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United States District Court
Northern District of California

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA

DALI WIRELESS, INC.,
Plaintiff,
v.
CORNING OPTICAL
COMMUNICATIONS LLC,
Defendant.

Case No. [20-cv-06469-EMC](#)

CLAIM CONSTRUCTION ORDER

Docket No. 76

Plaintiff Dali Wireless, Inc. has sued Defendant Corning Optical Communications, LLC for patent infringement. There are three patents at issue:

- ‘454 patent, titled “Optimization of traffic load in a distributed antenna system.”
- ‘261 patent, titled “Self-optimizing distributed antenna system using soft frequency reuse.”
- ‘358 patent, titled “Method and system for soft frequency reuse in a distributed antenna system.”

As the titles above indicate, the three patents are all related to a distributed antenna system (DAS).

As explained in one of the patents, “[d]istributed antenna systems (DAS) have been widely implemented in state-of-the art cellular communication systems to cover dead spots in wireless communications systems.” ‘261 patent, col. 3, ll. 49-52.

A DAS breaks the traditional radio base station architecture into two pieces: a central processing facility and a set of distributed antenna (DA), connected to the central facility by a high-bandwidth network. The DAS network transports radio signals, in either analog or digital form, to/from the central facility where all the base station’s processing is performed. By replacing a single high-power antenna with several low-power antennas, distributed to give the same

1 coverage as the single antenna, a DAS is able to provide more
2 reliable wireless services within a geographic area or structure while
3 reducing its power consumption.

4 ‘261 patent, col. 3, ll. 53-63.

5 The parties have asked the Court to construe ten terms used in the three patents. Below are
6 the Court’s constructions.

7 I. LEGAL STANDARD

8 Claim construction is a question of law, although it may have factual underpinnings. *See*
9 *Icon Health & Fitness, Inc. v. Polar Electro Oy*, 656 Fed. App’x 1008, 1013 (Fed. Cir. 2016); *see*
10 *also Multilayer Stretch Cling Film Holdings, Inc. v. Berry Plastics Corp.*, 831 F.3d 1350, 1357
11 (Fed. Cir. 2016). It “serves to define the scope of the patented invention and the patentee’s right
12 to exclude.” *HTC Corp. v. Cellular Communs. Equip., LLC*, 877 F.3d 1361, 1367 (Fed. Cir.
13 2017); *see also O2 Micro Int’l Ltd. v. Beyond Innovation Tech. Co.*, 521 F.3d 1351, 1360 (Fed.
14 Cir. 2008) (stating that “the purpose of claim construction is ‘to determin[e] the meaning and
15 scope of the patent claims asserted to be infringed’”).

16 Words of a claim are generally given their ordinary and customary
17 meaning, which is the meaning a term would have to a person of
18 ordinary skill in the art after reviewing the intrinsic record at the
19 time of the invention. “In some cases, the ordinary meaning of
20 claim language . . . may be readily apparent even to lay judges, and
21 claim construction in such cases involves little more than the
22 application of the widely accepted meaning of commonly
23 understood words.” However, in many cases, the meaning of a
24 claim term as understood by persons of skill in the art is not readily
25 apparent.

26 *Id.* (quoting *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312-13 (Fed. Cir. 2005)).

27 Because the meaning of a claim term as understood by persons of
28 skill in the art is often not immediately apparent, and because
patentees frequently use terms idiosyncratically, the court looks to
“those sources available to the public that show what a person of
skill in the art would have understood disputed claim language to
mean.” Those sources include “the words of the claims themselves,
the remainder of the specification, the prosecution history, and
extrinsic evidence concerning relevant scientific principles, the
meaning of technical terms, and the state of the art.”

Phillips, 415 F.3d at 1314. Although extrinsic evidence “can shed useful light on the relevant art,
... it is less significant than the intrinsic record in determining the legally operative meaning of

claim language.” *Id.* at 1317 (internal quotation marks omitted).

II. DISCUSSION

A. “Digital Access Unit” / “DAU” (‘454 patent, claims 1, 2, 5)

| Dali’s Proposed Construction | Corning’s Proposed Construction | Court’s Construction |
|--|--|---|
| “Digital Access Unit” / “DAU” (‘454 Patent, claims 1, 2, 5) | | |
| a unit that manages communications between a mobile network operator and one or more radio remote units ^[1] | a unit of a DAS that supports the transport of radio resource signals between at least one signal source and the one or more DAUs and/or plurality of DRUs | a unit in a DAS that controls the transport/routing and gain of radio resource signals between (1) a signal source(s) (such as a base transceiver station or picocell) and (2) DRUs |

The term “digital access unit” or “DAU” appears in the ‘454 patent. Claim 1 is a representative claim using the term, providing in relevant part as follows:

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;

¹ Dali proposed a slightly different construction in its opening brief but modified its construction in its reply brief to address a concern raised by Corning. *See* Reply at 1.

In its papers, Dali underscores that its construction is consistent with the construction given to the term “DAU” by a federal court in Delaware in *Dali Wireless, Inc. v. Commscope Techs. LLC*, No. 19-952 (MN) (D. Del.). *See* Schumann Decl., Ex. 8 (Order at 6-7). But there the court was not construing the ‘454 patent.

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

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

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

9 ‘454 patent, claim 1 (emphasis added).

10 There are several disputes related to the DAU: (1) is a DAU a unit of DAS?; (2) what are
11 the structures for which a DAU serves as an intermediary?; and (3) what function does a DAU
perform? In general, Corning’s construction is more on point.

12 1. Is a DAU a Unit of a DAS?

13 Corning argues that a DAU is a unit of a DAS and thus the construction should reflect
14 such. In response, Dali argues that the Court should not, in effect, import the term “DAS” from
15 the preamble. Dali is correct in its assessment that deeming a DAU a unit of a DAS would
16 essentially import the term “DAS” from the preamble into the claim. However, Corning has the
17 better argument that a DAU is a unit of a DAS – *i.e.*, the term “DAS” from the preamble *should* be
18 imported.

19 “Whether a preamble stating the purpose and context of the invention constitutes a
20 limitation of the claimed process is determined on the facts of each case in light of the overall
21 form of the claim, and the invention as described in the specification and illuminated in the
22 prosecution history.” *Applied Mats., Inc. v. Adv. Semiconductor Mats. Am., Inc.*, 98 F.3d 1563,
23 1572-73 (Fed. Cir. 1996); *see also Catalina Mktg. Int’l v. Coolsavings.com, Inc.*, 289 F.3d 801,
24 808 (Fed. Cir. 2002) (stating that, when a court decides whether a preamble is a limitation, it must
25 consider “‘the entire[] . . . patent to gain an understanding of what the inventors actually invented
26 and intended to encompass by the claim’”).

27 In general, a preamble limits the invention if it recites essential structure or steps, or if it is
28 “necessary to give life, meaning, and vitality” to the claim; conversely, a preamble is not limiting

1 “where a patentee defines a structurally complete invention in the claim body and uses the
2 preamble only to state a purpose or intended use for the invention.” *Id.* The Federal Circuit has
3 stated that “[n]o litmus test defines when a preamble limits claim scope,” but “[s]ome guideposts
4 . . . have emerged from various cases discussing the preamble’s effect on claim scope.” *Id.*

5 For example:

- 6 • “Jepson claiming^[2] generally indicates intent to use the preamble to define the
7 claimed invention, thereby limiting claim scope.”
- 8 • “[W]hen the preamble is essential to understand limitations or terms in the claim
9 body, the preamble limits claim scope.”
- 10 • “[W]hen reciting additional structure or steps underscored as important by the
11 specification, the preamble may operate as a claim limitation.”
- 12 • “[A] preamble generally is not limiting when the claim body describes a
13 structurally complete invention such that deletion of the preamble phrase does not
14 affect the structure or steps of the claimed invention.”

15 *Intri-Plex Techs., Inc. v. NHK Int’l Corp.*, No. 17-cv-01097-EMC, 2018 U.S. Dist. LEXIS 16877,
16 at *7-8 (N.D. Cal. Feb. 1, 2018) (internal quotation marks omitted).

17 The factors above weigh in favor of deeming the term “DAS” as used in the preamble a
18 claim limitation. For instance, claim 1 of the ‘454 patent has some similarity to a Jepson claim in
19 that a DAS is a known system and the ‘454 patent is claiming an improvement in that system.
20 Also, a DAS is essential to understand the terms used in the claim body (including but not limited
21 to DRU). Furthermore, the specification of the ‘454 patent makes clear the importance of a DAS
22

23 2

24 A “Jepson” claim is one that contains (1) a preamble that recites an
25 old device, process, or combination, (2) a transition phrase such as
26 “wherein the improvement comprises,” and (3) a body which states
27 the new elements or improvements upon the old device, process, or
28 combination. The preamble in a Jepson claim constitutes “a
limitation for purposes of determining patentability and
infringement.”

28 *Xilinx, Inc. v. Altera Corp.*, No. 93-20409 SW, CIVIL NO. 96-20922 SW, 1998 U.S. Dist. LEXIS
14774, at *6-7 (N.D. Cal. July 30, 1998).

1 to the invention – from the title of the patent to the abstract and the summary of the invention.
 2 Finally, the claim body does not describe a structurally complete invention in that deletion of the
 3 term “DAS” from the preamble would detract from understanding the claim. *See generally Deere*
 4 *& Co. v. Bush Hog, LLC*, 703 F.3d 1349 (Fed. Cir. 2012) (finding the preamble term “rotary cutter
 5 deck” limiting in nature – *e.g.*, because it was necessary to understand the subject matter
 6 encompassed by the claim and because it described a fundamental characteristic of the claimed
 7 invention that informed one of skill in the art as to the structure required by the claim; adding that
 8 the title of the patent, the summary of the invention, and every drawing described the invention as
 9 a deck for a rotary cutter).

10 Accordingly, Corning is correct that a DAU is a unit of a DAS.

11 2. What Are the Structures for Which a DAU Serves as an Intermediary?

12 The parties do not dispute that a DAU essentially serves as an intermediary between two
 13 structures. *See, e.g.*, ‘454 patent, FIG. 1 (indicating that a DAU(s) is positioned between a base
 14 transceiver station (BTS) and DRUs). However, they disagree as to what structures should be
 15 identified as the structures for which a DAU is an intermediary. According to Dali, a DAU
 16 connects (1) a mobile network operator and (2) radio remote units (“RRUs”); according to
 17 Corning, a DAU connects (1) a signal source and (2) DRUs (*i.e.*, digital remote units).

18 a. Mobile Network Operator v. Signal Source

19 As indicated above, the parties’ first dispute is whether the structure at one end should be
 20 deemed a mobile network operator (Dali) or a signal source (Corning).

21 The Court rejects Dali’s position. The specification for the ‘454 patent – though it
 22 mentions operators in passing – never discusses a DAU acting as a direct intermediary for an
 23 operator. Rather, it typically refers to a DAU acting as a direct intermediary for a base transceiver
 24 station (BTS). For example:

- 25 • FIG. 1 of the patent indicates that a DAU(s) is connected on one end to a BTS and
- 26 on the other end to DRUs.
- 27 • The patent refers to a “DAS network compris[ing] one or more digital access units
- 28 (DAUs) that function as the interface between the base stations and the digital

1 remote units (DRUs).” ‘454 patent, col. 4, ll. 60-63.

2 Admittedly, Dali’s position is not entirely without merit. It appears that a BTS is
3 connected to a mobile network operator and, in in this respect, a DAU does have a connection to
4 an operator – *i.e.*, through the BTS. However, for purposes of construction, and in light of the
5 specification, a DAU is better defined in conjunction with its *direct* connections, and not with its
6 connections further down the line.

7 Corning suggests that the direct connection be defined as simply a “signal source” (the
8 term that is used in claim 1). It does so in recognition of the fact that a BTS is not the only kind of
9 signal source identified by the ‘454 patent. FIG. 6, for example, identifies the signal source as a
10 BTS Hotel with picocells inside. *See also* ‘454 patent, col. 9, ll. 58-59 (“As shown in FIG. 6, the
11 base station hotel (610) is comprised of multiple Picocells.”). However, simply repeating “signal
12 source” in the construction would likely be unhelpful to the jury. It is likely that the jury would
13 benefit from having at least examples of what a signal source can be – for instance, a BTS or a
14 picocell. The Court therefore shall incorporate examples in its construction.

15 b. Radio Remote Unit (“RRU”) v. Digital Remote Unit (“DRU”)

16 The parties’ second dispute is whether the structure at the other end should be identified as
17 RRUs (Dali) or DRUs (Corning).

18 Using the term “RRU” – as Dali suggests – does not make much sense, particularly since
19 the patent does not use that terminology.³ In contrast, the term “DRU” is used in the patent.
20 Moreover, the jury will not be confused by reference to a DRU because the parties have asked the
21 Court to construe that term as well. *See infra*.

22 3. What Function Does a DAU Perform?

23 Finally, the parties disagree as to what function a DAU performs. In particular, the parties
24

25 ³ Dali argues that a RRU is the same thing as a DRU but it has suggested the use of “RRU”
26 because it is “more descriptive and helpful to the jury.” Op. Br. at 6 n.1. Corning disagrees that a
27 RRU is the same thing as a DRU. *See* Resp. Br. at 8 (arguing that “RRU” “does not appear
28 anywhere in the ‘454 patent, and no POSA [person of skill in the art] would have thought to
replace the DRUs in the claims with RRUs”; adding that, in another Dali patent (the ‘300 patent),
RRUs and DRUs are differentiated – a DRU communicates with a DAU while an RRU
communicates with a base station).

1 disagree as to (1) whether a DAU does more than just transport/route signals and (2) what kind of
2 signals a DAU deals with.

3 a. Transporting/Routing Signals

4 The parties agree that a DAU transports/routes signals. This is borne out by the patent
5 specification. *See, e.g.*, ‘454 patent, col. 1, ll. 45-48 (“The system includes a plurality of Digital
6 Access Units (DAUs). The plurality of DAUs are coupled and operable to route signals between
7 the plurality of DAUs.”); ‘454 patent, col. 6, ll. 23-26 (“The DAUs are networked together to
8 facilitate the routing of DRU signals among multiple DAUs. The DAUs support the transport of
9 the RF downlink and RF uplink signals between the Base Station and the DRUs.”); ‘454 patent,
10 col. 6, ll. 62-66 (“Referring to FIG. 1 . . . , DAU 1 (102) receives downlink signals from BTS
11 Sector 1 (101). DAU 1 translates the RF signals to optical signals and the optical fiber cable 103
12 transports the desired signals to DRU 2 (104).”).

13 The parties’ dispute arises from whether a DAU does more. In its papers, Dali suggests
14 that a DAU can also *manage* signals and *create* signals.

15 On managing signals, there is some language in the specification suggesting that a DAU
16 has an active role with respect to routing. *See, e.g.*, ‘454 patent, col. 6, ll. 30-37 (“The DAUs have
17 the capability to control the gain (in small increments over a wide range) of the downlink and
18 uplink signals that are transported between the DAU and the base station (or base stations)
19 connected to that DAU. This capability provides flexibility to simultaneously control the uplink
20 and downlink connectivity of the path between a particular DRU . . . and a particular base station
21 sector.”); ‘454 patent, col. 7, ll. 61-62 (“The DAUs control the routing of data between the base
22 station and the DRUs.”); ‘454 patent, col. 8, ll. 51-53 (“Because the DRUs data traffic has unique
23 streams, the DAU Router has the mechanism to route the signal to different sectors.”). But the
24 Court finds the term “manage” inappropriate as it is somewhat nebulous and further could be
25 construed to overstate what role a DAU plays (particularly, compared to the traffic monitoring
26 unit). Thus, the Court shall not use the term “manage” but instead will draw on language used in
27 the patent specification instead – *i.e.*, that a DAU controls the routing and gain of signals.

28 As for the assertion that a DAU creates signals, here, Dali’s position is problematic.

1 According to Dali, the specification

2 expressly describe[s] the DAU as creating and assigning radio
3 resources to DRUs without having to obtain them from a BTS or
4 other entity. For example, the embodiments described in reference
5 to Figs. 6-8 show inputs from picocells that do not provide multiple
6 radio resources to the DAU, but rather provide user data
7 communications limited to a single frequency band. The DAU
8 creates its own “radio resources” by combining the communications
9 from multiple picocells and distributes those radio resources to
10 DRUs as needed to optimize traffic load in the system. These
11 embodiments do not require the DAU to receive “radio resource
12 signals” from another entity such as a BTS, but rather, the DAU
13 provides its own resource assignments.

9 Op. Br. at 9. But the part of the specification that Dali cites does not lend support to its position.

10 For example, the specification provides in relevant part as follows:

11 As shown in FIG. 6, the base station hotel (610) is comprised of
12 multiple Picocells. The Picocells are typically wireless operator
13 dependent and frequency band dependent. Picocells that operate in
14 the same frequency band *are combined at RF and input to the*
15 *respective DAUs*. The DAU radio resources from the combined
16 Picocells are transported to a daisy-chained network of DRUs. Each
17 individual DAUs radio resources provide coverage to an
18 independent geographical area via the networked DRUs. . . .

16 As shown in FIG. 7, the base station hotel (710) is comprised of
17 multiple Picocells. The Picocells are typically wireless operator
18 dependent and frequency band dependent. Picocells that operate in
19 the same frequency band *are combined at RF and input to the*
20 *respective DAUs*. The DAU radio resources from the combined
21 Picocells are transported to a daisy-chained network of DRUs. Each
22 individual DAUs [sic] radio resources provide coverage to an
23 independent geographical area via the networked DRUs.

20 ‘454 patent, col. 10, ll. 5-13 (emphasis added). The italicized language above makes clear that
21 DAUs do not combine communications from picocells, as Dali suggests; rather the combined
22 communications from the picocells are input into the DAUs. There is no indication in the
23 specification that DAUs create signals. Therefore, Dali’s claim that DAUs create signals lacks
24 merit.

25 b. Type of Signals

26 The parties’ final dispute is what type of signals are transported/routed by a DAU. Dali
27 contends that the signals can be just the user data (*e.g.*, voice/data communications) *without* the
28 radio resources that carry the data; Corning asserts that the radio resource signals must be

1 transported/routed.⁴

2 Corning’s position is amply supported by the specification.

- 3 • “One feature of embodiments of the present invention is the ability to route Base
- 4 Station radio resources among the DRUs or group(s) of DRUs.”⁵ ‘454 patent, col.
- 5 6, ll. 16-18.
- 6 • “The DAUs support the transport of the RF downlink and RF uplink signals
- 7 between the Base Station and the DRUs.” ‘454 patent, col. 6, ll. 24-26.
- 8 • “As shown in FIG. 1, the individual base station sector’s radio resources are
- 9 transported to a daisy-chained network of DRUs. Each individual sector’s radio
- 10 resources provided coverage to an independent geographical area via the networked
- 11 DRUs.” ‘454 patent, col. 6, ll. 54-56; *see also* ‘454 patent, FIGs. 1, 3, 6-7
- 12 (reflecting that RF cables connect the DAUs to the BTSs).
- 13 • “Referring to FIG. 3 and by way of example, DAU 1 (302) receives downlink
- 14 signals from BTS Sector 1 (301). DAU 1 translates the RF signals to optical
- 15 signals and the optical fiber cable 303 transports the desired signals to DRU 2
- 16 (304).” ‘454 patent, col. 8, ll. 31-35.
- 17 • “As shown in FIG. 6, the base station hotel (610) is comprised of multiple

18 _____

19 ⁴ The parties do not dispute what radio resources are, particularly as that term is used in the
 20 specification. *See, e.g.*, ‘454 patent, col. 4, ll. 30-35 (“With Flexible Simulcast, the amount of
 21 radio resources (such as RF carriers, LTE Resource Blocks, CDMA codes or TDMA time slots)
 22 assigned to a particular DRU or group of DRUs can be set via software control to meet desired
 23 capacity and throughput objects or wireless subscriber needs.”); *see also* Op. Br. at 8, 10
 24 (describing radio resources as “radio system parameters that allow a system to provide more or
 25 less throughput or bandwidth to users”; also stating that radio resources are “parameters that
 26 instruct DRUs how to communicate underlying user data to phone users”).

27 Nor do the parties seem to have any real dispute about what radio resource signals are,
 28 notwithstanding the fact that the term “radio resource signals” is not used in the ‘454 patent. *See,*
e.g., Proctor Decl. ¶ 49 (Corning’s expert stating that the signals at issue in the patent “are defined
 by *what* they transport, which are radio resources in the form of radio resource signals”) (emphasis
 added and omitted).

Rather, the parties’ dispute is – as noted above – whether signals can be user data *without*
 any radio resources.

⁵ Notably, this sentence from the specification does not limit itself to *one* embodiment of the
 present invention. Rather, the sentence simply refers to *one* feature of *embodiments*.

1 Picocells. . . . The DAU radio resources from the combined Picocells are
2 transported to a daisy-chained network of DRUs. Each individual DAUs [sic] radio
3 resources provide coverage to an independent geographical area via the networked
4 DRUs.” ‘454 patent, col. 9, l. 58-66.

5 In contrast, Dali has not cited to any part of the specification that indicates signals can be
6 just user data without the radio resources that carry the data. At the hearing, Dali pointed out that
7 it owns a different patent (the ‘499 patent), which has some of the same inventors as the ‘454
8 patent, and, in that patent, the claims use the term “radio resources” instead of “signals.” Thus,
9 Dali contends, “radio resources” and “signals” must mean different things.⁶ The problem for Dali
10 is that the ‘499 patent cannot supplant what is stated in the specification of the ‘454 patent. *See*
11 *Young Dental Mfg. Co. v. Q3 Special Prods.*, 112 F.3d 1137, 1143 (Fed. Cir. 1997) (stating that
12 “[t]he specification that is relevant to claim construction is the specification of the patent in which
13 the claims reside”); *cf. Medrad, Inc. v. MRI Devices Corp.*, 401 F.3d 1313, 1318 (Fed. Cir. 2005)
14 (noting that “the manner in which [a] term is used in [a] patent may dictate a definition that differs
15 from the definition that would be given to the same term in a different patent with a different
16 specification or prosecution history”).

17 To the extent Dali asserts that “importing limitations from the specification is
18 inappropriate,” this is true; however, “it is appropriate to consider the specification for proper
19 context about the meaning of a contested term.” *Asetek Danmark A/S v. CoolIT Sys.*, No. 19-cv-
20 00410-EMC, 2020 U.S. Dist. LEXIS 129728, at *40 (N.D. Cal. July 22, 2020) (emphasis added).
21 The Federal Circuit has “acknowledged the difficult distinction between ‘using the specification to
22

23 ⁶ In a decision related to the ‘499 patent – involving Dali and a different party – *see John*
24 *Mezzalingua Assocs., LLC v. Dali Wireless Inc.*, No. IPR202-01430 (PTAB) – the PTAB
25 concluded that “radio resources” do not include the underlying data (i.e., the voice/data
26 communications themselves). *See* Resp. Br., Ex. K (PTAB Decision at 10) (“To the extent that
27 Petitioner intends its construction of ‘radio resources’ to encompass the data being transmitted via
28 RF, we disagree that is a proper construction of the term. The ‘499 patent gives as examples of
‘radio resources’ RF carriers, CDMA codes, and TDMA time slots. No indication is given that the
data carried wirelessly using these over the interface to the DAU is, itself, a radio resource.
Rather, the ‘499 patent describes deploying ‘radio resources’ ‘for use by a particular DRU which
need[s] those radio resources within its coverage area,’ or modifying system configuration to
‘remove’ ‘radio resources’ ‘for use by a particular DRU.’”).

1 interpret the meaning of a claim and importing limitations from the specification into the claim”
 2 but explained that “the distinction is manageable ‘if the . . . focus remains on understanding how a
 3 person of ordinary skill in the art would understand the claim terms.’” *Baldwin Graphic Sys., Inc.*
 4 *v. Siebert, Inc.*, 512 F.3d 1338, 1345 (Fed. Cir. 2008) (quoting *Phillips*, 415 F.3d at 1323).
 5 Notably, “the court should focus on how such a person would understand the claim term ‘after
 6 reading the entire patent.’” *ICU Med., Inc. v. Alaris Med. Sys.*, 558 F.3d 1368, 1375 (Fed. Cir.
 7 2009); *see also O2 Micro Int’l Ltd. v. Beyond Innovation Tech. Co.*, 521 F.3d 1351, 1360 (Fed.
 8 Cir. 2008) (stating that “[w]ords of a claim are generally given their ordinary and customary
 9 meaning, which is the meaning a term would have to a person of ordinary skill in the art *after*
 10 *reviewing the intrinsic record at the time of the invention*”) (emphasis added).

11 For example, in *ICU*, the district court construed the term “spike” as “an elongated
 12 structure having a pointed tip for piercing the seal, which tip may be sharp or slightly rounded.” It
 13 rejected the patent holder’s proposed construction was which broader in nature (“an upward
 14 projection”). *See ICU*, 558 F.3d at 1374. On appeal, the Federal Circuit affirmed. After noting
 15 that a “court should focus on how such a person would understand the claim term ‘after reading
 16 the entire patent,’” the Federal Circuit explained that, in the case under consideration,

17 *[t]he specification never suggests that the spike can be anything*
 18 *other than pointed.* As the district court noted, (1) each figure
 19 depicting an activated valve, the spike pierces the seal; and (3) the
 20 patents neither describe piercing as optional nor describe any non-
 21 piercing item as a spike. Moreover, *ICU* offers no support from any
 intrinsic or extrinsic source in support of its claim that the ordinary
 meaning of spike would include a non-pointed structure such as a
 tube or a straw.

22 *ICU*, 558 F.3d at 1375 (emphasis added).

23 The situation in the instant case is similar to that in *ICU* – *e.g.*, although the term “signal”
 24 is arguably broad in nature, the specification for the ‘454 patent does not indicate that the DAU
 25 ever transports user data without radio resources. As Corning aptly argues, the patent does not
 26 *require* that user data be transported along with radio resources; the “signals transport radio
 27 resources and *may* – but are not *required* to – transport data.” Resp. Br. at 9-10 (emphasis in
 28 original).

4. Summary

Accordingly, the Court adopts the following construction for the term “DAU”: “a unit in a DAS that controls the transport/routing and gain of radio resource signals between (1) a signal source(s) (such as a base transceiver station or picocell) and (2) DRUs.”

B. “digital remote unit” / “DRU” (‘454 patent, claims 1, 6; ‘261 patent, claims 1, 4-6, 8)

| Dali’s Proposed Construction | Corning’s Proposed Construction | Court’s Construction |
|--|--|---|
| “digital remote unit” / “DRU” (‘454 patent, claims 1, 6; ‘261 patent, claims 1, 4-6, 8) | | |
| a unit in communication with a digital access unit for providing communications to and from user devices | a unit of a DAS that supports the transport of the radio resource signals between users and a central facility and/or one or more DAUs | a unit in a DAS that transports radio resource signals to and from user devices |

The term “digital remote unit” or “DRU” is used in both the ‘454 and ‘261 patents. The parties agree that the term should be defined the same for both patents. For purposes of this order, the Court focuses on the ‘454 patent. Claim 1 of the ‘454 patent provides in relevant part as follows:

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;

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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

‘454 patent, claim 1 (emphasis added).

The parties’ dispute regarding the term “DRU” largely replicates their dispute above regarding the term “DAU” – *e.g.*, the parties disagree about whether a DRU is part of a DAS and what type of signals are transported. As discussed above, these issues are resolved in favor of Corning. However, there is one part of Dali’s proposed construction that the Court adopts, largely because it is a simpler and more direct construction. That is, the Court shall refer to DRUs transporting signals to and from user devices, rather than stating that DRUs connect to (1) user devices on one end and (2) a central facility and/or DAUs on the other end. (The Court recognizes, however, that DRUs are, in essence, positioned between user devices and the DAUs.)

The Court adopts the following construction for DRU: “a unit in a DAS that transports radio resource signals to and from user devices.”

C. “sector” terms (‘454 patent, claim 1)

| Dali’s Proposed Construction | Corning’s Proposed Construction | Court’s Construction |
|---|---|--|
| <p>“a plurality of sectors” / “a first sector” / “a second sector different from the first sector” (‘454 patent, claim 1)</p> | | |
| <p>“sector” is “a grouping of DRUs in a particular area or region</p> | <p>“a plurality of independent radio resources” / “first independent radio resources” / “second independent radio resources different from the first independent radio resources”</p> | <p>“sectors” are “independent radio resources”</p> |

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|----|--|-------------------------------|---|
| 1 | “a plurality of sectors formed from the plurality of DRUs comprising a first sector and a | | |
| 2 | second sector different from the first sector, each sector comprising a subset of DRUs” | | |
| 3 | (‘454 patent, claim 1) | | |
| 4 | assigning DRUs into two | a plurality of independent | plain and ordinary meaning |
| 5 | groupings in a particular area, | radio resources, comprising | [<i>i.e.</i> , unnecessary to construe |
| 6 | a first grouping in a first area | first independent radio | given construction above] |
| 7 | or region and a second | resources and second | |
| 8 | grouping in a second area or | independent radio resources, | |
| 9 | region | to which the plurality of | |
| 10 | | DRUs are allocated | |
| 11 | “reconfiguring the plurality of sectors based on the one or more KPIs and QoS by allocating at | | |
| 12 | least one DRU from the first sector to the second sector” | | |
| 13 | (‘454 patent, claim 1) | | |
| 14 | reallocating at least one DRU | allocate at least one DRU | plain and ordinary meaning |
| 15 | from one sector to another | from the first independent | [<i>i.e.</i> , unnecessary to construe |
| 16 | sector based on the one or | radio resources to the second | given construction above] |
| 17 | more KPIs and QoS | independent radio resources | |
| 18 | | based on the one or more | |
| 19 | | KPIs and QoS | |

20
21 The term “sector” or “sectors” is used in the ‘454 patent. Claim 1 is a representative claim,
22 providing as follows:

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

25 one or more Digital Access Units (DAUs) operable to receive at
26 least one signal from at least one of a first signal source and a
27 second signal source from the plurality of signal sources, each
28 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;

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

4 a plurality of **sectors** formed from the plurality of DRUs
5 comprising a first sector and a second sector different from the
6 first sector, each **sector** comprising a subset of the plurality of
7 DRUs; and

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

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

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

19 ‘454 patent, claim 1 (emphasis added).

20 Although the parties have identified three sector-related terms for construction, the basic
21 dispute for all three terms is whether a “sector” means “a grouping of DRUs in a particular region
22 or area” (Dali) or “independent radio resources” (Corning). The Court rejects Dali’s construction
23 and largely adopts Corning’s.

24 In essence, Dali’s construction equates a sector with a group of DRUs – *i.e.*, a sector is
25 made up of DRUs. *See* Resp. Br. at 14. If one were to look at claim 1 in a vacuum, then that
26 construction might be plausible. For example, claim 1 on its face refers to “a plurality of sectors
27 *formed* from the plurality of DRUs” and “each sector *comprising* a subset of the plurality of
28 DRUs.” ‘454 patent, claim 1 (emphasis added). However, the specification for the ‘454 patent
shows that that construction is off the mark.

First, the specification expressly defines what sectors are. The specification states at one
point: “A typical base station comprises 3 *independent radio resources, commonly known as*
sectors. These 3 sectors are typically used to cover 3 separate geographical areas without creating
co-channel interference between users in the 3 distinct sectors.” ‘454 patent, col. 5, ll. 2-4
(emphasis added). This express definition cannot be disregarded: sectors are radio resources; it is
not defined by DRUs. *Cf. Samsung Elecs. Co. v. Elm 3DS Innovations, LLC*, 925 F.3d 1373,

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Northern District of California

1 1377-78 (Fed. Cir. 2019) (stating that a court “will deviate from a claim term’s ordinary meaning
2 ‘when a patentee sets out a definition and acts as its own lexicographer’”); *Laryngeal Mask Co. v.*
3 *Ambu A/S*, 618 F.3d 1367, 1372 (Fed. Cir. 2010) (stating that, “[t]o be his own lexicographer, a
4 patentee must use a ‘special definition of the term [that] is clearly stated in the patent specification
5 or file history’”).

6 Second, the specification also makes clear that a sector is *not* a group of DRUs. Most
7 notably, in the figures of the ‘454 patent, it is clear that a grouping of DRUs (*e.g.*, in a hexagon) is
8 called a *cell*, not a sector. For example, below is FIG. 1:

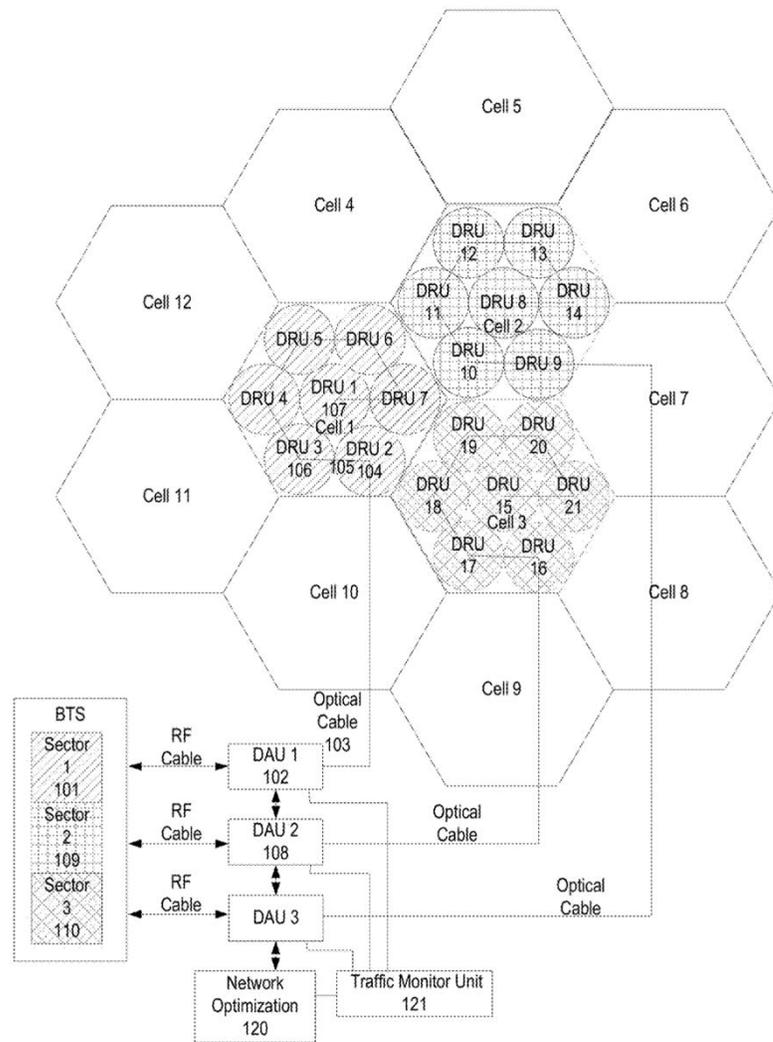


FIG. 1

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28 '454 patent, FIG. 1. This is reinforced by text from the specification: “FIG. 1 demonstrates how

1 three cells, each cell *comprising an independent network of 7 DRUs*, provide coverage to a given
 2 geographical area.” ‘454 patent, col. 6, ll. 58-60 (emphasis added); *see also* ‘454 patent, col. 5, l.
 3 60-col. 6, l. 1. (“An embodiment shown in FIG. 1 illustrates a basic DAS network architecture
 4 according to an embodiment of the present invention and provides an example of a data transport
 5 network, traffic monitoring and network optimization scenario between a 3 sector Base Station
 6 and multiple DRUs. In this embodiment, the DRUs are daisy chained together to achieve
 7 coverage in a specific geographical area. Each individual sector covers an independent
 8 geographical area, which is identified as a Cell.”).⁷ FIG. 1 above also shows pictorially that
 9 sectors are *separate* from the DRUs (the sectors are “housed” within the Base Transceiver Station
 10 (“BTS”)) but that the sectors are still *related to* the coverage area of the DRUs.

11 In its reply brief, Dali argues that “the term ‘sectors’ has *traditionally* meant a particular
 12 coverage area.” Reply at 4 (emphasis added). In support, Dali cites to two prior art references
 13 that are expressly identified in the ‘454 patent (*i.e.*, the ‘530 patent application and the ‘207
 14 patent). For example, in ¶ 0003 of the ‘530 patent application, the inventors noted that cells may
 15 be divided into sectors. But Dali’s position here is not particularly convincing because the
 16 inventors of the ‘454 patent acted as their own lexicographers. So even if different inventors used
 17 the term “sector” in their intellectual property, that is not dispositive here. Notably, Dali’s own
 18 expert did not provide an opinion on the term “sector” in spite of Dali’s argument that it has a
 19 traditional meaning. *See* note 7, *supra*.

20 Dali protests still that the prosecution history for the ‘454 patent shows its construction of
 21 “sector” is correct. Specifically, Dali points to its response to the PTO’s Final Office Action
 22 where it stated as follows:

23 The Examiner . . . cites Sombrutzki as disclosing this limitation [*i.e.*,
 24 a traffic monitoring unit external to and coupled to at least one of the
 25 DAUs, wherein the traffic monitoring unit is configured to:
 determine one or more key performance indicators (KPIs) and a

26 ⁷ Corning’s expert points out this distinction between cells and sectors, *see* Proctor Decl. ¶ 67
 27 (stating that “[a] POSA would have . . . understood Dali’s proposed construction to refer to ‘cells,’
 28 not ‘sectors’[;] [c]ells refer to geographic areas or regions, which is very different than
 independent radio resources”), whereas Dali’s expert appears to have provided no opinion on
 sectors at all. *See generally* Bims Decl.

1 quality of service (QoS) of a network traffic for the one or more
 2 DAUs, wherein the QoS is a function of the one or more KPIs; and
 3 reconfigure the plurality of sectors based on the one or more KPIs
 4 and QoS by allocating at least one DRU from the first sector to the
 5 second sector].

6 Applicant respectfully submits that Sombrutzki fails to remedy the
 7 deficiencies of Grenier [another prior art reference]. Sombrutzki
 8 discusses “a method for organizing an architecture of access points
 9 in a distributed wireless network,” such as “a GPRS network a
 10 WiMax type network or an IEEE 9-2.11 type or Wi-Fi network.”
 11 (Sombrutzki at paragraph [0019]). “The efficiency of an IEEE
 12 802.11 infrastructure network is determined by the achieved level of
 13 Quality of Service (QoS). With the proposed method QoS can be
 14 improved in terms of an increased data throughput and a decreased
 15 latency and jitter.” (Id. at paragraph [0026]). Thus, Sombrutzki
 16 relates to Wi-Fi networks and access points, which is not analogous
 17 to a DAU network. Furthermore, Sombrutzki does not disclose
 18 reconfiguring a DAU network based on KPI and QoS. *Nor does
 19 Sombrutzki disclose splitting access points into first and second
 20 sectors and reconfiguring the wireless network and by allocating at
 21 least one access point from the first sector to the second sector.*

22 Bean Decl., Ex. G (Response at 8) (emphasis added). But the statement above sheds little light on
 23 whether, at that time, Dali considered sectors to be, in essence, made up of DRUs. Allocating a
 24 DRU from one sector to another does not necessarily mean that a sector is *made up* of DRUs.
 25 Rather a DRU may still be allocated to, or associated with, one sector over another. Hence,
 26 although the configuration of a sector (based, *e.g.*, on level of QoS) may affect the allocation of
 27 DRUs, the sector is not comprised by the grouping of DRUs.

28 Third, a consideration of other claims in the ‘454 patent also indicates that a sector is not a
 group of DRUs. For example, claim 2 of the ‘454 patent provides: “The system of claim 1 further
 comprising a plurality of BTSs coupled to the one or more DAUs, *wherein each BTS comprises
 the plurality of sectors.*” ‘454 patent, claim 2 (emphasis added). As Corning’s expert explains
 with respect to claim 2,

[a] POSA would have understood that, by having each BTS
 comprise the plurality of sectors, the sectors are not “groups” of
 DRUs in a particular area or region. The sectors are included within
 each BTS, which contain the independent radio resources to which
 the DRUs are allocated. Under Dali’s proposed construction, the
 group of DRUs would be contained within each BTS, which is not
 supported by the claims or specification of the ‘454 patent.

Proctor Decl. ¶ 73.

Finally, contrary to what Dali argues, construing sectors to be radio resources – as Corning

1 advocates – does not go against the teachings of the patent, in particular, that the invention allows
2 for the pooling of resources. Dali is correct that the ‘454 patent does talk about the pooling of
3 resources. For example:

- 4 • “Once traffic resources are aggregated into eNodeB hotels, the discrete resources of
5 a single eNodeB are still allocated to a specific set of antennas associated with that
6 eNodeB and providing coverage to a specific geographic area. The traffic
7 resources are fixed, i.e., only the resources associated with a specific eNodeB can
8 be allocated to the antennas associated with that eNodeB. *However, because the*
9 *eNodeBs are collocated in an eNodeB hotel, the system can use the aggregated*
10 *traffic resources of the discrete eNodeBs as a single, pooled traffic resource that*
11 *can be allocated according to various algorithms.” ‘454 patent, col. 5, ll. 8-20*
12 *(emphasis added).*
- 13 • “The traffic information derived from an extensive sensor network will be used to
14 dynamically allocate the traffic resources to the required geographical areas only
15 for the time period the service is needed. *Once the service is supplied and the*
16 *traffic sensor network determines that the traffic resources are no longer required,*
17 *they are returned to the resource pool for reallocation.” ‘454 patent, col. 5, ll. 36-*
18 *42 (emphasis added).*

19 But a pooling of resources is permitted under Corning’s construction of the term “sector.” As
20 Corning explain in its briefs,

21 [s]ectors are independent radio resources that provide capacity and
22 broadband data throughput to accommodate users. Each individual
23 sector of independent radio resources can be used to provide cellular
24 coverage to an independent geographic area, which is referred to as
25 a “cell.” The DRUs are fixed in location within each of the cells of
26 Figure 3 . . . and are not reassigned or allocated to different
27 geographic areas or cells. *The cells can share the independent radio*
28 *resources of the sectors through interconnected DAUs, and the*
radio resources can be allocated to different DRUs, or conversely,
the DRUs can be allocated to different radio resources. Thus, if one
cell has a high volume of traffic at a particular time of day, more
sectors (i.e., radio resources) can be allocated to the DRUs in that
cell. Therefore, it is the radio resources (i.e., sectors) that are
reconfigured within an area or cell to optimize the network, not a
reconfiguration of the number of DRUs providing service within a

geographic area, *i.e.*, a cell.

Resp. Br. at 11-12 (emphasis added).

For the reasons stated above, the Court rejects Dali’s construction and instead adopts Corning’s construction for “sectors” – *i.e.*, “independent radio resources.”

D. “a key performance indicator related to a number of satisfied users” (‘261 patent, claims 1, 8, 9)

| Dali’s Proposed Construction | Corning’s Proposed Construction | Court’s Construction |
|--|--|--|
| “a key performance indicator related to a number of satisfied users” (‘261 patent, claims 1, 8, 9) | | |
| “satisfied user” means “users that can achieve a targeted service bitrate” “key performance indicator” means “a measurement of performance of a particular system” other terms provided their plain and ordinary meaning | a key performance indicator defining the percent of users that can achieve the targeted service bit rate | a key performance indicator related to a number of users that can achieve a targeted service bitrate |

The “key performance indicator” or “KPI” term above is used in the ‘261 patent. Claim 1 is a representative claim, providing as follows:

A method of determining a transmission power of a digital remote unit (DRU) in a distributed antenna system (DAS), the method comprising:

- a) Setting a transmission power level for the DRU;

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- 1 b) Determining a **key performance indicator related to a**
 2 **number of satisfied users** at the transmission power;
 3 c) Iteratively adjusting a transmission power level for the DRU
 4 to increase the key performance indicator related to the
 5 number of satisfied users; and
 6 d) Setting the transmission power level for the DRU at an
 7 iterated power level.

8 ‘261 patent, claim 1 (emphasis added).

9 Here, the parties agree that “satisfied users” means users that can achieve a targeted service
 10 bitrate. *See also* ‘261 patent, col. 5, ll. 5-9 (“[T]o improve the throughput for the cell edge users
 11 and further increase the number of satisfied users (the users that can achieve a targeted service
 12 bitrate), a downlink Power Self-Optimization (PSO) algorithm for three different resource
 13 allocation scenarios is proposed for the DAS -SFR [soft frequency reuse].”). Thus, the dispute
 14 between the parties has two components: (1) whether the phrase “key performance indicator,” as a
 15 general matter, needs to be explained and (2) whether “key performance indicator” for purposes of
 16 the specific claim means only the percent of users that can achieve the targeted service bit rate.

17 1. General Definition

18 Regarding the first dispute, Dali believes that a general definition for “key performance
 19 indicator” should be provided and notes that its definition (“a measurement of performance of a
 20 particular system”) is consistent with a scientific dictionary. *See* Schumann Decl., Ex. 13 (IEEE
 21 100: The Authoritative Dictionary of IEEE Standards Terms (7th ed. 2000)⁸ (defining “key
 22 performance indicator” as “[a] measurement of performance of a particular business system in
 23 terms of the aims and goals of an enterprise”). But Dali’s definition is lacking in that it does not
 24 give any real weight to the term “key” and further leaves out the reference point provided in the
 25 scientific dictionary (“in terms of the aims and goals of an enterprise”). In addition, as a practical
 26 matter, the scientific dictionary provides a definition for “key performance indicator” that is
 27 largely consistent with a layperson’s understanding of the term (*i.e.*, “key performance indicator”
 28 is just a general business term and not a special scientific term). *See, e.g.*, Google Dictionary

⁸ The ‘261 patent has a filing date of August 14, 2017.

1 (defining “key performance indicator” as “a quantifiable measure used to evaluate the success of
 2 an organization, employee, etc. in meeting objectives for performance”);
 3 https://en.wikipedia.org/wiki/Performance_indicator (stating that “[a] performance indicator or
 4 key performance indicator (KPI) is a type of performance measurement[;] KPIs evaluate the
 5 success of an organization or of a particular activity (such as projects, programs, products and
 6 other initiatives) in which it engages”). The Court therefore finds that it is not necessary to define
 7 “key performance indicator” and that the jury may simply rely on the plain and ordinary meaning
 8 of the term. *See Phillips*, 415 F.3d at 1314 (pointing out that, “[i]n some cases, the ordinary
 9 meaning of claim language as understood by a person of skill in the art may be readily apparent
 10 even to lay judges, and claim construction in such cases involves little more than the application of
 11 the widely accepted meaning of commonly understood words”).

12 2. Specific Application

13 The parties’ second dispute is more substantive. Corning asserts that “a key performance
 14 indicator related to a number of satisfied users” can mean *only* “a key performance indicator
 15 defining the percent of [satisfied] users.” Dali disagrees. According to Dali, “‘key performance
 16 indicator’ is not limited to any specific metric such as ‘percent’ only that it is ‘related to a number
 17 of satisfied users.’” Op. Br. at 15.

18 Corning bases its argument on that part of the specification which discusses the
 19 “formulat[ion] [of] the power allocation problem to maximize the number of satisfied users and
 20 also maximize the total satisfied users[‘] capacity.” ‘261 patent, col. 9, ll. 51-53. With respect to
 21 the number of satisfied users, the key performance indicator is expressed as KPI_{SU} . The
 22 specification notes in relevant part as follows:

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We consider the following key performance indicators (KPIs) in the power allocation system:

1. KPI_{SU} (Number of Satisfied Users): We can derive a metric defining a percent of satisfied users (i.e., users that can achieve the targeted service bit rate, for example, 1 Mbits/s). The percent of satisfied users (out of m users) would be,

$$KPI_{SU}(P) = \frac{\sum_{k=1}^m G_k(P)}{N_{user}^{total}} \quad (16)$$

where N_{user}^{total} is total number of users and

$$G_k(P) = \begin{cases} 1 & \text{when } C_k^{real}(P) > C_{th} \\ 0 & \text{otherwise} \end{cases}$$

Using these equations, C_{th} is a threshold capacity (targeted service bit rate) and $G_k(P)$ is unity when the capacity for a user (indexed by k) exceeds the threshold capacity and is equal to zero when the capacity is less than or equal to the threshold capacity.

'261 patent, col. 10, ll. 4-29 (Formula No. 16).

The excerpt above does reflect that KPI_{SU} can be expressed as a percentage. Moreover, it makes practical sense that a percentage would be used – i.e., without knowing the total number of users in the cell, the absolute number would appear to provide little useful information. In contrast, if information about the total number of users is also known, that would appear to be a better gauge of the “success” of the system – identifying what percentage of users in a given cell are satisfied users.

That being said, the Court is not persuaded that a key performance indicator related to a number of satisfied users *must* be expressed as a percentage. There are several reasons why. First, the excerpt above says that “[w]e can derive a metric” This language is inherently non-limiting in nature. At the hearing, Corning argued that this phrase should not be given any real weight because it is simply a convention used by mathematicians without an intent to convey a

1 non-limiting nature. However, Corning did not provide any evidence to support this specific
2 argument, and the Court is not able to take judicial notice of this asserted linguistic usage.
3 Second, Corning’s construction is problematic because claim 1 refers to “a key performance
4 indicator *related to* a number of satisfied users.” ‘261 patent, claim 1 (emphasis added). “Related
5 to” is a broad term which does not dictate Corning’s proposed construction of “a key indicator
6 *defining* the percent of [satisfied] users” (emphasis added). Finally, the Federal Circuit has
7 “expressly rejected the contention that if a patent describes only a single embodiment, the claims
8 of the patent must be construed as being limited to that patent” – not only because “the claims
9 themselves set forth the limits of the patent grant, but also because persons of ordinary skill in the
10 art rarely would confine their definitions of terms to the exact representations depicted in the
11 embodiments.” *Phillips*, 415 F.3d at 1323. In fact, the Federal Circuit has stated that “the scope
12 of the invention is properly limited to the preferred embodiment [only] if the patentee uses words
13 that manifest a clear intention to restrict the scope of the claims to that embodiment.” *Info-Hold,*
14 *Inc. v. Applied Media Techs. Corp.*, 783 F.3d 1262, 1267 (Fed. Cir. 2015); *see also Liebel-*
15 *Flarshheim Co. v. Medrad, Inc.*, 358 F.3d 898, 906-07 (Fed. Cir. 2004) (indicating that, usually,
16 there are “specific reasons dictating a narrow claim construction beyond the mere fact that the
17 specification disclosed only a single embodiment or a particular structure” – *e.g.*, there is explicit
18 disclaimer in the patent specification or the prosecution history reflects express distinguishing of
19 prior art). In the instant case, based on the record presented to the Court, there is no manifestation
20 of a clear intent to restrict the scope of the term to a single embodiment.

21 Accordingly, the Court adopts the following construction for “a key performance indicator
22 related to a number of satisfied users”: “a key performance indicator related to a number of users
23 that can achieve a targeted service bitrate.”

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United States District Court
Northern District of California

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E. “a second key performance indicator related to a capacity for the number of satisfied users
('261 patent, claim 8)

| Dali’s Proposed Construction | Corning’s Proposed Construction | Court’s Construction |
|--|--|-----------------------------------|
| <p>“a second key performance indicator related to a capacity for the number of satisfied users” ('261 patent, claim 8)</p> | | |
| <p>“key performance indicator” means “a measurement of performance of a particular system” “satisfied user” means “users that can achieve a targeted bit rate” other terms provided their plain and ordinary meaning</p> | <p>a second key performance indicator reflecting the total bandwidth utilization of all users that can achieve the targeted service bit rate at the transmission power</p> | <p>plain and ordinary meaning</p> |

This KPI term is used in claim 8 of the ‘261 patent. Claim 8 provides as follows:

The method of claim 1 further comprising:

- a) **Determining a second key performance indicator related to a capacity for the number of satisfied users;**
- b) Iteratively adjusting the transmission power level for the DRU to increase the second key performance indicator related to the capacity for the number of satisfied users; and
- c) Setting the transmission power level for the DRU at the iterated power level.

‘261 patent, claim 8.

The parties’ main disputes with respect to the KPI term are (1) whether a general definition

1 for “key performance indicator” should be provided and (2) whether a “key performance indicator
2 related to a capacity for the number of satisfied users” should be limited to the equation provided
3 in the specification (Formula No. 17 for KPI_{CSU}).

4 The analysis above for “key performance indicator related to a number of satisfied users”
5 is essentially applicable here. That is, there is no need to provide a general definition of “key
6 performance indicator,” and there is no basis in the record before the Court to restrict KPI_{CSU} to
7 the single embodiment expressed in the specification (even though the embodiment makes
8 practical sense). The Court notes that there is no need to provide any further construction because
9 the parties have no real disagreement as to what is meant by the term “capacity.” *See* Bims Decl.
10 ¶ 24 (Dali’s expert stating that “[t]he ‘261 patent uses ‘capacity’ as throughput or a bit rate
11 achieved by a particular user”); Proctor Decl. ¶ 42 (in discussing “Capacity of Satisfied Users,”
12 Corning’s expert referring to “the actual throughput of all satisfied users (i.e., the users with a
13 service bit rate above the defined threshold) measured in bits per second (bps)”).

14 F. “the second key performance indicator related to the capacity for the number of satisfied
15 users is a number of users having a capacity above a predetermined threshold capacity”
16 (‘261 patent, claim 9)

| Dali’s Proposed Construction | Corning’s Proposed Construction | Court’s Construction |
|--|--|---|
| <p>17 18 19 20 21 22 “the second key performance indicator related to the capacity for the number of satisfied users is a number of users having a capacity above a predetermined threshold capacity” (‘261 patent, claim 9)</p> | | |
| <p>23 24 25 26 27 28 “key performance indicator” means “a measurement of performance of a particular system” “satisfied user” means “users</p> | <p>indefinite; lacks written description</p> | <p>not indefinite; the issue of written description is deferred</p> |

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| 1 that can achieve a targeted bit 2 rate” | | |
| 3 4 other terms provided their 5 plain and ordinary meaning | | |

6
7 The above KPI term is found in claim 9 of the ‘261 patent. Claim 9 provides as follows:
8 “The method of claim 8 wherein the second key performance indicator related to the capacity for
9 the number of satisfied users is a number of users having a capacity above a predetermined
10 threshold capacity.” ‘261 patent, claim 9 (emphasis added). (“[P]redetermined threshold
11 capacity” means the “targeted service bit rate.” ‘261 patent, col. 10, ll. 25-26 (noting that “ C_{th} is a
12 threshold capacity (targeted service bit rate)”)).

13 In its papers, Corning argues that claim 9 (1) is indefinite and (2) lacks written description.
14 A claim is indefinite when, “read in light of the patent’s specification and prosecution history, [it]
15 fail[s] to inform, with reasonable certainty, those skilled in the art about the scope of the
16 invention.” *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 898-99 (2014); *see also* 35
17 U.S.C. § 112(b) (providing that “[t]he specification shall conclude with one or more claims
18 particularly pointing out and distinctly claiming the subject matter which the inventor . . . regards
19 as the invention”). “Adequate written description means that the applicant, in the specification,
20 must ‘convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he
21 or she was in possession of the [claimed] invention.’” *Agilent Techs., Inc. v. Affymetrix, Inc.*, 567
22 F.3d 1366, 1379 (Fed. Cir. 2009); *see also* 35 U.S.C. § 112(a) (providing that “[t]he specification
23 shall contain a written description of the invention . . . in such full, clear, concise, and exact terms
24 as to enable any person skilled in the art to which it pertains . . . to make and use the same”).

25 As an initial matter, the Court must consider whether it should address Corning’s
26 arguments at this juncture in the proceedings. The Court declines to address the argument related
27 to written description. Written description is an issue of fact, *see Agilent*, 567 F.3d at 1379
28 (stating that “[s]atisfaction of the written description requirement is a question of fact”); *see also*

1 *Novozymes A/S v. Dupont Nutrition Biosciences APS*, 723 F.3d 1336, 1344 (Fed. Cir. 2013), and
2 therefore the Court deems it inappropriate to deal with the issue at claim construction, at least
3 absent a compelling reason to the contrary in this instance.

4 Indefiniteness is different. “Indefiniteness is . . . a legal determination arising out of the
5 court’s performance of its duty construing the claims,” although it “is amenable to resolution by
6 the jury where the issues are factual in nature.” *BJ Servs. Co. v. Halliburton Energy Servs.*, 338
7 F.3d 1368, 1372 (Fed. Cir. 2003); *see also Dow Chem. Co. v. NOVA Chems. Corp. (Can.)*, 809
8 F.3d 1223, 1226 (Fed. Cir. 2015) (stating that “[w]e have consistently permitted courts to submit
9 legal questions which contain underlying factual issues, like obviousness, enablement, or
10 indefiniteness, to the jury”). Given these parameters, a court has some discretion in deciding
11 whether to address indefiniteness at the claim construction phase. As noted by one district court,
12 “[w]hether to decide the issue of invalidity based on indefiniteness at the claim construction stage
13 depends on the particular circumstances and claims at issue in a given case, and is a matter within
14 a court’s discretion.” *Junker v. Med. Components, Inc.*, No. 13-4606, 2017 U.S. Dist. LEXIS
15 179955, at *5 (E.D. Pa. Oct. 30, 2017); *see also Cipher Pharms. Inc. v. Actavis Labs. FL, Inc.*, 99
16 F. Supp. 3d 508, 514 (D.N.J. 2015) (stating that, “to decide indefiniteness during claim
17 construction depends on why the alleged infringer asserts that the claim is indefinite”); *cf.*
18 *Diamond Coating Techs., LLC v. Hyundai Motor Am.*, No. 8:13-cv-01480-MRP(DFMx), 2014
19 U.S. Dist. LEXIS 156864, at *11 n.2 (C.D. Cal. Aug. 25, 2014) (noting that, *before* the Supreme
20 Court’s decision in *Nautilus*, “it seemed appropriate to resolve indefiniteness at claim construction
21 because the standard [set by the Federal Circuit] was whether a claim term was amenable to
22 construction and whether this construction was insolubly ambiguous”; nevertheless, still
23 concluding that indefiniteness could be addressed at claim construction post-*Nautilus* because a
24 term that is not amenable to construction “will not meet the ‘reasonable certainty’ standard [laid
25 out in *Nautilus*]” and because “the factual underpinnings involved in claim construction are
26 similar to the factual underpinnings involved in indefiniteness inquiries”).

27 In the instant case, the Court finds that, given the specific nature of Corning’s
28 indefiniteness argument (see below), the issue may be decided at claim construction. As noted

1 above, claim 9 provides as follows: “The method of claim 8 wherein the second key performance
2 indicator related to the capacity for the number of satisfied users is a number of users having a
3 capacity above a predetermined threshold capacity [*i.e.*, targeted service bit rate].” ‘261 patent,
4 claim 9. According to Corning, claim 9 fails to inform, with reasonable certainty, those skilled in
5 the art about the scope of the invention because it is, in essence, a nonsensical claim. The gist of
6 Corning’s argument is as follows:

- 7 • The second KPI is KPI_{CSU} (capacity for the number of satisfied users).
- 8 • Under claim 9, KPI_{CSU} is equated with KPI_{SU} (the number of satisfied users), *i.e.*,
9 the first KPI.
- 10 • In other words, a *literal* reading of claim 9 is that the “second key performance
11 indicator . . . is a number of users having a capacity above [a targeted service bit
12 rate].” ‘264 patent, claim 9 (emphasis added).

13 In response, Dali argues that claim 9 does not equate the second KPI with the first KPI.
14 Rather, under claim 9, “a number of users having a capacity above a [targeted service bit rate”
15 simply modifies, or limits, the preceding phrase “the number of satisfied users.” *See* Op. Br. at 19.
16 Dali adds that this is exactly what the specification teaches. Below is an excerpt from the
17 specification that discusses the second KPI.

18 2. KPI_{CSU} (Capacity of Satisfied Users): The total capac-
19 ity of satisfied users would be,

$$20 \quad KPI_{CSU}(P) = \frac{\sum_{k \in SUS} C_k^{real}(P)}{(W_{(F_1)} + W_{(F_2)} + W_{(F_3)})/3} \quad (17)$$

23 where W_f is the bandwidth of frequency band f and
24 $SUS = \{k | G_k = 1, k = 1, 2, \dots, m\}$ is the satisfied users set.
25 If more than three carriers are utilized in a cell, the
26 number of carriers and the divisor in the denominator
will increase as appropriate.

27 ‘261 patent, col. 10, ll. 30-43 (Formula No. 17). As indicated by the KPI_{CSU} equation above,
28

1 satisfied users are a *part* of that equation. And satisfied users are those who exceed the targeted
 2 service bit rate:

3
 4 We consider the following key performance indicators
 5 (KPIs) in the power allocation system:

- 6 1. KPI_{SU} (Number of Satisfied Users): We can derive a
 7 metric defining a percent of satisfied users (i.e., users
 8 that can achieve the targeted service bit rate, for
 9 example, 1 Mbits/s). The percent of satisfied users (out
 10 of m users) would be,

$$11 \quad KPI_{SU}(P) = \frac{\sum_{k=1}^m G_k(P)}{N_{user}^{total}} \quad (16)$$

12 where N_{user}^{total} is total number of users and

$$13 \quad G_k(P) = \begin{cases} 1 & \text{when } C_k^{real}(P) > C_{th} \\ 0 & \text{otherwise} \end{cases}$$

14
 15 Using these equations, C_{th} is a threshold capacity (tar-
 16 geted service bit rate) and $G_k(P)$ is unity when the capacity
 17 for a user (indexed by k) exceeds the threshold capacity and
 18 is equal to zero when the capacity is less than or equal to the
 19 threshold capacity.

20 '261 patent, col. 10, ll. 4-29 (Formula No. 16).

21 Dali's position is stronger than Corning's. That is, although Corning's position might be
 22 plausible if one were to consider claim 9 in a vacuum, the specification itself makes clear that
 23 there is no equating of the first and second KPIs. Claim 9 is not indefinite.

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1 G. “the predetermined threshold capacity is defined by a predetermined threshold bit rate”
2 (‘261 patent, claim 10)

| Dali’s Proposed Construction | Corning’s Proposed Construction | Court’s Construction |
|---|---------------------------------------|--|
| the predetermined threshold capacity is defined by a predetermined threshold bit rate” (‘261 patent, claim 10) | | |
| plain and ordinary meaning | indefinite; lacks written description | not indefinite; the issue of written description is deferred |

10
11 The above KPI term is found in claim 10 of the ‘261 patent. Claim 10 provides as follows:
12 “The method of claim 9 wherein **the predetermined threshold capacity is defined by a**
13 **predetermined threshold bit rate.**” ‘261 patent, claim 10 (emphasis added).

14 Both parties agree that their dispute here mirrors that above for claim 9. Accordingly, the
15 Court’s analysis above is equally applicable here.

16 H. “a differential between a reference carrier and one or more carriers (‘261 patent, claim 2)

| Dali’s Proposed Construction | Corning’s Proposed Construction | Court’s Construction |
|--|---------------------------------------|--|
| “a differential between a reference carrier and one or more carriers (‘261 patent, claim 2) | | |
| the difference between one carrier and another carrier | indefinite; lacks written description | both the issue of indefiniteness and the issue of written description are deferred |

26
27 Claim 2 of the ‘261 patent is a dependent claim, specifically, a claim dependent on claim 1.
28 Claim 1 provides as follows:

1 A method of determining a transmission power of a digital remote
2 unit (DRU) in a distributed antenna system (DAS), the method
3 comprising:

- 4 a) Setting a transmission power level for the DRU;
- 5 b) Determining a key performance indicator related to a number
6 of satisfied users at the transmission power;
- 7 c) Iteratively adjusting a transmission power level for the DRU
8 to increase the key performance indicator related to the
9 number of satisfied users; and
- 10 d) Setting the transmission power level for the DRU at an
11 iterated power level.

12 ‘261 patent, claim 1. Claim 2 in turn provides: “The method of claim 1 wherein the transmission
13 power comprises **a differential between a reference carrier and one or more carriers.**” ‘261
14 patent, claim 2 (emphasis added). According to Corning, claim 2 is indefinite and lacks written
15 description.

16 As above, the Court focuses on the issue of indefiniteness and declines to address written
17 description. In its papers, Corning contends that claim 2 is indefinite because a person of skill in
18 art would not understand, *e.g.*,

- 19 • “what the power differential is”;
- 20 • “how [the power differential] is measured”;
- 21 • “what constitutes the reference carrier and the ‘one or more carriers’”;
- 22 • “which of the two transmission powers referenced in claim 1 – the initial
23 transmission power in step (a) or the final transmission power in step (d) –
24 comprises ‘a differential between a reference carrier and one or more carriers’”;
- 25 • “how a ‘transmission power’ can ‘comprise[] a differential between a reference
26 carrier and one or more carriers.’”

27 Resp. Br. at 21-22; *see also* Proctor Decl. ¶ 49.

28 In response, Dali argues that a person of skill in the art could determine with reasonable
certainty the scope of claim 2 based on the following part of the ‘261 specification:

Referring to FIG. 4, KPI_{SU} is the Key Performance Indicator for Satisfied Users and KPI_{CSU} is the key performance indicator for the Capacity of Satisfied Users. ΔP is the change in power of the

1 carriers. By adjusting the power of the carriers, the number of
 2 satisfied users and the capacity of the satisfied users can be
 increased or optimized. . . .

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4 Referring to FIG. 1, the method will be applied in relation to the
 carriers used in the central antenna (eNB0) of the cell (i.e.,
 5 hexagon). *For each cell, the carrier used in the peripheral portions
 of the cell will be used as a reference and the other carriers will
 6 have their power set by optimizing the number and capacity of
 satisfied users using the algorithm described herein.* In some
 7 embodiments, the carriers used in the central antenna that are not
 used in the peripheral portions of the cell will have the same power,
 8 providing a single ΔP for the central antenna with the carrier used
 in the peripheral portions of the cell providing the reference. In
 9 some implementations, the carriers used only in the central antenna
 can have differing powers with the algorithm applied to the carriers
 10 individually (e.g., F_1 compared to F_3 and F_2 compared to F_3 for the
 rightmost cell in FIG. 1A).

11 ‘261 patent, col. 13, ll. 19-24; ‘261 patent, col. 14, ll. 19-25 (emphasis added).

12 The Court finds that there are questions of fact here – *i.e.*, what a person of skill in the art
 13 would understand – that make resolution of indefiniteness at claim construction improper. *See*
 14 *Nautilus*, 572 U.S. at 898-99 (noting that a claim is indefinite when, “read in light of the patent’s
 15 specification and prosecution history, [it] fail[s] to inform, with reasonable certainty, those skilled
 16 in the art about the scope of the invention”). Based on the excerpt of the specification above, Dali
 17 has a basis for contending that (1) the “differential” refers to a difference in power between
 18 carriers and that (2) the carriers being compared can include, *e.g.*, the one in the peripheral
 19 portions of the cell and the carrier with the central antenna. On the other hand, Corning has raised
 20 serious questions about whether the definiteness requirement has been met because claim 2 is not
 21 limited to a differential between a reference carrier and one other carrier (*i.e.*, two carriers total)
 22 but also covers a differential among *three or more* carriers. It is not clear how a comparison is
 23 made when there are three or more carriers total, as opposed to simply two.⁹

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 27 ⁹ Although the Court does not address written description, Corning raised a serious question on
 28 this issue as well. The claim does not explain how transmission power level is to be set when
 there are multiple differentials.

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I. “distributing communication frequencies (‘358 patent, claim 7)”

| Dali’s Proposed Construction | Corning’s Proposed Construction | Court’s Construction |
|--|--|--|
| “distributing communication frequencies” (‘358 patent, claim 7) | | |
| plain and ordinary meaning if construction is required, “assigning or allocating frequencies” | language in the preamble is a limitation; plain and ordinary meaning | language in the preamble is a limitation; plain and ordinary meaning |

The term “distributing communication frequencies” appears in the ‘358 patent. Claim 7 is a representative claim. It provides as follows:

A method of **distributing communication frequencies**, the method providing:

providing a set of communications units;

transmitting and receiving, from a first communications unit of the set of communications units:

a first set of frequencies characterized by a first frequency band and a first geographic footprint; and

a second set of frequencies characterized by a second frequency band different from the first frequency band a second geographic footprint larger than and at least partially surrounding the first geographic footprint; and

transmitting, and receiving, from a second communications unit of the set of communications units:

a third set of frequencies including one or more frequencies in the first frequency band and a third geographical footprint; and

a fourth set of frequencies including one or more frequencies in a third frequency band and a fourth geographical footprint larger than and at least partially surrounding the third geographical footprint.

1 ‘358 patent, claim 7 (emphasis added).

2 The parties have two disputes regarding the above term: (1) whether the term is a claim
3 limitation even though in the preamble and (2) if the term is a claim limitation, whether it needs to
4 be construed.

5 On the first issue, Corning argues that the term is a claim limitation even though it is found
6 in the preamble. Corning further argues that Dali is barred from arguing otherwise because, in the
7 parties’ joint claim construction statement (filed back in February 2021), Dali did not dispute
8 Corning’s assertion that the term was a claim limitation even if in the preamble. *See* Docket No.
9 72-1 (Joint Claim Construction Chart at 5).

10 The Court agrees with Corning that Dali has waived its argument. Under the Patent Local
11 Rules, the joint claim construction statement is submitted by the parties *after* the parties have
12 served on each other the infringement and invalidity contentions. *See* Pat. L.R. 4-1 to -3
13 (discussing exchange of proposed terms for construction, exchange of preliminary claim
14 constructions, and the joint claim constructions statement – all of which comes after service of the
15 invalidity contentions). Allowing Dali to change course now violates the spirit of the Patent Local
16 Rules, which were “designed to require parties to crystallize their theories of the case early in the
17 litigation and to adhere to those theories once they have been disclosed.” *Kilopass Tech., Inc. v.*
18 *Sidense Corp.*, No. C 10-02066 SI, 2011 U.S. Dist. LEXIS 126837, at *3-4 (N.D. Cal. Nov. 2,
19 2011).

20 But even if the Court were to consider the merits, Corning would still prevail – *i.e.*, its
21 position that “distributing communication frequencies” is a claim limitation is stronger. As noted
22 above, in general, a preamble limits the invention if it recites essential structure or steps, or if it is
23 “necessary to give life, meaning, and vitality” to the claim. Conversely, a preamble is not limiting
24 “where a patentee defines a structurally complete invention in the claim body and uses the
25 preamble only to state a purpose or intended use for the invention.” *Catalina Mktg.*, 289 F.3d at
26 808. In assessing whether a preamble limits claim scope, a court may consider, *e.g.*, the
27 following:

- 28
- “[W]hen the preamble is essential to understand limitations or terms in the claim

1 body, the preamble limits claim scope.”

- 2 • “[W]hen reciting additional structure or steps underscored as important by the
3 specification, the preamble may operate as a claim limitation.”
- 4 • “[A] preamble generally is not limiting when the claim body describes a
5 structurally complete invention such that deletion of the preamble phrase does not
6 affect the structure or steps of the claimed invention.”
- 7 • “[P]reamble language merely extolling benefits or features of the claimed invention
8 does not limit the claim scope without clear reliance on those benefits or features as
9 patentably significant.”
- 10 • “[P]reambles describing the use of an invention generally do not limit the claims
11 because the patentability of apparatus or composition claims depends on the
12 claimed structure, not on the use or purpose of that structure.” “[S]tatements of
13 intended use or asserted benefits in the preamble may, in rare instances, limit
14 apparatus claims, but only if the applicant clearly and unmistakably relied on those
15 uses or benefits to distinguish prior art.”

16 *Intri-Plex*, 2018 U.S. Dist. 16877, at *7-8 (internal quotation marks omitted).

17 In its papers, Corning argues that the term “*distributing* communication frequencies” must
18 be deemed a claim limitation because, *without* that additional limitation, “claim 7 [simply] repeats
19 the well-known, prior art frequency reuse scheme proposed for use in the LTE cellular standard
20 by Ericsson in 2005, which is the same as the reuse scheme shown in FIG. 1C of the ‘358 patent.”
21 Resp. Br. at 24; *see also* ‘358 patent, FIG. 1C (showing soft frequency reuse, as opposed to hard
22 frequency reuse or fractional frequency reuse). According to Corning, the alleged novelty of the
23 ‘358 patent is that it combined soft frequency reuse with a *distributed* antenna system (DAS) –
24 hence, the phrase “*distributing* communication frequencies.” *See generally* ‘358 patent (titled
25 “Method and System for Soft Frequency Reuse in a *Distributed* Antenna System”) (emphasis
26 added).

27 In response, Dali contends that the term “distributing communication frequencies” is
28 simply “a descriptive name for the steps that the body of claim 7 *completely* describes.” Op. Br. at

1 23 (emphasis added).

2 The problem with Dali’s position is that nothing in the body of claim 7 ties the invention to
3 a DAS, and a DAS is necessary to give life, meaning, and vitality to the claim. As Corning
4 argues, “[t]he preamble of claim 7 adds the concept of ‘distributing communication frequencies,’
5 which is a function performed in a DAS when radio resource signals are distributed from a DAU
6 to a plurality of DRUs, and it must be construed as a limitation for claim 7 to cover the concept of
7 combining DAS and SFR.” Resp. Br. at 24. That the invention inherently requires a DAS is plain
8 – throughout the specification, a DAS is mentioned, either explicitly (*e.g.*, in the title, in multiple
9 FIGs., in the “Background of the Invention” and “Summary of the Invention”) or implicitly (*e.g.*,
10 through reference to DRUs). For example, the following discussion from the specification is
11 similar to claim 7.

12 FIG. 8 is a simplified flowchart illustrating a method of
13 implementing soft frequency reuse according to an embodiment of
14 the present invention. The method 800 includes transmitting and
15 receiving data in a first geographical area and a first frequency band
16 (810). The method also includes transmitting and receiving data in a
17 second geographical area and a second frequency band (812). In an
18 embodiment, the first geographical area is a central area of a cell
19 including multiple DRUs and the second geographical area is a
20 peripheral area of the cell. In another embodiment, the second
21 geographical area includes and extends to an area larger than the
22 first geographical area (*e.g.*, an area surrounding the first
23 geographical area). The method further includes transmitting and
24 receiving data in a third geographical area and at least a portion of
25 the first frequency band (814). At least a portion of the frequency
26 band used for the third geographical area is thus reused in relation to
27 the first geographical area. The method also includes transmitting
28 and receiving data in a fourth geographical area and a third
frequency band (816). In an embodiment, the third geographical
area is a central area of a cell including multiple DRUs and the
fourth geographical area is a peripheral area of the cell. In another
embodiment, the fourth geographical area includes and surrounds
the third geographical area.

‘358 patent, col. 18, l. 48-col. 19, l. 4.

25 Accordingly, the Court finds the preamble is limiting, whether based on procedural
26 grounds (*i.e.*, Dali’s waiver) or because the preamble term is needed in order to give the claim life
27 and meaning. The Court need not construe “distributing communication frequencies,” with the
28 understanding that “distributing” essentially implicates a DAS.

1 J. “a geographic footprint” (‘358 patent, claims 7, 9-10, 12, 15, 19)

2

| Dali’s Proposed Construction | Corning’s Proposed Construction | Court’s Construction |
|---|---------------------------------|----------------------|
| “a geographic footprint” (‘358 patent, claims 7, 9-10, 12, 15, 19) | | |
| an area or region near one or more DRUs | radio coverage area | radio coverage area |

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10 Finally, the term “a geographic footprint” appears in multiple claims in the ‘358 patent,
11 including but not limited to claim 7. Claim 7 is a representative claim:

12 A method of distributing communication frequencies, the method
13 providing:
14 providing a set of communications units;
15 transmitting and receiving, from a first communications unit of the
16 set of communications units:
17 a first set of frequencies characterized by a first frequency band
18 and a first **geographic footprint**; and
19 a second set of frequencies characterized by a second frequency
20 band different from the first frequency band a second geographic
21 footprint larger than and at least partially surrounding the first
22 geographic footprint; and
23 transmitting, and receiving, from a second communications unit of
24 the set of communications units:
25 a third set of frequencies including one or more frequencies in
26 the first frequency band and a third geographical footprint; and
27 a fourth set of frequencies including one or more frequencies in
28 a third frequency band and a fourth geographical footprint larger
than and at least partially surrounding the third geographical
footprint.

‘358 patent, claim 7 (emphasis added).

As an initial matter, the Court finds Dali’s proposed construction of “geographic footprint”
flawed because it does not mention the “property associated with the . . . footprints” – *i.e.*, radio

1 coverage. Resp. Br. at 24. Given that the parties are asking for a construction that will ultimately
2 to be given to the jury, the concept of coverage should be included. (Dali does not fundamentally
3 disagree that the property at issue is radio coverage, as opposed to some other property. *See, e.g.,*
4 Op. Br. at 23 (asserting that the footprint “should be defined by the area or region in space . . . that
5 DAS operators intend to cover with *radio coverage*”) (emphasis added).)

6 As for Corning’s proposed construction, Dali contends that it is problematic because,
7 “under [the] proposed construction[,] each ‘geographic footprint’ would always be filled to the
8 center, inconsistent with the specification’s descriptions of ‘peripheral’ and ‘surrounding’
9 geographic footprints.” Op. Br. at 23. Although it is not clear how simply referring to “radio
10 coverage” would convey such to the jury, Corning does assume that a footprint is filled to the
11 center. *See* Resp. Br. at 25 (asserting that the specification shows “how a communications unit,
12 such as a DRU, generates the claimed geographic footprints shown in FIGS. 1A-1C[;] [a]t bottom,
13 the different footprints are created *by transmitting different frequencies in different cells at varying*
14 *power levels*, as shown in FIGS. 1C-1F”) (emphasis added). That assumption is substantiated by
15 the specification:

16 Referring to FIGS. 1C-1F, frequencies in the grey frequency band
17 (~upper 2/3 of the available frequencies) are transmitted/received by
18 a DRU at a first power level in Cell 1, providing coverage for the
19 central portion of Cell 1. Frequencies in the horizontal stripes band
20 are transmitted/received by the DRU at a second power level higher
21 than the first power level, *providing coverage over both the central*
22 *portion of Cell 1 as well as the peripheral portions of Cell 1 since*
23 *the higher power level results in a larger coverage area.*

24 ‘358 patent, col. 8, ll. 1-9 (emphasis added). Dali has not shown how Corning’s assumption is
25 incorrect in light of the above.

26 Perhaps recognizing this dilemma , Dali seems to have changed its argument in its reply
27 brief. In the reply, Dali contends:

28 Dali’s proposed construction captures that “geographic footprints”
are defined by the system operator as the area or region [intended] *to*
be covered by a DRU with radio signals. Corning argues
“geographic footprints” should be defined by the area over which
that radio coverage [actually] extends – such that footprints would
change in size and dimension as the power of the radio signals
increases or decreases. Corning’s responsive brief therefore has it

1 *exactly backwards*. Dali does not contest that the coverage area of
2 radio frequency signs can be adjusted by modifying the power level
3 used by the DRU. The point of distinction between the parties'
4 constructions is that under Dali's proposal the operator would adjust
5 those power levels to cover the intended "geographic footprint" with
6 those signals, rather than defining the "geographic footprint" by the
7 scope of the signals.

8 Reply at 14-15 (emphasis added). The difficulty with Dali's argument is that it is not clear that
9 Corning is advocating for what Dali says it is. In any event, Dali's argument was not brought up
10 until reply, which is, as a general matter, improper.

11 Accordingly, the Court adopts Corning's proposed construction for the term "geographic
12 footprint" – *i.e.*, "radio coverage area."

13 **III. CONCLUSION**

14 For the foregoing reasons, the Court adopts the constructions specified above.

15 **IT IS SO ORDERED.**

16 Dated: July 19, 2021

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18 EDWARD M. CHEN
19 United States District Judge

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United States District Court
Northern District of California