

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION**

DALI WIRELESS, INC.,	§	
	§	
<i>Plaintiff,</i>	§	
	§	
v.	§	CIVIL ACTION NO. 2:22-CV-00012-RWS-RSP
	§	(LEAD CASE)
AT&T CORP., ET AL.,	§	
	§	
<i>Defendants.</i>	§	

DALI WIRELESS, INC.	§	
	§	
<i>Plaintiff,</i>	§	
	§	
v.	§	CIVIL ACTION NO. 2:23-CV-00002-RWS-RSP
	§	
CELLCO PARTNERSHIP d/b/a VERIZON	§	
WIRELESS, ET AL.,	§	
	§	
<i>Defendants.</i>	§	

CLAIM CONSTRUCTION MEMORANDUM OPINION AND ORDER

In these patent cases,¹ Dali Wireless, Inc., alleges infringement by AT&T Corporation, Verizon Wireless, CommScope, and several of their affiliates of certain claims from U.S. Patents 9,197,358, 10,334,499, 11,006,343, and 11,026,232. Each of the patents relates to Distributed Antenna Systems (DAS) employed as part of a distributed wireless network. *See* '358 Patent at 1:39–41; '449 Patent at [57] (“The present disclosure is a novel utility of a software defined radio (SDR) based Distributed Antenna System (DAS).”); '343 Patent at [57] (same); '232 Patent at [57] (same).

¹ The Court combined claim construction for these two cases and Defendants agreed to submit a combined response brief. Citations in this order are to Case No. 2:22-cv-00012-RWS-RSP.

The parties dispute the scope of seven terms or phrases from the four patents, with Defendants challenging one phrase as indefinite. Having considered the parties' briefing and arguments of counsel during an April 25, 2023 hearing, the Court resolves the disputes as follows.

I. BACKGROUND

A. U.S. Patent 9,197,358

"A DAS typically includes one or more host units,^[2] optical fiber cable or other suitable transport infrastructure, and multiple remote antenna units." '358 Patent at 1:17–20. The DAS distributes a base station's downlink and uplink signals among multiple remote antenna units.³ *Id.* at 1:21–24. Because the antenna units are physically close to the wireless subscribers, the system reduces average transmit power and enhances service quality and data throughput. *Id.* at 1:17–32.

The '358 Patent specifically relates to the reuse of communications frequencies in DAS cells, which improves performance. '358 Patent at 1:41–47. Frequency reuse techniques, which geographically space competing transmissions apart to reduce interference between cells, were already known. *See generally id.* at 7:10–7:65 (describing Hard Frequency Reuse (HFR), Fractional Frequency Reuse (FFR), and Soft Frequency Reuse (SFR)). The patent, however, teaches a "new architecture" that combines DAS and SFR in a multi-cell environment. *Id.* at 9:5–20. Further, the patent "present[s] a strategy for optimally allocating frequency [resource blocks] to edge users" for the architecture. *Id.* at 9:29–34.

The claims implement this strategy with four sets of frequencies in four geographic footprints close to one another. For example, Claim 7 recites:

² The "host unit" may also be called a "digital access unit" (DAU).

³ The other patents call these "remote radio units" (RRUs), "digital radio units," or "digital remote units" (DRUs).

7. A method of distributing communications 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 and 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.

'358 Patent at 21:54–22:7. This use of multiple sets of frequencies and multiple nearby geographic footprints also appears in the other independent claims. *See id.* at 21:21–38 (Claim 1), 22:35–50 (Claim 15).

The parties dispute the scope of five terms from the '358 Patent. The Northern District of California previously construed two of the terms: “distributing communications frequencies” and “geographic footprint.” *See Dali Wireless, Inc. v. Corning Optical Comm’ns LLC*, No. 20-cv-06469-EMC, 2021 U.S. Dist. LEXIS 134185, at *51-62 (N.D. Cal. July 19, 2021).

B. U.S. Patents 11,026,232

According to the '232 Patent, conventional DASs come in two forms. In “fixed” DASs, the system configuration doesn’t change with changing usage. Instead, the remote units are

configured so a particular block of radio resources serves small groups of remote units. But “fixed” systems using this approach cannot easily adjust to desired changes to the coverage area. ’338 Patent at 1:65–2:10. Alternatively, DASs can have manual switches that allow reconfiguration of the system. While an improvement over fixed systems, these DASs nonetheless require additional staff and resources to make any change. *Id.* at 2:11–26. And both system types have inherent limitations related to their installation and optimization. *See, e.g., id.* at 2:27–38 (noting “the enterprise IT manager has no practical way to determine the loading at a given time of day for each remote DAS unit; they can only guess.”).

To improve on these systems, the ’232 Patent teaches software defined radio (SDR)⁴ based DASs that provide “flexibility to manage, control, enhance and facilitate radio resource efficiency, usage and overall performance of the distributed wireless network.” *Id.* at 3:54–56. For example, the relative capacity settings of remote radio units can be adjusted dynamically using software to meet the capacity needs within the system’s coverage zones. *Id.* at 6:66–7:2; *see also id.* at 11:18–12:4 (describing, with respect to FIG. 7, an embedded software control module that, *inter alia*, sets “the appropriate amount of radio resources (such as RF carriers, CDMA codes or TDMA time slots) assigned to a particular RRU or group of RRUs to meet desired capacity and throughput objectives”).

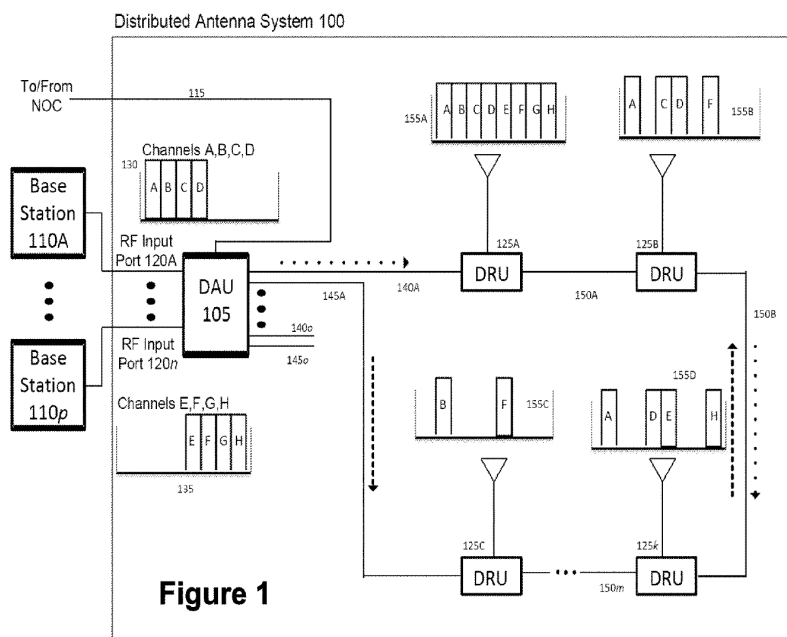
The disputed terms from this patent, “radio resources” and “operator hub,” have already been construed by another court. *See* Dkt. No. 118-22 (*Dali Wireless, Inc. v. Ericsson Inc.*, No.

⁴ In SDR-based DAS, components typically implemented in hardware, like filters, modulators, and demodulators, are instead implemented using software. *See* USPTO Classification H04B 1/0003, <https://www.uspto.gov/web/patents/classification/cpc/html/defH04B.html#H04B1/0003> (last visited Apr. 26, 2023).

6:22-cv-01313-ADA, Claim Constr. Order, Dkt. No. 31) at 2–3. For each term, Judge Albright adopted the constructions now urged by Defendants. *See id.*

C. U.S. Patents 10,334,499 and 11,006,343

These related patents⁵ teach methods and systems for converting and transporting discrete, relatively narrow RF bandwidths. *See* '499 Patent at 10:3–4. This, in turn, allows conversion of only those bandwidths that carry useful information. *Id.* at 10:5–6. As shown in FIG. 1 of the '499 Patent (below), DRUs only output specific frequency bands or RF carriers, because the DAUs convert and transport only the desired bandwidths. This increases the efficiency and traffic capacity of the network. *Id.* at [57].



The only term at issue from these patents is “radio resources,” which Judge Albright has already construed. *See* Claim Construction Order (W.D. Tex.), Dkt. No. 118-22.

⁵ The '343 Patent issued from a continuation application claiming the benefit of the application from which the '499 Patent issued. '343 Patent at [63]. The patents share the same disclosure.

II. LEGAL STANDARDS

A. Generally

“[T]he claims of a patent define the invention to which the patentee is entitled the right to exclude.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc). As such, if the parties dispute the scope of the claims, the court must determine their meaning. *See, e.g., Verizon Servs. Corp. v. Vonage Holdings Corp.*, 503 F.3d 1295, 1317 (Fed. Cir. 2007); *see also Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 390 (1996), *aff’g*, 52 F.3d 967, 976 (Fed. Cir. 1995) (en banc).

Claim construction, however, “is not an obligatory exercise in redundancy.” *U.S. Surgical Corp. v. Ethicon, Inc.*, 103 F.3d 1554, 1568 (Fed. Cir. 1997). Rather, “[c]laim construction is a matter of [resolving] disputed meanings and technical scope, to clarify and when necessary to explain what the patentee covered by the claims” *Id.* A court need not “repeat or restate every claim term in order to comply with the ruling that claim construction is for the court.” *Id.*

When construing claims, “[t]here is a heavy presumption that claim terms are to be given their ordinary and customary meaning.” *Aventis Pharm. Inc. v. Amino Chems. Ltd.*, 715 F.3d 1363, 1373 (Fed. Cir. 2013) (citing *Phillips*, 415 F.3d at 1312–13). Courts must therefore “look to the words of the claims themselves . . . to define the scope of the patented invention.” *Id.* (citations omitted). The “ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date of the patent application.” *Phillips*, 415 F.3d at 1313. This “person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification.” *Id.*

Intrinsic evidence is the primary resource for claim construction. *See Power-One, Inc. v. Artesyn Techs., Inc.*, 599 F.3d 1343, 1348 (Fed. Cir. 2010) (citing *Phillips*, 415 F.3d at 1312). For certain claim terms, “the ordinary meaning of claim language as understood by a person of skill in the art may be readily apparent even to lay judges, and claim construction in such cases involves little more than the application of the widely accepted meaning of commonly understood words.” *Phillips*, 415 F.3d at 1314; *see also Medrad, Inc. v. MRI Devices Corp.*, 401 F.3d 1313, 1319 (Fed. Cir. 2005) (“We cannot look at the ordinary meaning of the term . . . in a vacuum. Rather, we must look at the ordinary meaning in the context of the written description and the prosecution history.”). But for claim terms with less-apparent meanings, courts consider “those sources available to the public that show what a person of skill in the art would have understood disputed claim language to mean . . . [including] 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.” *Id.*

B. Indefiniteness

“[A] patent is invalid for indefiniteness if its claims, read in light of the specification delineating the patent, and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention.” *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 901 (2014). The claims “must be precise enough to afford clear notice of what is claimed,” but that consideration must be made while accounting for the inherent limitations of language. *Id.* at 908. “Indefiniteness must be proven by clear and convincing evidence.” *Sonix Tech. Co. v. Publ’ns Int’l, Ltd.*, 844 F.3d 1370, 1377 (Fed. Cir. 2017).

III. THE LEVEL OF ORDINARY SKILL IN THE ART

The level of ordinary skill in the art is the skill level of a hypothetical person who is

presumed to have known the relevant art at the time of the invention. *In re GPAC*, 57 F.3d 1573, 1579 (Fed. Cir. 1995). In resolving the appropriate level of ordinary skill, courts consider the types of and solutions to problems encountered in the art, the speed of innovation, the sophistication of the technology, and the education of workers active in the field. *Id.* Importantly, “[a] person of ordinary skill in the art is also a person of ordinary creativity, not an automaton.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 421 (2007).

Here, neither party proffers a level of ordinary skill in the art for claim construction. In Delaware, however, Dali’s expert opined such a person “would have had a bachelor’s in computer science, computer engineering, electrical engineering, or their equivalent, and at least three years’ experience working with wireless technology.” Mem. Order, Dkt. No. 118-21 at 5 n.3. This definition was substantially the same as the defendants’ expert’s definition. *Id.* (“a Bachelor’s Degree in Electrical Engineering or equivalent field of study, with 2–3 years of work experience in the field of wireless communications.”). For purposes of this opinion, the Court adopts Dali’s expert’s position in the Delaware case.

IV. THE DISPUTED TERMS

A. “radio resources” (’232 Patent, Claims 1, 3, 12, 14, 20; ’499 Patent, Claims 1–4, 8–11, 13–16, 18, 19; ’343 Patent, Claims 1, 12)

Dali’s Construction	Defendants’ Construction
Plain and ordinary meaning where the plain and ordinary meaning includes RF carriers, CDMA codes, and TDMA time slots, but does not include the underlying data that is transmitted. Note: when data is modulated on an RF carrier, the RF carrier is a radio resource, but the data modulated on the RF carrier is not a radio resource	Plain and ordinary meaning where the plain and ordinary meaning includes RF carriers, CDMA codes, and TDMA time slots, but does not include the underlying data that is transmitted. Note: when data is modulated on an RF carrier, the RF carrier is a radio resource, but the data modulated on the RF carrier is not a radio resource

Although the parties appear to agree on the construction of this term, Defendants accuse Dali of wrongly reading that “agreed” construction as encompassing not just radio resources, but *information about* radio resources. Dkt. No. 118 at 2. Specifically, they suggest Dali interprets the term as including information used to configure RF carriers, such as power and gain settings and RF carrier information. *Id.* at 2–3.

What the patents call “radio resources” is fundamentally different from power and gain settings or, more generally, configuration information. The patents only equate “radio resources” with capacity, throughput, RF carriers, CDMA codes, and TDMA time slots. *See* ’232 Patent at 2:64–67 (noting base stations are “provisioned with enough radio resources, i.e., capacity and broadband data throughput to accommodate the maximum subscriber loading”); *id.* at 12:5–7 (“One such key function is determining and/or setting the appropriate amount of radio resources (such as RF carriers, CDMA codes or TDMA time slots)”); *id.* at 4:17–20 (“the amount of radio resources (such as RF carriers, CDMA codes or TDMA time slots) assigned to a particular RRU or group of RRUs by each RRU Access Module can be set via software control as described hereinafter to meet desired capacity and throughput objectives”). “Radio resources” can be optimized, deployed, made efficient, assigned, enabled and disabled from being transmitted, and needed within a coverage area. *See, e.g.,* ’499 Patent at [57] (noting “[t]he present invention enables . . . radio resource optimization”), 1:46–47 (referring to “inefficient deployment of radio resources”), 2:62–63 (referring to “enhanc[ing] and facilitat[ing] the radio resource efficiency . . . of the distributed wireless network”), 2:67 (referring to “radio resource optimization”), 12:6–8 (describing the assignment of radio resources, such as RF carriers, CDMA codes, or TDMA time slots, to a particular DRU), 12:31–35 (noting a control module “enables or disables specific radio resources from being transmitted”), 12:61–63 (describing a control module

that deploys additional radio resources (such as RF carriers, CDMA codes, or TDMA time slots) for use by a DRU that needs the resources within its coverage area). None of these descriptions applies naturally to power and gain settings, resource block information, or RF carrier information.

In its reply, Dali points to two explanations from the patent of how resources are used. In the first, the patent explains:

The [Digital Access Unit] detects which *carriers* and corresponding *time slots* are active. This *information is relayed* to the individual DRUs via the management control and monitoring protocol software. This *information is then used*, as appropriate, by the DRUs *for turning off and on individual carriers corresponding time slots*.

Dkt. No. 122 at 1 (quoting '499 Patent at 7:44–50; Dali's emphasis and brackets). In the second, the applicants disclose radio resources can be assigned via software control. *Id.* (citing Provisional Appl'n, Dkt. No. 122-1 at 8).

Neither example helps Dali's position. That radio resources can be turned off or on is consistent with Defendants' position. No doubt configuration information about the resources will be transferred within the system so the resources may be allocated and used, but that information is not the resource itself.

Based on the intrinsic evidence, the Court construes “radio resources” as “capacity and broadband data throughput, such as RF carriers, CDMA codes, and TDMA time slots, but not including the underlying data that is transmitted.”⁶ When data is modulated on an RF carrier, the RF carrier is a radio resource, but the data itself is not. Moreover, power settings, gain settings,

⁶ During the hearing, Dali argued “CDMA codes” and “TDMA time slots” are configuration information, and therefore this construction is “asymmetrical” by including these within the scope of “radio resources” but excluding other configuration information from that scope. *See, e.g.*, H'rg Tr., Dkt. No. 138 at 6:24–7:3. But these are not “configuration information.” Rather, each of “RF carriers, CDMA codes, and TDMA time slots” is a way of subdividing capacity—either by frequency, codes, or time—and there is a finite number of each available for use by a system.

resource block information, and RF carrier information (*e.g.*, which carriers to use, the center frequency, the number of resource blocks, etc.) are not “radio resources.”

B. “an operator hub . . . that provides the plurality of radio resources to a radio access network using the Common Public Radio Interface (CPRI) protocol” (’232 Patent, Claim 1)

Dali’s Construction	Defendants’ Construction
Plain and ordinary meaning except as “radio resources” has been construed above	Plain and ordinary meaning. Note: the phrase “that provides the plurality of radio resources to a radio access network using the Common Public Radio Interface (CPRI) protocol” modifies “operator hub.”

The first limitation of Claim 1 recites:

one or more central nodes that receive a number of a plurality of radio resources from an operator hub that enables wireless communications and that provides the plurality of radio resources to a radio access network using the Common Public Radio Interface (CPRI) protocol.

’232 Patent at 13:48–53. The parties dispute whether it is the operator hub or central nodes “that provides the plurality of radio resources to a radio access network.”

Dali argues for the latter. It points to the specification’s statements that a key function of a DAU is “determining and/or setting the appropriate amount of radio resources . . . assigned to a particular RRU [remote radio unit] or group of RRUs.” Dkt. No. 113 at 5 (quoting ’232 Patent at 11:52–56). Moreover, “[t]he DAUs and RRUs frame the individual data packets corresponding to their respective radio signature using the Common Public Interface Standard (CPRI).” *Id.* (quoting ’232 Patent at 9:13–15). Finally, Dali stresses the patent examiner read this term the same way. *Id.* (citing *Dali Wireless, Inc. v. Cellco P’ship*, No. 2:23-cv-00002-RWS-RSP, Dkt. 76-1 at 2–3).

Defendants contend the operator hub provides the resources. They say Claim 12 and 20 clearly require the hub to use CPRI, Dkt. No. 118 at 13, and Dali’s construction requires adopting

“highly irregular grammar” given that “enables” and “provides” refer to a singular subject (like “hub”) and “receiver” refers to a plural subject (like “nodes”). *Id.* As for the prosecution history on which Dali relies, Defendants characterize it as “at best unclear.” *Id.* at 14. Defendants stress both the Western District of Texas and the PTAB have adopted their construction. *Id.*

The Court agrees with Defendants. To start, “a limiting clause or phrase . . . should ordinarily be read as modifying only the noun or phrase that it immediately follows.” *Barnhart v. Thomas*, 540 U.S. 20, 26 (2003); *see also* Hr’g Tr., Dkt. No. 138 at 18:17–20 (Dali’s agreement “the ordinary rule of claim construction is that a phrase is deemed to modify the closest antecedent”). Here, “that provides the plurality of radio resources” is closer to “operator hub” than “one or more central nodes.” And the applicability of this rule is bolstered by the subject-verb agreements noted by Defendants.

Notably, the claims use different language when limiting later operation of the central nodes. After receiving a plurality of radio resources from an operator hub, the central nodes “assign,” rather than “provide,” those resources to the various access points. *See* ’232 Patent at 14:1–3 (reciting, in Claim 1, “the one or more central nodes *assign* additional resources of the plurality of radio resources to the second access point” (emphasis added)); *id.* at 14:48–51 (reciting, in Claim 12, “*assigning* a first subset of the plurality of radio resources to a first access point [and] a second subset of the plurality of radio resources to a second access point” (emphasis added)); *id.* at 16:8–11 (same in Claim 20). This difference in language supports the notion the central nodes are not “providing” the plurality of resources in the first limitation, and such “provision” is merely the other side of the central node’s receipt of the resources from the operator hub.

Although Dali replies that Defendants “cannot avoid the Examiner’s understanding,” Dkt. No. 122 at 1, Dali likewise cannot avoid another court’s understanding or that of the PTAB. Based on its own review of the record, the Court sides with the latter and concludes “that provides the plurality of radio resources to a radio access network using the Common Public Radio Interface (CPRI) protocol” modifies “operator hub.” Otherwise, the Court will give this term its plain and ordinary meaning.

C. “a [first/second] communications unit” (’358 Patent, Claims 7, 9, 11, 15)

Dali’s Construction	Defendants’ Construction
Plain and ordinary meaning	A communications unit can include a plurality of remote antenna units.

This dispute concerns whether a “communications unit” of these claims is only one radio unit. *See* Dkt. No. 122 at 8. According to Defendants, the specification teaches that a communications unit can be a plurality of digital remote units. Dkt. No. 118 at 22. Moreover, say Defendants, Dali’s construction would exclude the only embodiment of the underlying provisional application. *Id.* Dali, however, contends Defendants’ construction is unnecessary, unhelpful, and has been rejected by the PTAB in a decision denying institution of *inter partes* review. Dkt. No. 113 at 17–18.

The Court agrees with Defendants. As the ’358 Patent explains, “[t]he first communications unit can include a first plurality of digital remote units and the second communications unit comprises a second plurality of digital remote units.” ’358 Patent at 4:43–46; *see also id.* at 4:29–30 (“first communications unit can include a plurality of DRUs”); *id.* at 3:46–48 (“first communications unit can include a central DRU and a plurality of peripheral DRUs”). *See also* Provisional Appl’n, Dkt. No. 118-50 ¶ [0034] (explaining “the blue geographical area in Cell 1 is

associated with the outer DRUs in the communications unit illustrated as eNB0 in FIG. 2 (*i.e.*, DRUs 1–6”).

Dali’s reply avoids these statements. Instead, Dali argues Defendants’ position “collapses ‘from a first communication unit of the set of communication units’ into a collection of units, which contravenes the claim’s plain language.” Dkt. No. 122 at 8. Dali also argues these claims cover embodiments that exclude systems in which more than one radio unit composes a “communications unit.” Hr’g Tr., Dkt. No. 138 at 29:1–8, 17–20. But Dali provides no reason why a skilled artisan would read these claims that way given the numerous contrary statements in the specification.

Nor is Dali’s reliance on the PTAB decision persuasive. Dali claims the PTAB concluded the construction now urged by Defendants would read on prior art. Dkt. No. 113 at 18 (citing IPR 2021-00492, Paper 8 at 21–22). But no construction of any term was necessary for the decision. Decision Denying Institution, Dkt. No. 118-41 at 11. Instead, the decision turned on the petitioner’s failure to adequately explain how the reference taught the elements of the challenged claim. *See id.* at 21 (“Petitioner’s contentions do not adequately set forth how Fujii’s system teaches the wherein clauses of claim 1.”); *id.* at 22. (“[T]he Petition is deficient because it does not provide the necessary explanation.”).

Because the intrinsic evidence amply supports Defendants’ position, the Court adopts their construction: “A ‘communications unit’ can include a plurality of remote antenna units.”

D. “distributing communications frequencies” (’358 Patent, Claim 7)

Dali’s Construction	Defendants’ Construction
Plain and ordinary meaning with the understanding that “distributing” essentially implicates a DAS	This language from the preamble of claim 7 is not a limitation.

The parties dispute whether the preamble is limiting. Dali argues the term “provides the necessary features to Claim 7” and urges the Court to adopt its construction for this phrase, which is also the construction adopted by the Northern District of California in another proceeding. Dkt. No. 113 at 19.

In Northern California, Dali argued the preamble was *not* limiting. In rejecting that argument, Judge Chen explained:

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

Dali Wireless, Inc. v. Corning Optical Comm’ns LLC, No. 20-cv-06469-EMC, 2021 U.S. Dist. LEXIS 134185, at *56–58 (N.D. Cal. July 19, 2021) (citing ’358 Patent at 18:48–19:4 as “similar to claim 7”).

Contending Judge Chen did not have the benefit of the arguments now before the Court, H’rg Tr., Dkt. No. 138 at 39:1–5, Defendants make three arguments opposing his conclusion. First, they note that, during prosecution, the examiner rejected Claim 7 based on a reference disclosing a satellite system, and stress Dali never argued the preamble limits Claim 7 to a DAS. Dkt. No. 118 at 24 (citing Office Action (Dec. 31, 2014), Dkt. No. 118-42 at 3); *see also* H’rg Tr., Dkt. No. 138 at 34:5–36:4. While an examiner’s statements about a claim term may show how a skilled artisan would understand the term, an applicant’s silence about those statements does not prohibit the applicant from taking a contrary position during litigation. *Salazar v. Procter & Gamble Co.*,

414 F.3d 1342, 1347 (Fed. Cir. 2005). Here, the Court is not inclined to hold Dali’s silence against it because the examiner’s interpretation was not an express statement about the preamble. In other words, accepting Defendants’ argument would require the Court to both infer the examiner’s intent behind the rejection and then infer Dali’s intent behind its silence in response. That’s a bridge too far for the Court.

Second, Defendants contend Judge Chen’s position conflicts with the doctrine of claim differentiation. Dkt. No. 118 at 24–25; *see also* H’rg Tr., Dkt. No. 138 at 36:6–37:18. A DAS, say Defendants, includes a host unit, which is absent from Claim 7 but included in Claim 8. That makes claim differentiation “especially strong” here. Dkt. No. 118 at 25. But Judge Chen’s construction does not require the presence of a host unit. Rather, it only requires that the recited steps—“providing a set of communication units” and “transmitting and receiving” to and from those units—“implicate” a DAS. Claim 8 only adds the requirement the set of communications units be in communication with a host unit. Thus, the Court disagrees claim differentiation is “especially strong” on this record. And even if the doctrine applies, it does not overcome the numerous DAS references in the patent on which Judge Chen relied.

Third, noting Dali’s position that “the essence of the invention is frequency reuse ‘in a distributed antenna system (DAS),’” Defendants stress “there isn’t a concept of reuse [in Claim 7], and there isn’t a concept of in a particular system.” H’rg Tr., Dkt. No. 138 at 38:12–13.

But there *is* a concept of “frequency reuse” in Claim 7. FIG. 8, which “is a simplified flowchart illustrating a method of implementing *soft frequency reuse*,” ’358 Patent at 18:48–50 (emphasis added), requires only four steps:

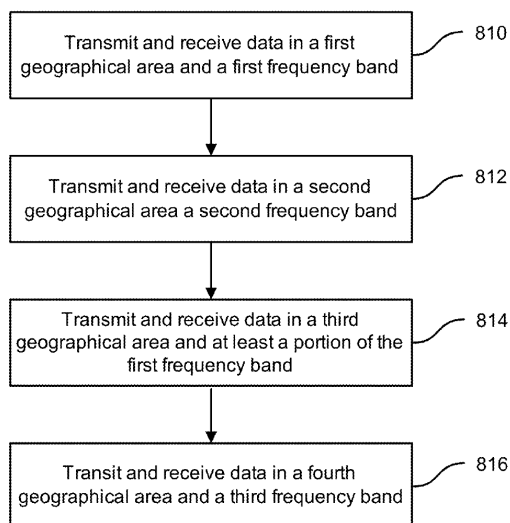


FIG. 8

Those steps are in each of the independent method claims, including Claim 7. *See id.* at 21:21–38 (Claim 1), 22:35–50 (Claim 15). Given these claims *do* incorporate the concept of frequency reuse—at least as that term is contemplated by the patent—it’s difficult to claim that “reuse” is not done in the context of a DAS given the Title, Background, and Summary sections.

Ultimately, this Court agrees with Judge Chen’s reasoning. The preamble is limiting, and the Court construes “distributing communications frequencies” as “distributing communications frequencies employing a Distributed Antenna System.” *See* ’358 Patent at 1:39–41 (“The present invention generally relates to wireless communication systems employing Distributed Antenna Systems (DAS)”).

E. “geographic footprint,” “geographical footprint” (’358 Patent, Claims 7, 9, 11, 15, 18)

Dali’s Construction	Defendants’ Construction
“radio coverage area meaning an area defined by user accessible frequenc(ies)”	“radio coverage area”

Defendants object to “user accessible frequencies” in Dali’s construction as an “added limitation” not supported by the specification. Dkt. No. 118 at 26–27. They also assert issue preclusion, stressing the Northern District of California adopted their construction of the term. *Id.* at 27–28. Dali argues the specification describes two methods of creating a “geographic footprint,” both of which depend on the user’s accessibility to the frequency. Dkt. No. 113 at 20. More specifically, Dali contends “geographic footprint” depends on whether users are assigned to specific frequencies. *Id.*

The Court agrees with Defendants. The ordinary meaning of “geographic[al] footprint” doesn’t depend on whether users are assigned to specific frequencies, and to hold otherwise would make that footprint constantly changing. By analogy, the geographic footprint of a commercial radio station does not depend on whether a potential listener has tuned his radio to the proper frequency, or even whether he has the proper equipment. Dali cites nothing in the specification that overcomes this ordinary meaning, and neither of the methods to which Dali points links the term “geographic footprint” to this concept. The Court therefore adopts Defendants’ construction of “radio coverage area.”

F. “host unit” (’358 Patent, Claims 8, 15)

Dali’s Construction	Defendants’ Construction
Plain and ordinary meaning	A unit that distributes communications frequencies between an operator network and antenna units.

Dali’s opening brief describes a “host unit” as a device that “receives signals from a mobile network operator and distributes those signals to remote radio units (‘RRU’) placed in and around a building.” Dkt. No. 113 at 1. Citing that description, Defendants argue their construction substantively differs only by distributing “frequencies” rather than “signals,” which aligns better with the claim language. Dkt. No. 118 at 28. Claiming the term need not be construed, Dali mainly

objects to the language “between an operator network and antenna units.” Dkt. No. 113 at 21 (emphasizing the phrase).

To start, the Court accepts Dali’s description of a “host unit” as the starting point for a proper construction. From there, Defendants ask the Court to replace “signals” with “communication frequencies” to differentiate what is being received and distributed from “pure data.” H’rg Tr., Dkt. No. 138 at 55:12–14. Unlike Claim 1, which is directed to “[a] method for routing and switching operator *RF signals*,” ’358 Patent at 21:12 (emphasis added), Claim 7 provides no such context and could be read to mean “data signals.”

This is the heart of the dispute, which somewhat rehashes the fight over “radio resources”—that is, whether those “resources” include the underlying data. But there is ample intrinsic evidence that the host unit must be capable of more than simply receiving and transmitting “pure data.” The thrust of the invention concerns the resources, not the underlying data. Accordingly, the Court agrees with Defendants and construes this phrase as “a unit that receives communications frequencies from a mobile network operator and distributes those frequencies to remote radio units.”

G. “the first frequency band and the second frequency band” (’358 Patent, Claim 20)

Dali’s Construction	Defendants’ Construction
Not indefinite. Plain and ordinary meaning.	Indefinite.

Independent Claim 15 requires “a first communications unit coupled to the host unit and operable to transmit and receive communications using a first set of frequencies in a first frequency range . . . and a second set of frequencies in a second frequency range.” ’358 Patent at 22:37–50. Claim 20, which depends from Claim 15, recites “the first frequency *band* and the second frequency *band* are contiguous frequency bands.” *Id.* at 23:6–7 (emphasis added).

Defendants allege Claim 20 is indefinite because Claim 15 provides no antecedent basis for first and second frequency *bands*. As such, a skilled artisan cannot tell which of two equally plausible alternatives is referenced—Claim 15’s sets of frequencies or its frequency ranges. Dkt. No. 118 at 30.

This phrase is not indefinite. The words “band” and “range” are inherently alike, while “set” is inherently different. Moreover, despite having a clear-and-convincing burden, Defendants present no evidence a skilled artisan would not understand the scope of the term, much less consider the two options “equally plausible.” Accordingly, the Court construes “the first frequency band and the second frequency band” as “the first frequency range and the second frequency range.”

V. CONCLUSION

Disputed Term	The Court’s Construction
“radio resources” (’232 Patent, Claims 1, 3, 12, 14, 20; ’499 Patent, Claims 1–4, 8–11, 13–16, 18, 19; ’343 Patent, Claims 1, 12)	“capacity and broadband data throughput, such as RF carriers, CDMA codes, and TDMA time slots, but not including the underlying data that is transmitted”
“an operator hub . . . that provides the plurality of radio resources to a radio access network using the Common Public Radio Interface (CPRI) protocol” (’232 Patent, Claim 1)	Plain and ordinary meaning.
“a [first/second] communications unit” (’358 Patent, Claims 7, 9, 11, 15)	A “communications unit” can include a plurality of remote units.
“distributing communications frequencies” (’358 Patent, Claim 7)	“distributing communications frequencies employing a Distributed Antenna System”

“geographic footprint,” “geographical footprint” (’358 Patent, Claims 7, 9, 11, 15, 18)	“radio coverage area”
“host unit” (’358 Patent, Claims 8, 15)	“a unit that receives communications frequencies from a mobile network operator and distributes those frequencies to remote radio units”
“the first frequency band and the second frequency band” (’358 Patent, Claim 20)	“the first frequency range and the second frequency range”

The Court **ORDERS** each party not to refer, directly or indirectly, to its own or any other party’s claim-construction positions in the presence of the jury. Likewise, the Court **ORDERS** the parties to refrain from mentioning any part of this opinion, other than the actual positions adopted by the Court, in the presence of the jury. Further, neither party may take a position before the jury that contradicts the Court’s reasoning in this opinion. Any reference to claim construction proceedings is limited to informing the jury of the positions adopted by the Court.

SIGNED this 18th day of May, 2023.


 ROY S. PAYNE
 UNITED STATES MAGISTRATE JUDGE