

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, *Vice Chief Administrative Patent Judge*,
and KARL D. EASTHOM and SHARON FENICK, *Administrative Patent Judges*.

Opinion for the Board filed by Administrative Patent Judge FENICK.

Opinion Dissenting filed by Administrative Patent Judge EASTHOM.

FENICK, *Administrative Patent Judge*.

DECISION
Final Written Decision
Determining No Challenged Claims Unpatentable
35 U.S.C. § 318(a)

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. We determined that the information presented in the Petition established that there was a reasonable likelihood that Petitioner would prevail with respect to at least one of the challenged claims and we instituted this proceeding on December 3, 2020, as to all challenged claims and all grounds of unpatentability. Paper 7 (“Dec. on Inst.”).

During the course of trial, Patent Owner filed a Patent Owner Response (Paper 11 “PO Resp.”), Petitioner filed a Reply to the Patent Owner Response (Paper 15, “Pet. Reply”), and Patent Owner filed a Sur-reply (Paper 16, “PO Sur-reply”). An oral hearing was held on April 21, 2022, and a transcript was entered (Paper 29, “Tr.”).

We have jurisdiction under 35 U.S.C. § 6(b)(4). This decision is a Final Written Decision under 35 U.S.C. § 318(a) as to the patentability of claims 1–19 of the ’454 patent. For the reasons discussed below, Petitioner has not demonstrated by a preponderance of the evidence that claims 1–19 of the ’454 patent are unpatentable.

B. *Real Parties in Interest*

Petitioner identifies Corning, Inc. and Corning Research and Development Corp. as additional real parties in interest. Pet. 1; Paper 23 (Petitioner’s Updated Mandatory Notices), 1. Patent Owner identifies no additional real parties in interest. Paper 4 (Patent Owner’s Mandatory Notices), 1; Paper 13 (Patent Owner’s Updated Mandatory Notices), 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. Pet. 1; Paper 23, 1; Paper 4, 1; Paper 13, 1.

As discussed below, a claim construction order relating to terms of the ’454 patent was issued in the related district court action. Ex. 1017.

D. The ’454 Patent

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

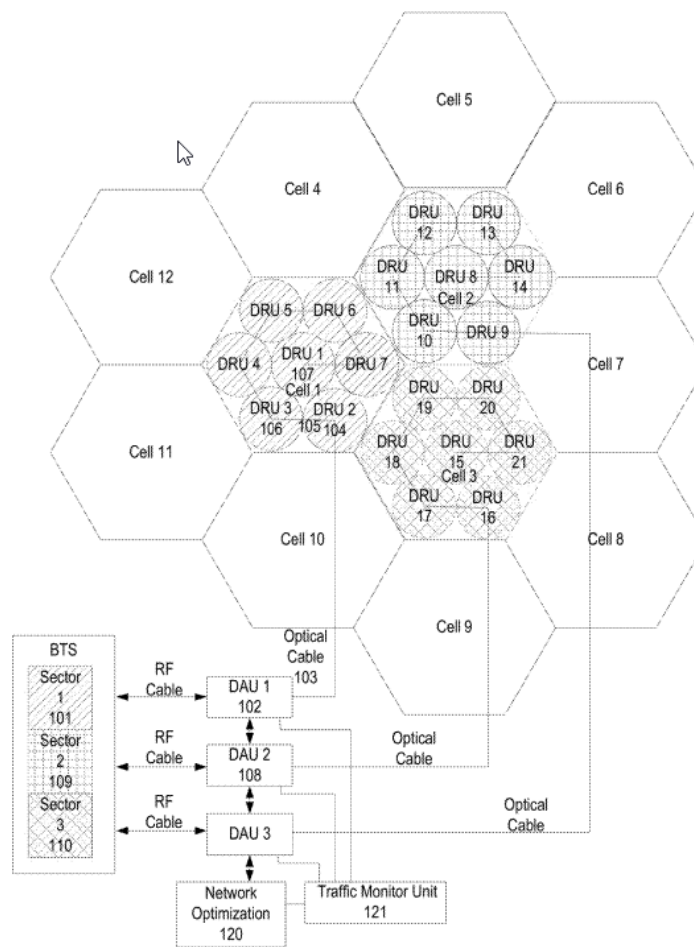


FIG. 1

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.

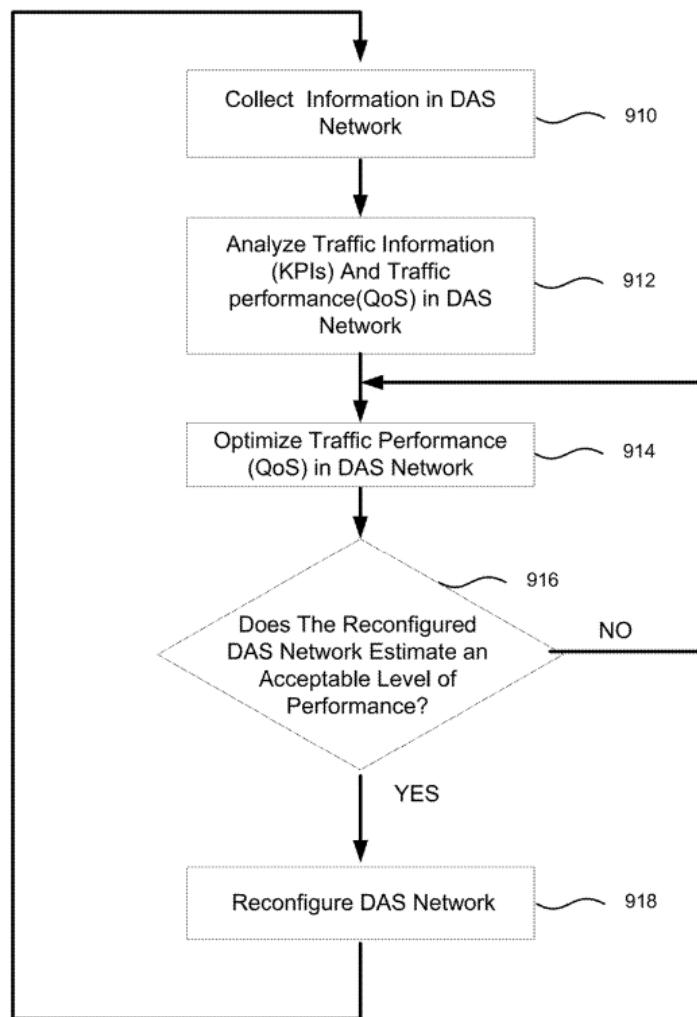


FIG. 9

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. §¹	Reference(s)/Basis
1–17, 19	102	Kummetz-464 ²
7, 15–18	103	Kummetz-464
7	103	Kummetz-464, Kummetz-579 ³
17	103	Kummetz-464, Kummetz-999 ⁴
15, 16, 18	103	Kummetz-464, Evans ⁵

Petitioner additionally relies on the declaration of James A. Proctor, Jr. (Ex. 1003). Patent Owner filed a declaration of Shawn Stapleton Ph.D. (Ex. 2002) and a supplemental declaration from Dr. Stapleton (Ex. 2023).

¹ 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).

² Kummetz et al., US 9,398,464 B2, iss. July 19, 2016 (Ex. 1005).

³ Kummetz et al., US 2011/0281579 A1, pub. Nov. 17, 2011 (Ex. 1006).

⁴ Kummetz et al., US 9,735,999 B2, iss. Aug. 15, 2017 (Ex. 1007).

⁵ Evans et al., US 2012/0057572 A1, pub. Mar. 8, 2012 (Ex. 1008).

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.”).

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 considerations⁶. 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 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).

In the Decision on Institution, we concluded that one of ordinary skill 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 engineering. Dec. on Inst. 9–10 (citing Ex. 1003 ¶ 28). We additionally concluded that “an individual with an advanced degree in electrical engineering would require less industry experience (e.g., 1-2 years),” and that “the person of ordinary skill at the time of the invention would additionally possess some experience with or knowledge of DAS.”

⁶ The record does not include any evidence of secondary considerations of nonobviousness.

Id. at 10 (citing Ex. 2019 (testimony of Mr. Proctor in the related district court action), 100:15–102:8). Patent Owner notes its agreement with this conclusion, and its expert adopted it. PO Resp. 22; Ex. 2023 ¶ 5. Petitioner provides no further comment in its post-institution briefing.

After considering the record, we conclude that the same level of skill we adopted in the Decision on Institution should apply. This level of skill comports with the disclosures of the ’454 patent and the asserted prior art.

C. Claim Construction

“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 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.

In the Petition, 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. In response to certain arguments by Patent Owner, Petitioner, consistent with its arguments in the related district court litigation, further argues that the plain and ordinary meaning of “sectors” is “independent radio resources.” Pet. Reply 3–10; Ex. 2017, 9–10; Ex. 2021, 10–15. Petitioner generally presents an argument consistent with its proposed construction in the related district court action, noting that Kummetz-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.” Pet. 26–27 (quoting Ex. 1005, 3:16–24, citing Ex. 1005, 5:19–23, 5:35–39), 42 n.5; Pet. Reply 3–10.

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.” PO Resp. 22–34; PO Sur-reply 3–11. This position is consistent with Patent Owner’s position in the related district court litigation. Ex. 2017, 9; Ex. 2018, 11–13; Ex. 2022, 4–7. Patent Owner presents an argument based on the language of claim 1, other intrinsic evidence from the specification and incorporated provisional application, certain prior art references cited during prosecution, and the prosecution history. PO Resp. 25–34 (citing Ex. 1001, 5:45–51, 5:65–6:1, 10:30–65, 11:37–39, 11:47–62, 12:8–10, 17:64–67, 18:10–12, Figs. 1, 9–11; Ex. 2004 ¶¶ 21, 22, Figs. 1–6; Ex. 2007 ¶¶ 2, 3; Ex. 2008, 9:36–37, Fig. 4; Ex. 2002 ¶¶ 8, 10–15, 28–29, 32–35; Ex. 2023 ¶¶ 9, 13–19, 41); PO Sur-reply 3–11.

In the Decision on Institution, we preliminarily adopted Patent Owner’s proposed construction (“a grouping of DRUs in a particular area or region”) for the term “sector,” finding it to be consistent with the use of the term in the intrinsic and extrinsic evidence in the record. Dec. on Inst. 12–16. We also noted that the Petition included arguments that were consistent with Patent Owner’s proposed construction. *Id.* at 15–16.

As noted in the Decision on Institution, a claim construction order issued in the related district court action in the final week of the period set forth for institution. *Id.* at 16 n.11. This claim construction order adopts Petitioner’s proposed definition. Ex. 1017, 14–21.

As explained below, after consideration of the entire record, Petitioner has not established that Kummetz-464 teaches the determination of a QoS of network traffic. Thus, we need not resolve the parties' claim construction dispute. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (noting that “we need only construe 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. 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. PO Resp. 36–55; PO Sur-reply 11–17.

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:

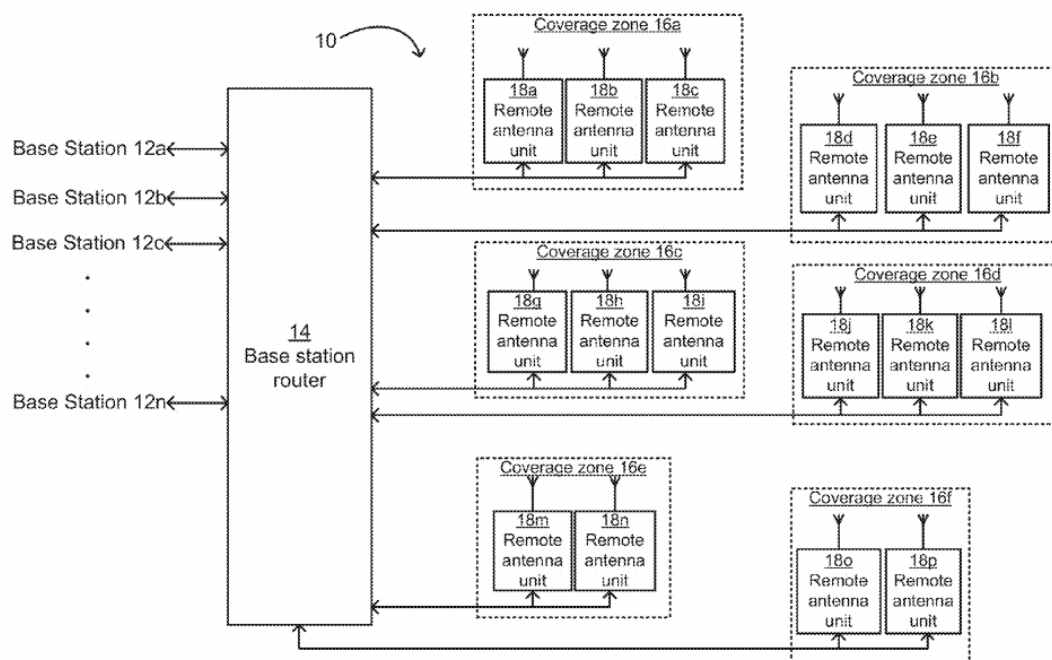


FIG. 1

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 coverages 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:

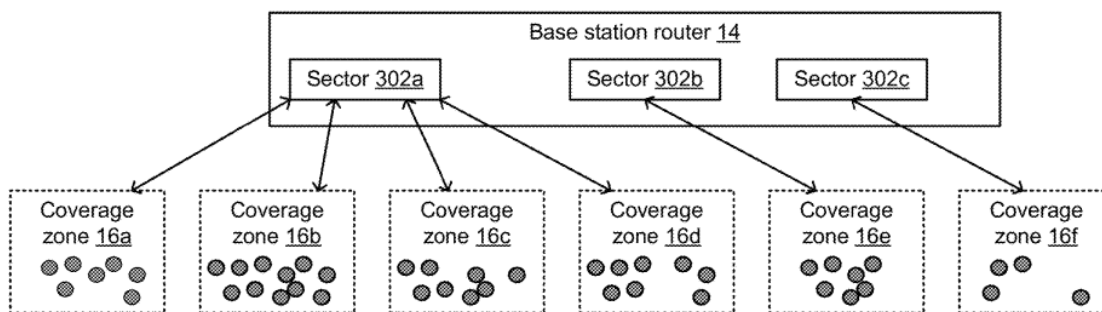


FIG. 4

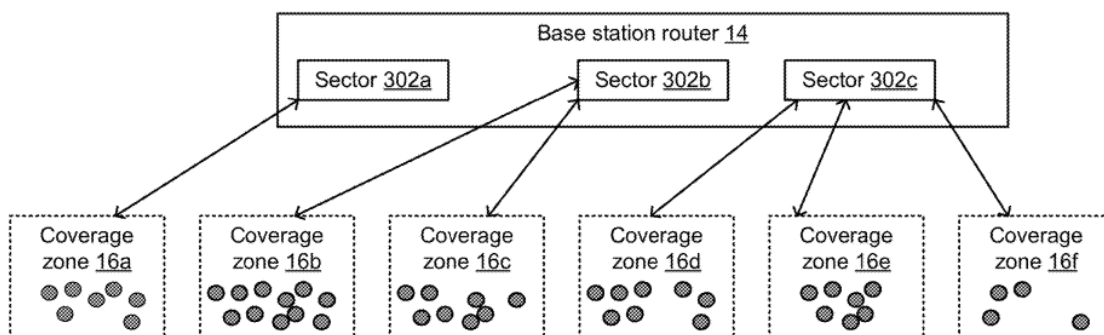


FIG. 5

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 claim 1. PO Resp. 36–55; PO Sur-reply 11–17. Our

analysis focuses primarily on arguments made with respect to the traffic monitoring unit. To place those arguments in the proper context, we review the Petitioner's assertions regarding the entirety of the claim and certain of Patent Owner's arguments.

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. *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).

b) “one or more Digital Access Units . . .” and “a plurality of Digital Remote Units . . .” limitations

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 of different telecommunications system operators. *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).

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

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 this limitation through its disclosure of “a plurality of ‘remote antenna units’ that may be divided

into a plurality of different sectors” in Kummetz-464’s Figure 4 and Figure 5 and the associated disclosure. Pet. 26–27 (citing Ex. 1005, 3:16–24, 10:30–38, Figs. 4, 5; Ex. 1003 ¶¶ 87–88).

We note Patent Owner’s contention that Petitioner’s anticipation arguments with respect to this claim limitation are flawed because groupings of remote antenna units in coverage zones (e.g., coverage zones 16a – 16d) would not constitute a sector, under the preliminary construction of “sector” in our Institution Decision (“a grouping of DRUs in a particular area or region.”) PO Resp. 37–41; Dec. on Inst. 30–31. Patent Owner argues that “Kummetz[-464]’s coverage zones are entirely static and the remote radios assigned to the various coverage zones keep those assignments indefinitely,” and that a grouping based only on radio units being switched to certain sectors is inconsistent with providing a sector of radio units “in a particular area or region.” PO Resp. at 39–41; PO Sur-reply 12–13. However, we do not address Patent Owner’s arguments because we determine Kummetz-464 does not anticipate the claims based on issues with Petitioner’s showing with respect to the “traffic monitoring unit” limitation of claim 1, as discussed below.

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).

(2) traffic monitoring unit configured to determine one or more KPIs and a QoS “of a network traffic”

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, quoting the reference:

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. In some aspects, the controller 108 can detect traffic and perform measurements independent of a wireless network standard and protocol.

Ex. 1005, 9:44–54 (quoted at Pet. 30).

Petitioner asserts that Kummetz-464 discloses that the controller can reconfigure signal capacity based on a traffic indicator. Pet. 31 (citing Ex. 1005, 9:40–47). Petitioner cites the example in Kummetz-464 of the configuration management function being executed “in response to the detection of a traffic indicator” “which can include data describing or otherwise corresponding to a number of devices in each coverage zone.” *Id.* Thus, Petitioner argues that Kummetz-464 discloses an example in which reconfiguration occurs based on the number of wireless devices in the coverage zones, which Petitioner argues disclose KPIs, and that in this example “the relative concentration of those devices between respective coverage zones (a function of the KPIs) is the QoS.” *Id.* (citing Ex. 1005, 10:30–43, 11:13–15, Figs. 4–5; Ex. 1003 ¶ 95). In its Reply, Petitioner

presents an additional example, based on the reconfiguration described in Kummetz-464, in which the number of user wireless devices in a stadium is a first KPI (“KPI 1”) and the number of user wireless devices in a parking lot is a second KPI (“KPI 2”). Pet. Reply 20–21. Petitioner asserts that a QoS can be computed by determining the relative concentration of devices between the stadium and parking lot, which is a function of KPI 1 and KPI 2, and thus the description of this occurring in Kummetz-464 discloses the QoS of a network traffic. *Id.*

Patent Owner argues that Petitioner has failed to show a QoS being determined in Kummetz-464. PO Resp. 41–49. First, Patent Owner argues that one of ordinary skill would understand the plain meaning of QoS to be specifically related to network performance. *Id.* at 41 (citing Ex. 2023 ¶ 55). Patent Owner describes the computation of QoS in the specification of the ’454 patent as consistent with this meaning, arguing that “cost factor KPIs” are described as being part of the calculation of a QoS, and that the system minimizes QoS values to improve network performance. *Id.* at 42–43 (citing Ex. 1001, 11:57–62, 12:10–14:55; Ex. 2002 ¶¶ 21, 45; Ex. 2023 ¶¶ 55–56).

Patent Owner contends Petitioner’s argument that the relative concentration of devices in different areas in Kummetz-464 is a QoS “posits a contrived notion,” arguing that the concentration of devices in coverage zones does not indicate network performance, but merely “can be an indication of traffic load – *if* [the wireless devices are] *in use*.” *Id.* at 43 (citing Ex. 1005, 9:44–45, 11:13–28; Ex. 2002 ¶ 22; Ex. 2023 ¶ 58) (emphasis added). At the oral hearing, when asked to explain how the concentration of mobile devices would yield a quality of service metric, Petitioner’s counsel described a situation in which devices might suddenly be used simultaneously and cause an increased need for transmission

capacity. Tr. 17:12–18:13. But Petitioner does not provide any further testimony or other evidence to support its proposition that relative concentration of devices in different areas, including devices that are not actively in use, discloses a measurement of QoS of network traffic. *Id.* at 18:14–19:6 (discussing Ex. 1003 ¶¶ 100–103; Ex. 1001, 11:27–31), 20:8–22:8; *see* Pet. Reply 20–21.

Claim 1 requires that the QoS be both “of a network traffic” and “a function of the one or more KPIs.” Although Petitioner asserts Kummetz-464 discloses a number of KPIs through its description of traffic indicators (Pet. 30), Petitioner relies on a specific KPI—the number of users—in its assertion that Kummetz-464 discloses a QoS through its disclosure of a relative concentration of devices that is a function of the one or more KPIs. *See* Pet. 30–32. Petitioner further relies on this specific mapping of KPI to number of users and QoS to relative concentration of devices in its assertion that Kummetz-464 discloses “reconfiguring the plurality of sectors based on one or more KPIs and QoS” limitation. *See* Pet. 33–35. We, therefore, focus our analysis on whether Petitioner establishes Kummetz-464’s description of a relative concentration of devices discloses the claimed QoS.

We agree with Petitioner that the relative concentration of devices is a function of the number of users, which is a KPI. *See* Pet. 31; Ex. 1003 ¶ 95. But we determine Petitioner fails to establish the relative concentration of devices is a quality of service of a network traffic. Petitioner’s declarant describes QoS as a function of KPIs without more, and asserts that the relative concentration of devices between coverage zones would be a QoS. Ex. 1003 ¶¶ 93–103 (concluding that “Kummetz[-464] discloses that the controller 108 can determine one or more traffic indicators (i.e., KPIs) and a function of the traffic indicators (i.e., QoS = function of the one or more

KPIs)"); *see* Tr. 19:15–20:7 (arguing that “essentially anything can be a KPI” and “network performance is expressed by a number of KPIs which leads to the QoS”). While Petitioner’s declarant describes this as consistent with the teachings of the ’454 patent relating to adjusting traffic loads, no explanation is provided as to how capacity (as in Kummetz-464’s example) would meet the requirement of a QoS of network traffic, and no further testimony or evidence was adduced regarding what one of ordinary skill in the art would have thought QoS to mean. *See id.*

We credit the testimony of Patent Owner’s expert that the plain meaning of “QoS” requires that the QoS be a value that indicates network performance.⁷ Ex. 2023 ¶ 55. We agree with Patent Owner that Petitioner does not establish Kummetz-464 discloses that a concentration of wireless devices indicates network performance. *See* PO Resp. 43. As noted by Patent Owner during oral argument, “[y]ou can have perfect information of relative concentration of devices and still not know anything about network traffic.” Tr. 36. Patent Owner provides an example of a church service in which there are a large number of users (large concentration of user devices), but no traffic. Tr. 38. Conversely, we observe that a small concentration of user devices may have a large impact on network performance if engaged in activities requiring heavy network traffic usage.

⁷ We respectfully disagree with the dissent that the specification requires a different interpretation. The ’454 patent describes a QoS as a weighted combination of three KPIs (cost factors) that indicates network performance. *See* Ex. 1001 11:48–50, 14:41–51. This supports Patent Owner’s position that the plain and ordinary meaning of quality of service (QoS) indicates network performance. Although the KPIs discussed are exemplary, to fall within the bounds of claim 1, the plain meaning of quality of service of a network traffic requires the function to indicate network performance (i.e., the “quality” of the network).

The relative concentration of devices identified by Petitioner may therefore be a function of KPIs, but it is not a QoS according to the plain meaning of that term, and is not “of a network traffic” because it may be unrelated to network traffic. Thus, Petitioner fails to persuade us that Kummetz-464’s description of a concentration of wireless devices discloses a quality of service of a network traffic.

We further determine that Petitioner fails to establish Kummetz-464’s description of reconfiguring sectors based on relative concentration of user devices discloses reconfiguring “sectors based on the one or more KPIs and QoS,” as required by claim 1. In the absence of a sufficient showing that Kummetz-464’s reconfiguration is based on a QoS “of a network traffic,” as required by the claim, we determine that Petitioner has not demonstrated by a preponderance of the evidence that Kummetz-464 discloses the determination of a QoS of a network traffic that is used as the basis to reconfigure sectors.

e) Conclusion – Claim 1

For the reasons discussed above, we determine that Petitioner has not demonstrated by a preponderance of the evidence that claim 1 is anticipated by Kummetz-464.

E. Analysis of Claims 2–19

With respect to claims 2–19, Petitioner argues these claims with reference to arguments regarding similar or identical limitations of claim 1, and does not further address QoS with respect to Kummetz-464 or any other prior art. *See* Pet. 35–78. Thus, for the same reasons, we determine that Petitioner has not demonstrated by a preponderance of the evidence that claims 2–19 are unpatentable.

III. CONCLUSION

After considering all the evidence and arguments in the complete record, we conclude that Petitioner fails to demonstrate, by a preponderance of the evidence, that any of the challenged claims are unpatentable.

In summary:

Claims	35 U.S.C. §	Reference(s)/Basis	Claims Shown Unpatentable	Claims Not shown Unpatentable
1–17, 19	102	Kummetz-464		1–17, 19
7, 15–18	103	Kummetz-464		7, 15–18
7	103	Kummetz-464, Kummetz-579		7
17	103	Kummetz-464, Kummetz-999		17
15, 16, 18	103	Kummetz-464, Evans		15, 16, 18
Overall Outcome				1–19

IV. ORDER

Accordingly, it is

ORDERED that claims 1–19 are not unpatentable based on the instituted grounds of unpatentability;

FURTHER ORDERED that because this is a Final Written Decision, parties to the proceeding seeking judicial review of the decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

IPR2021-00408
Patent 10,506,454 B2

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, *Vice Chief Administrative Patent Judge*,
and KARL D. EASTHOM and SHARON FENICK, *Administrative Patent Judges*.

EASTHOM, *Administrative Patent Judge*, dissenting.

I respectfully dissent from the majority's excellent opinion. I respectfully dissent because, in my view, Petitioner persuasively shows on this record that Kummetz-464 discloses the KPI/QoS limitation: "traffic monitoring unit . . . 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." *See* Pet. 30–32.

This limitation requires that "QoS is a function of the one or more KPIs." There is no dispute that Petitioner shows that in Kummetz-464 and in the '454 patent, "QoS is a function of the one or more KPIs." *See* PO Resp. 40–41; Pet. 30–32. For example, Petitioner shows that Kummetz-464's "controller 108 [, the recited 'traffic monitor,'] can determine one or more traffic indicators (*i.e.*, KPIs) and a function of the traffic indicators (*i.e.*, QoS = function of the one or more KPIs)." Pet. 32.

The Petition explains that Kummetz-464 discloses that "the number of wireless devices in each respective coverage zone are the KPIs and the relative concentration of those devices between respective coverage zones (a function of the KPIs) is the QoS." Pet. 31 (citing Ex. 1005, 11:13–15, Figs. 4–5, 10:30–43; Ex. 1003 ¶ 95). To support this showing, the Petition explains that

Kummetz[-464] provides an example in which "DAS 10 may service a stadium and a parking lot surrounding the stadium" having different coverage zones. [Ex. 1005], 10:64–65. In this example, "[t]he base station router 14 can be re-configured via the controller 108 *in response to changes in concentration of wireless devices in the respective coverage zones.*"

Pet. 31 (emphasis added) (quoting Ex. 1005, 11:13–15; citing Ex. 1005, Figs. 4–5, 10:30–43; Ex. 1003 ¶ 95).

Patent Owner does not dispute, and the record shows, that Kummertz-454 determines “changes in concentration of wireless devices in the respective coverage zones.” *See, e.g.,* Ex. 2002 ¶ 22 (Patent Owner’s declarant testifying that “the concentration of wireless devices described in *Kummertz* is an indication of traffic load in a coverage zone”). Therefore, as Petitioner argues, Kummertz-464 discloses determining one or more KPIs (the number of wireless devices in different coverage zones) and a function of that number, the QoS (changes in concentration in each zone). None of this is in dispute.

Claim 1 requires a “traffic monitoring unit . . . 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.” Patent Owner notes that “the ’454 Patent discloses a network monitoring unit that determines Quality of Service (QoS) values indicating *network performance as a function of key performance indicators (KPIs)* to solve a sectorization problem described in the ’454 Patent.” PO Resp. 42 (emphasis added). Patent Owner cites the following example described in the ’454 patent:

As described in the ’454 Patent, *a network performance value (QoS) is calculated as a function of cost factor KPIs including KPIBC, KPIHO, and KPICI:*

$$\text{QoS} = w_1\text{KPIBC} + w_2\text{KPIHO} + w_3\text{KPICI}$$

Ex. 1001 at 14:50–55. Based on the calculated QoS and KPI values, at a time $t + 1$, *traffic performance* is optimized by determining a new sectorization of DRUs that minimizes QoS values to improve network performance since blocked calls, handovers, and compact indices should be minimized in the DAS.

PO Resp. 42 (emphasis added) (citing Ex. 1001, 11:60–62, 14:50–52; Ex. 2002 ¶ 45; Ex. 2023 ¶ 55).⁸

This argument by Patent Owner and the specification shows that the system calculates “network performance value QoS” in order to optimize “traffic performance.” *See* PO Resp. 42; Ex. 1001. 11:37–39 (referring to “traffic performance (QoS)”). As Patent Owner notes, QoS, calculated as a simple weighted function of KPIs, indicates network performance. PO Resp. 42. Patent Owner also appears to equate “traffic performance” and “network performance” by referring to “acceptable performance,” “improv[ed] network performance,” and “optimized” “traffic performance.” *See id.*

Moreover, in the example equation above referenced by Patent Owner ($QoS^{-1} = w_1 KPI^{-1} BC$, when w_2 and $w_3 = 0$, *see supra* note 8), the ‘454 patent specification refers to determining, for example, a number of blocked calls (BCs) as indicating network performance and QoS of network traffic. *See* PO Resp. 42 (referring to “blocked calls” in calculating QoS). But a blocked call is not an indication of someone using the network, even though Patent Owner implies that this example somehow implies an “in use” requirement. *See id.* at 43 (arguing that in contrast to the claimed invention, Kummetz-464’s calculation of “the concentration of wireless devices” “can be an indication of **traffic load**—if in use”). Rather, a blocked caller is not using the network, but attempting to use it. And a cell phone in Kummetz-464’s system necessarily connects to the monitored network and system in order

⁸ The equation reproduced by Patent Owner incorrectly omits the inverse relationship specified for QoS. *See* Ex. 1001, 14:50–55 ($QoS^{-1} = w_1 KPI^{-1} BC + w_2 KPI^{-1} HO + w_3 KPI^{-1} CI$).

for the cell phone to be counted, even if no active call occurs at the time.⁹ Tracking the '454 patent specification, Petitioner shows that determining a concentration of users QoS calculated as a function of a KPI also indicates network performance and QoS of network traffic. *See* Pet. 30–32.

As noted above, Patent Owner states that a function of KPIs ultimately defines “network performance value” QoS—“[a]s described in the '454 Patent, *a network performance value (QoS) is calculated as a function of cost factor KPIs.*” PO Resp. 42 (emphasis added). Moreover, the '454 patent specifically states that “[t]he *network’s performance (expressed by the number of KPIs from different parts of the network)* determines the QoS values.” Ex. 1001, 11:47–50 (emphasis added). And the '454 patent specification refers to using “the KPIs *of the network traffic.*” *Id.* at 10:55 (emphasis added). So the KPIs of network traffic determine the QoS of network traffic, and the weighed KPIs also “express” the network performance, which the system uses to alter network traffic and performance, according to the '454 patent specification and Patent Owner. *See* Ex. 1001, 11:47–50; PO Resp. 42.

As also indicated above, Patent Owner concedes that “[a] POSA understands that concentration of wireless devices in a coverage zone described in *Kummetz* can be an indication of **traffic load**—if in use.” PO Resp. 43 (citing Ex. 1005, 9:44–45, 11:13–28; Ex. 1001, 14:40–51; Ex. 2002 ¶ 22; Ex. 2023 ¶ 58). But Dr. Stapleton, Patent Owner’s expert, initially does not testify that traffic load “can be” an indication of load; rather, he

⁹ Similarly, it is also not clear, and Patent Owner does not explain, how handoffs and compact indexes (w_2KPI^1HO , w_3KPI^1CI) require a measurement of users who are actively calling or their devices are “in use.” *See* PO Resp. 42–43.

testifies that “the concentration of wireless devices described in Kummetz *is* an indication of traffic load in a coverage zone.” Ex. 2002 ¶ 22 (emphasis added).¹⁰ Patent Owner initially asserts that the plain meaning of QoS is a “value indicating network performance.” PO Resp. 41. But as indicated, Patent Owner appears to read “configured to . . . determine (QoS) of network traffic” as requiring the capability of the traffic monitoring unit to measure network traffic by measuring network devices “in use.” *See id.* at 43; Ex. 2002 ¶ 22; Ex. 2003 ¶ 58. Like the ’454 patent specification, however, Patent Owner’s untimely proffered evidence of plain and ordinary meaning of QoS shows “many alternative definitions” and does not support Patent Owner.¹¹

¹⁰ Dr. Stapleton’s supplemental declaration simply repeats the “in use” statement by Patent Owner without any meaningful explanation of what “in use” is or how the claims require it. Ex. 2023 ¶ 58.

¹¹ Patent Owner’s Sur-reply provides two separate definitions of QoS from internet sources and argues that “a POSA would understand the plain and ordinary meaning of QoS to be a measure of network performance.” Sur-reply 14–15. Even if these untimely evidentiary internet sources were proper in a Sur-reply, one definition that Patent Owner supplies does not support Patent Owner because it does not require that QoS involves a measurement “in use” or otherwise. *See id.* at 15. Rather, one internet source quoted by Patent Owner describes QoS as “the *description or measurement* of the overall performance of the service, particularly the performance seen by users of the network.” *Id.* (emphasis added) (quoting Quality of Service, WIKIPEDIA, https://en.wikipedia.org/wiki/Quality_of_Service). The website also states that “quality of service refers to traffic prioritization and resource reservation control mechanisms rather than the achieved service quality.” https://en.wikipedia.org/wiki/Quality_of_Service. It also states that “QoS is *sometimes* used as a quality measure, *with many alternative definitions*, rather than referring to the ability to reserve resources.” *Id.* (emphasis added).

The '454 patent specifically and broadly states that “traffic monitor unit 121 can be a server *determining the number of users on each DAU.*” Ex. 1001, 7:22–23 (emphasis added). It also states that “KPI may comprise information such as: number of blocked calls, number of active calls, average power of uplink channels, average power of downlink channels, traffic on each sector, failed calls, number of satisfied users, *number of unsatisfied users, number of users operating through a given DRU, and the like.*” Ex. 1001, 10:33–39 (emphasis added). Like a blocked caller, the specification does not state that an “unsatisfied user” is using the network while the system measures the level of satisfaction. It also does not state that “a number of users operating” necessarily represents a number of users actually on an active call while being measured by the system as an operating user. The '454 patent specification simply does not require a user to be on an active call for the system to measure a QoS of network traffic—it lists “number of active calls” as simply one option for a KPI. *See id.*

After stating that a “network’s performance” is “expressed by the number of KPIs from different parts of the network,” the next three sentences of the '454 patent state that “[d]ifferent operators may have different defined business goals and different services of interest,” such that “efficient and cost effective network performance management *varies from operator to operator,*” wherein “QoS metrics could be defined and mapped to a set of KPIs.” Ex. 1001, 11:43–55 (emphasis added). Therefore, the '454 patent defines QoS based on a weighted set of KPIs of network traffic (including blocked calls, number of users, or other performance measures,

etc.), and different operators can define these KPIs and QoS of network traffic depending on service and business needs.¹²

As Petitioner also notes, the '454 patent specifically defines “KPIs of the network traffic” as indicating relative traffic loads:

The '454 [p]atent explains that, “using the KPIs *of the network traffic*, the DAS network can be modified to improve system performance. As an example, if a particular DRU has *a higher load* than other adjacent DRUs, traffic can be routed to the adjacent DRUs in order *to reduce the load* on the particular DRU.”

Pet. 32 (emphasis added) (quoting Ex. 1001, 10:55–59). The Petition also notes that Kummetz-464 discloses that “QoS metrics could be defined and mapped to a set of KPIs.” *Id.* (quoting Ex. 11:54–55). In short, Petitioner shows that “Kummetz’s disclosures are consistent with the disclosures in the '454 Patent with regard to KPIs and QoS.” *Id.* (citing Ex. 1003 ¶¶ 97–98; Ex. 1001, 10:33–38).

Even if the challenged claims require a traffic monitor unit configured to measure cell phones or mobile devices “in use,” Petitioner shows how Kummetz-464 monitors traffic/load of cell phones “in use,” noting that Kummetz-464 discloses that a traffic monitor configured to determine “traffic measurements passing low or high thresholds,” “loss of capacity due to high inter-sector interference,” and “*detect[ing] traffic and perform[ing]*

¹² Even if the specification indicates QoS (or QoS of network traffic) is *broader* than a plain and ordinary meaning of these terms as generally advanced by Patent Owner, Patent Owner unpersuasively cites cases that stand for the well-known legal principle that *narrowing* of the plain and ordinary meaning requires lexicography or disavowal. *See* Sur-reply 15 (citing *Hill-Rom Servs. v. Stryker Corp.*, 755 F.3d 1367, 1371 (Fed. Cir. 2014) (“we do not read limitations from the embodiments in the specification into the claims”)).

measurements independent of a wireless network standard and protocol.”
See Pet. 30 (emphasis added) (quoting Ex. 1005, 9:44–54). Petitioner also shows that Kummetz-464 discloses “*implement[ing] any process for measuring uplink signals for traffic* and other types of information.” *Id.* (emphasis added) (quoting Ex. 1005, 9:58–61). Therefore, Petitioner shows that Kummetz-464 discloses a traffic monitor configured to monitor, measure, and determine the number and relative concentration of mobile devices “in use” (e.g., on active calls or otherwise in “traffic”), thereby showing that Kummetz-464 discloses QoS of a network traffic even under Patent Owner’s implied construction.

In summary, Petitioner shows that Kummetz-464’s traffic monitor measures these KPIs and QoS while users are in traffic using the network after a game or event by detecting “traffic measurements passing low or high thresholds,” “detect[ing] traffic and perform[ing] measurements,” and/or “*implement[ing] any process for measuring uplink signals for traffic* and other types of information,” as the monitor collects “data . . . corresponding to a number of mobile devices in each coverage zone.” See *id.* at 30 (quoting Ex. 1005, 9:44–61). Patent Owner simply denies that Kummetz-464 shows measuring devices “in use” without addressing in a clear fashion Petitioner’s showing that Kummetz-464’s traffic monitoring unit measures devices in traffic as it determines the number of users in a coverage zone, and Patent Owner otherwise concedes Petitioner’s showing related to KPIs/QoS. Petitioner persuasively shows that Kummetz-464 discloses the disputed QoS/KPI “of a network traffic” limitation.

Accordingly, I respectfully dissent.

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