QoS is a function of the one or more KPIs.” Ex. 1001, 18:5–8. Petitioner argues that Kummetz-464 discloses KPIs in its traffic indicators, which “include data describing or

otherwise corresponding to a number of mobile devices in each coverage zone” and that examples of such indicators include “traffic measurements passing low or high thresholds, base transceiver station failure events, and loss of capacity due to high inter-sector interference.” Pet. 30–32 (quoting Ex. 1005, 9:44–54; citing Ex. 1005, 9:34–35, 9:40–47, 9:55–65, 10:30–43, 10:64–65, 11:13–15, Figs. 4–5; Ex. 1003 ¶¶ 93, 95, 97–98). Petitioner argues that the traffic indicators (number of wireless devices in a coverage zone) of Kummetz-464 disclose the KPIs and that the concentration of wireless devices in the respective coverage zones (a function of the number of wireless devices in a coverage zone) discloses the QoS. *Id.* at 31.

Patent Owner contends that Petitioner fails to show “a Quality of Service value ‘QoS’ being determined that indicates network performance.” Prelim. Resp. 38–41.

Patent Owner’s argument first describes how QoS is calculated in an exemplary embodiment of the ’454 patent. *Id.* at 39–40 (citing Ex. 1001, 11:57–62, 12:10–14:55; Ex. 2002 ¶¶ 21–22, 45). Patent Owner argues that “Kummetz[-464] fails to disclose such a determination of QoS values indicating network performance.” *Id.* at 40 (emphasis omitted) (citing Ex. 2002 ¶¶ 21–22). Patent Owner argues that while the cited description of a concentration of wireless devices in a coverage zone in Kummetz-464 can be an indication of traffic load, one of ordinary skill in the art “would not equate traffic load with network performance indicated by a calculated QoS value that indicates network performance in the manner claimed **and described in the ’454 Patent** to solve a sectorization problem.” *Id.* (emphasis added). This argument however, at least in part, requests that we read an embodiment appearing in the written description into the claim. *See SuperGuide Corp. v. DirecTV Enters., Inc.*, 358 F.3d 870, 875 (Fed. Cir.

2004) (“Though understanding the claim language may be aided by the explanations contained in the written description, it is important not to import into a claim limitations that are not a part of the claim.”). Kummetz-464 discloses that the relative concentration of wireless devices in coverage zones is evaluated and reconfiguration subsequently performed based on these calculations to provide sufficient resources for providing signal coverage. Ex. 1005, 9:34–35, 9:40–65, 10:64–11:28; Ex. 1003 ¶¶ 93, 95, 97–98; *see* Pet. 20, 30–32. This argument additionally assumes that the claim requires that the QoS be used “to solve a sectorization problem,” which is not commensurate with the claim language.

Patent Owner also argues that Kummetz-464 is not enabled. Prelim. Resp. 55–57. Patent Owner argues that Kummetz-464 does not describe its invention in sufficient detail to enable a person of ordinary skill to carry out the reconfiguration of sectors as claimed in claim 1. *Id.* at 55. To some extent, it appears that Patent Owner’s argument is that the relied upon subject matter of Kummetz-464 does not enable the optimization algorithm or QoS calculation described in the specification of the ’454 patent. *Id.* at 55–56. But this does not convince us that Kummetz-464 does not enable the portions of its own disclosure alleged to anticipate the claimed invention. *See In re Antor Media Corp.*, 689 F.3d 1282, 1290 (Fed. Cir. 2012). On the present record we do not agree that Kummetz-464 is not enabling.

Patent Owner further argues that, “in Kummetz[-464], there is no reference or description of any kind to ‘QoS’ or ‘QoS values’ that are a function of KPIs to solve a sectorization problem in the manner disclosed in the ’454 Patent.” Prelim. Resp. 40 (emphasis omitted). However, anticipation “is not an ‘ipsissimis verbis’ test” in which the exact term used in the claim must be found in the anticipating reference. *In re Bond*, 910

F.2d 831, 832-33 (Fed. Cir. 1990) (citing *Akzo N.V. v. U.S. Int’l Trade Comm’n*, 808 F.2d 1471, 1479 n.11 (Fed. Cir. 1986)).

Patent Owner argues that the concentration of wireless devices would not indicate a QoS value indicating network performance, “because traffic load does not provide any indication how a network[] is performing.” Prelim. Resp. 41–42 (citing Ex. 2002 ¶¶ 22–23). Patent Owner argues that “a POSA would not equate traffic load with network performance.” *Id.* at 41. However, Patent Owner provides insufficient evidence supporting this contention or the implicit definition of “QoS,” citing its declaration of an inventor including the inventor’s evaluation of Kummetz-464 and conclusions regarding the reference, but not addressing the level of one of ordinary skill, whether the analysis is keyed to the relevant time, or whether the conclusions would have been reached by a person of ordinary skill at that time. The claim requires that QoS be “a function of the one or more KPIs” and Petitioner has identified a KPI and a QoS that would be a function of that KPI. The present record includes Exhibit 2008, prior art cited during the prosecution of the application that issued as the ’454 patent, which describes “altering . . . the plurality of network parameters and evaluating of the cell congestion . . . continuously until a target quality of service is achieved.” Ex. 2008, code (57). This indicates that congestion (traffic load) impacts the quality of service, even if they are not equivalent. We conclude that Petitioner has a reasonable likelihood of showing that Kummetz-464’s relative concentration of wireless devices in coverage zones discloses a QoS value indicating network performance.

For these reasons, on the present record, and for the purposes of institution, we determine that Petitioner has a reasonable likelihood of succeeding in showing that Kummetz-464 discloses the claimed

determination of one or more KPIs for the DAUs, and a QoS that is a function of the one or more KPIs in its traffic indicators, including data describing the number of devices in each coverage zone, and the relative concentration of devices between respective coverage zones discloses.

(3) traffic monitoring unit configured to reconfigure the plurality of sectors

The traffic monitoring unit is further configured to “reconfigure the plurality of sectors based on the one or more KPIs and QoS by allocating at least one DRU from the first sector to the second sector.” Ex. 1001, 18:9–11.

Petitioner argues that Kummetz-464 discloses this reconfiguration in its disclosure that the controller and configuration engine can trigger a redistribution of signal capacity among coverage zones. Pet. 33–35. Petitioner cites Kummetz-464’s description that “before an event begins the resources provided by a single sector 302a may sufficiently cover the entire stadium” (remote antennas in coverage zones 16a–16d). *Id.* at 34–35 (citing Ex. 1005, 10:64–11:28, Figs. 4, 5; Ex. 1003 ¶ 102). Petitioner explains that Kummetz-464 describes that, in response to changes in concentration of wireless devices in the coverage zones, reconfiguration occurs such that the signals of two base station sectors are used to provide coverage to those four coverage zones (16a–16d). *Id.*

Patent Owner argues that Kummetz-464 does not disclose that its sectors are reconfigured. Prelim. Resp. 42–44, 45–46. We note that this argument appears to conflate the claimed “sector” with Kummetz-464’s “sector” language, describing signals as associated with one or more sectors, where each sector includes communication channels and represents an amount of telecommunication capacity and may be associated with different telecommunications systems operators. *Id.* at 1:43–46, 1:64–67, 3:20–24,

4:5–7, 5:19–23, 5:28–31. As Patent Owner argues, and we have herein preliminarily determined, “sector” should be construed as “a grouping of DRUs in a particular area or region.” *Supra* §§ II.C.2, II.D.2.c. Thus this argument is inapposite, as it relates to a base station sector, and not a grouping of DRUs in a particular area or region.¹²

Patent Owner also reiterates, with respect to this claim limitation, the argument that the concentration of wireless devices in Kummetz-464 does not disclose the claimed QoS, and that therefore reconfiguring sectors formed from DRUs based on data regarding the concentration of wireless devices does not disclose reconfiguring the plurality of sectors based on a QoS. Prelim. Resp. 44–45; *see id.* at 38–41. As previously discussed, on the present record and preliminarily, we determine that Petitioner has a reasonable likelihood of succeeding in showing that the concentration of wireless devices in Kummetz-464 discloses the claimed QoS. *Supra* § II.D.2.d.(2).

Patent Owner further argues that no individual remote antenna units in Kummetz-464 are reallocated from one coverage zone to another coverage zone, as all of the remote antenna units in a coverage zone must be reallocated at once. Prelim. Resp. 46–48. Patent Owner contends that, therefore, Kummetz-464 “is not an efficient nor effective means of load balancing to address uneven traffic at a particular remote antenna or a specific hot spot within a coverage zone,” and that the technique described

¹² Patent Owner’s argument that Petitioner’s expert declaration should be rejected as unreliable is based on a similar conflation of the claimed “sector” with Kummetz-464’s sector language. *See* Prelim. Resp. 57–59. For the same reasons, for the purposes of institution, we do not agree that Mr. Proctor’s expert declaration should be rejected as unreliable. Prelim. Resp. 57–59.

in the specification of the '454 patent adaptively balances the change in traffic demands and is more efficient than the technique of Kummetz-464. *Id.* at 48–50 (citing Ex. 2002 ¶¶ 36, 37, 49–53). However, this argument relies on distinctions between the technique disclosed in Kummetz-464 and the optimization algorithm disclosed in the specification of the '454 patent, but not claimed in claim 1. Additionally, to the extent this argument is based on the specific examples of Figures 4 and 5 of Kummetz-464 (in which each coverage zone contains more than one remote antenna unit), it disregards the disclosure in Kummetz-464 that a coverage zone may have only one remote antenna unit. Ex. 1005, 3:7–8, 3:51–53.

For these reasons, on the present record, and for the purposes of institution, we determine that Petitioner has a reasonable likelihood of succeeding in showing that Kummetz-464 discloses the claimed reconfiguration of the plurality of sectors based on the one or more KPIs and QoS by allocating at least one DRU from the first sector to the second sector.

e) Conclusion – Claim 1

For the reasons discussed above, we determine that, on the present record, and for the purposes of institution, Petitioner has a reasonable likelihood of succeeding in showing that Kummetz-464 anticipates claim 1.

3. Analysis of Claim 10

With respect to most limitations, Petitioner argues the unpatentability of claim 10 as anticipated by Kummetz-464 with reference to arguments regarding similar or identical limitations of claim 1, or with arguments substantively similar to those claim 1 arguments. Pet. 35–40.

Unlike claim 1, claim 10 requires that the traffic monitoring unit be “external to” at least one of the DAUs. *Compare* Ex. 1001, 18:1–4 *with id.* at 18:54–57. Petitioner argues that Kummetz-464 discloses that “the controller 108 can be disclosed in a separate device external to and in communication with the base station router 14.” Pet. 36 (quoting Ex. 1005, 8:58–62). At this stage of the proceeding, Patent Owner does not dispute Petitioner’s contentions regarding the disclosures of Kummetz-464 and this portion of this limitation.

On the present record and for the purposes of institution, we determine that Petitioner has a reasonable likelihood of succeeding in showing that Kummetz-464 anticipates claim 10.

4. *Claim 7*

Claim 7, which depends from claim 1 and further requires that “the traffic monitoring unit is provided as a component of each of the plurality of DRUs.” Ex. 1001, 18:26–28. Petitioner presents arguments that Kummetz-464 discloses the provision of the controller in each of the remote antenna units because it discloses the controller in a separate device from the base station router, and also discloses that the remote antenna units are separate from the base station router. Pet. 48 (citing Ex. 1005, 5:14–16, 8:54–62). Petitioner additionally argues that Kummetz-579 is incorporated by reference and discloses measurement receivers incorporated into remote antenna units. *Id.* (referencing Pet. 37–39, citing Ex. 1005, 9:61–65; Ex. 1006, code (57), ¶¶ 35, 36; Ex. 1003 ¶ 111).

Patent Owner argues as follows: “Kummetz[-464] describes that ‘controller 108’ can be disposed in a separate device, but does not teach or suggest that ‘separate device’ can be a remote antenna unit in one of the coverage zones 16a–f.” Prelim. Resp. 51 (citing Ex. 1005, 8:59–62). At this

stage of the proceeding, we agree with Patent Owner. We also note that, while Petitioner addresses measurement receivers of Kummetz-579 as measuring network traffic (arguably disclosing the determination of KPI(s) and QoS), Petitioner does not address whether the measurement receivers of Kummetz-579 reconfigure a plurality of sectors by allocating at least one DRU from the first sector to the second sector. Claim 1, from which claim 7 depends, requires that the traffic monitoring unit be configured to perform both the determination of KPI(s) and QoS and the reconfiguration of the plurality of sectors.

For these reasons, on the present record and preliminarily, with respect to claim 7, Petitioner has not shown a reasonable likelihood of succeeding in showing that Kummetz-464 anticipates claim 7.

5. Claims 2–6, 8, 9, 11–17, and 19

At this stage of the proceeding, Patent Owner does not address separately Petitioner's explanations and supporting evidence regarding the anticipation contentions presented for balance of the dependent claims. *See generally* Prelim. Resp.

Petitioner provides detailed explanations as to how the prior art combinations teach or suggest these claims, citing Mr. Proctor's testimony for support. *See* Pet. 40–47, 49–60 (citing Ex. 1005, 1:43–46, 1:66–67, 2:54–59, 3:7–30, 3:32–34, 3:36–37, 3:43–61, 4:5–24, 4:61–5:4, 5:14–23, 5:50–58, 7:12–20, 7:45–8:33, 8:54–62, 8:64–9:5, 9:22–25, 9:34–35, 9:40–65, 10:30–43, 11:13–28, 11:39–52, Figs. 1–3, 6; Ex. 1003 ¶¶ 116, 117, 120–124, 134, 136, 144, 149–151, 153, 154, 156). Having reviewed Petitioner's arguments and supporting evidence in the present record, we determine Petitioner has demonstrated a reasonable likelihood that it will prevail on its

assertion that claims 2–6, 8, 9, 11–17, and 19 are anticipated by Kummetz-464.

E. Obviousness of Claim 7 over Kummetz-464 or Kummetz-464 and Kummetz-579

Petitioner argues that claim 7 is obvious over Kummetz-464 or over a combination of Kummetz-464 and Kummetz-579. Pet. 60–62. Petitioner relies generally on its arguments with respect to anticipation of claim 7 by Kummetz-464 for this obviousness ground. *Id.*

For the same reasons described *supra* Section II.D.4 with reference to those anticipation arguments, on the present record and preliminarily, with respect to claim 7, Petitioner has not shown a reasonable likelihood of succeeding in showing that claim 7 is obvious over Kummetz-464 or the combination of Kummetz-464 and Kummetz-579.

F. Additional Obvious Contentions – Claims 15–18

Petitioner argues that claim 17 is obvious over Kummetz-464 or over a combination of Kummetz-464 and Kummetz-999. Pet. 62–64. Petitioner additionally argues that claims 15, 16, and 18 are obvious over Kummetz-464 or over a combination of Kummetz-464 and Evans. Pet. 64–78 (citing Ex. 1005, 1:21–33, 3:7–8, 4:59–5:4, 5:14–19, 5:50–62, 6:5–15, 7:4–21, 7:45–65, 8:23–53, 11:39–62, Figs. 1, 2, 4–7; Ex. 1008 code (54), ¶¶ 1, 5, 9, 10, 21–24, 47–95; Ex. 1003 ¶¶ 164–169, 171, 173, 174, 176, 178).

At this stage in the proceeding, with respect to claim 17, Patent Owner reiterates its arguments with respect to claim 10 when addressing the obviousness of claim 17 over Kummetz-464 in combination with Kummetz-999. Prelim. Resp. 53.

Similarly, with respect to claims 15, 16, and 18, Patent Owner reiterates its arguments with respect to claim 10 when addressing the

obviousness of claim 15, 16, and 18 over Kummetz-464 in combination with Evans. Prelim. Resp. 54.

Having reviewed Petitioner's arguments and supporting evidence in the present record, we determine Petitioner has demonstrated a reasonable likelihood that it will prevail on its assertion that claim 17 is obvious over Kummetz-464 or over a combination of Kummetz-464 and Kummetz-999 and that claims 15, 16, and 18 are obvious over Kummetz-464 or over a combination of Kummetz-464 and Evans.

III. CONCLUSION

For the foregoing reasons, we determine that Petitioner has shown a reasonable likelihood that it would prevail in showing the unpatentability of at least one claim of the '454 patent, and accordingly, we institute an *inter partes* review of claim claims 1–19 of the '454 patent.

IV. ORDER

In consideration of the foregoing, it is hereby

ORDERED that, pursuant to 35 U.S.C. § 314(a), institution of an *inter partes* review of claims 1–19 of the '454 patent on the grounds presented in the Petition is granted; and

FURTHER ORDERED that, pursuant to 35 U.S.C. § 314(a) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial, which commences on the entry date of this Decision.

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Patent 10,506,454 B2

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