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UNITED STATES DISTRICT COURT

CENTRAL DISTRICT OF CALIFORNIA

XR COMMUNICATIONS, LLC, dba
VIVATO TECHNOLOGIES,

Plaintiff,

v.

D-LINK SYSTEMS, INC., *et al.*,

Defendants.

8:17-cv-00596-AG(JCGx) LEAD CASE

**PLAINTIFF VIVATO'S OPENING
CLAIM CONSTRUCTION BRIEF**

Hearing

Date: April 10, 2018

Time: 9:00 a.m.

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1. INTRODUCTION

Plaintiff XR Communications, LLC, dba Vivato Technologies (“Vivato”) and defendants D-Link Systems, Inc. et al., (collectively, “Defendants”) offer not just competing constructions, but different approaches to claim construction. The Federal Circuit has set forth straightforward rules to guide claim construction. For example, where claim terms have a plain and ordinary meaning in the field, that meaning almost always controls. Further, where claim terms do not recite “means,” or use nonce words, the terms are presumptively not means-plus-function. Vivato’s proposed constructions hew carefully Federal Circuit precedent.

Defendants’ proposals, on the other hand, reflect a fundamentally different and erroneous approach to claim construction. Defendants ask this Court, under the guise of “construction,” to burden clear terms with artificial and extraneous baggage, but cannot point to any requisite clear and unmistakable disclaimer. This invites reversible error. Likewise, Defendants attempt to characterize structure-denoting terms like “control logic” and “search receiver logic” as means-plus-function terms. But none of these terms recite “means” or use nonce words. Instead, they are structural terms, and the intrinsic and extrinsic record confirm they refer to known classes of electronic-circuitry structures.

The Court should reject Defendants’ proposals and adopt Vivato’s proposals, which are consistent with Federal Circuit precedent.

2. TECHNOLOGY BACKGROUND

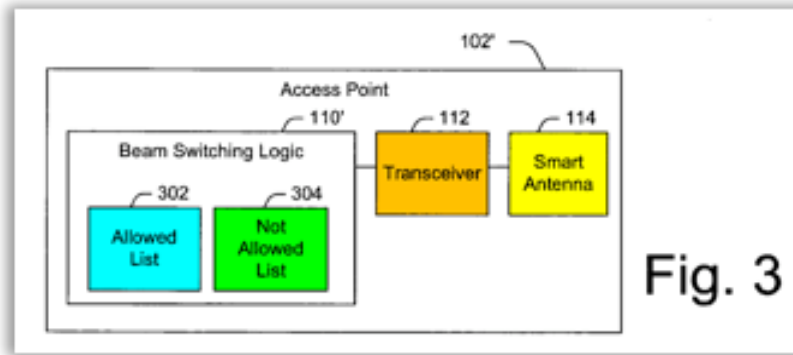
This case involves three asserted patents: U.S. Patent Nos. 6,611,231 (“’231 patent, Ex. 1), 7,062,296 (“’296 patent,” Ex. 2), and 7,729,728 (“’728 patent,” Ex. 3). The asserted patents are directed towards technology for wireless communication, specifically Wi-Fi/802.11 access point technologies. Most Wi-Fi networks include an access point, which is typically fixed and connected to a wired network, and multiple client devices such as laptops and mobile phones. The access point and client devices cooperate to wirelessly transfer digital data either from

1 In one embodiment, the control logic is operatively coupled to the receiver
2 114 and transmitter 116, which are both operatively coupled to the antenna array
3 110. *Id.* at 7:1–14. The access point 102 emanates a multibeam electromagnetic
4 signal pattern 122 from the antenna array 110 such that client devices 124 and 126,
5 are “illuminated” with transmission peaks to facilitate data transfer. *Id.* at 7:15–22.
6 Meanwhile, the signal pattern is configured so that other client devices 128 and 130,
7 receive transmission nulls even though they are within the coverage area 132. *Id.*

8 Further, the ’231 patent discloses that beamforming may be accomplished
9 using channel estimation, feedback, weight-matrix processing, and dynamic
10 maintenance of routing information. *Id.* 2:21–37, 9:40–46, 22:1–20; 27:6–18. For
11 example, channel estimation determines transmission environment information, and
12 provides it as feedback to the access point. ’231 patent at 22:1–20, 25:65–26:15. The
13 access point then determines the proper weight matrix values to use and updates the
14 routing information, so that the control logic, transmitter, and antenna array would
15 then adapt and steer the multibeam electromagnetic signal pattern to optimize the
16 data link with the various client devices. *Id.* 7:15–26, 22:43–62, 28:40–64.

17 The ’296 and ’728 patents share the same specification and the following
18 discussion applies to both patents. The patents enable WiFi beam disassociation and
19 association, for example by allowing or forcing a client device to change its
20 operative association from a beam to a different beam, based on information
21 determined from an uplink transmission. The ’296 and ’728 patents teach techniques
22 by which access points employing beamformed electromagnetic signals may allow
23 a client device to associate with an optimal beam for data transmission and disallow
24 the client device from associating with suboptimal beams.

25 FIG. 3 depicts an access point 102’ having a logic 110’ operatively coupled
26 to a transceiver 112, which is operatively coupled to a smart antenna 114. ’296 patent
27 at 7:66–8:28. In this embodiment, the logic 110’ maintains an “allowed list” 302 and
28 a “not allowed list” 304 and identifies devices belonging to either list. *Id.* at 8:9–28.



The '296 patent teaches that it may be preferable for the access point to instruct a client device to associate with a different beam than the one it is currently associated with due to current multibeam electromagnetic signal pattern. *Id.* 7:20–8:9. The access point may determine that a client device would be better served by associating to a different beam downlink based on feedback from the client device (for example, if the client device has moved). *Id.* at 7:25–55. In turn, the access point may instruct the client device to disassociate with its current beam and allow the client device to associate with a different beam. *See id.* at 7:66–8:5. One possible benefit is to allow an access point to transmit with greater power to client devices while still adhering to regulatory limits for the transmission of radio frequency energy, resulting in a larger effective coverage area. *Id.* at 5:30–33.

3. LEGAL STANDARDS

“[T]he claim construction inquiry ... begins and ends in all cases with the actual words of the claim. *Renishaw PLC v. Marposs Societa' per Azioni*, 158 F.3d 1243, 1248 (Fed. Cir. 1998). Further, the Federal Circuit “indulge[s] a heavy presumption that claim terms carry their full ordinary and customary meaning[.]” *Omega Eng'g, Inc. v. Raytek Corp.*, 334 F.3d 1314, 1323 (Fed. Cir. 2003). “There are only two exceptions to this general rule: 1) when a patentee sets out a definition and acts as his own lexicographer, or 2) when the patentee disavows the full scope of a claim term either in the specification or during prosecution.” *Thorner v. Sony Computer Entm't Am. LLC*, 669 F.3d 1362, 1367–68 (Fed. Cir. 2012).

Although claims are read in light of the specification, limitations from the

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specifications must not be imported into the claims. *Comark Commc'ns, Inc. v. Harris Corp.*, 156 F.3d 1182, 1186–87 (Fed. Cir. 1998). A court also may look to other sources to show “what a person of skill in the art would have understood disputed claim language to mean.” *Innova/Pure Water, Inc. v. Safari Water Filtration Sys. Inc.*, 381 F.3d 1111, 1116 (Fed. Cir. 2004). These sources include extrinsic evidence, such as expert testimony or dictionaries, “concerning relevant scientific principles, the meaning of technical terms, and the state of the art.” *Id.*

4. DISPUTED TERMS FOR '231 PATENT

4.1 “[an] adaptive antenna/antennas” ('231 cl. 1, 3)

Vivato’s Proposed Construction	Defendants’ Proposed Construction
array of antennas and supporting mechanisms configured to produce a transmission pattern that selectively places transmission nulls and/or peaks in certain directions within an applicable coverage area	array of directional antennas and supporting mechanisms that are configured to transmit main beams in certain directions

As shown above, both sides agree that the construction “adaptive antenna” should include an array of “antennas and supporting mechanisms that are configured” to transmit or produce. The dispute is whether Vivato’s construction is correct or whether Defendants are correct to require “directional antennas” configured to transmit “main beams.”

Any review of the intrinsic record confirms that Vivato’s construction is the only correct one. It is *directly from* the patent’s description of an adaptive antenna, which, like Vivato’s proposal, states that the antenna is “configured to produce a transmission pattern that selectively places transmission nulls and/or peaks in certain directions within an applicable coverage area.” ’231 patent at 6:3–8.

In contrast, Defendants’ proposal rewrites “antenna” to “directional antenna” and “beams” to “mean beams.” But the terms “directional antenna” and “main beams” are found nowhere in the specification. Defendants’ attempt to import words of their choosing into the claim itself fails as a matter of law. Even if those limitations

1 appeared in the specification (which they do not), it is forbidden to import limitations
 2 “even when a specification describes very specific embodiments of the invention.”
 3 *JVW Enters. v. Interact Accessories, Inc.*, 424 F.3d 1324, 1335 (Fed. Cir. 2005).

4 4.2 “transmission peaks” (’231 cl. 1, 4, 6, 9)

Vivato’s Proposed Construction	Defendants’ Proposed Construction
portions of the electromagnetic signal pattern resulting from transmission of significant energy in certain directions	transmission of significant energy in a particular direction

8 As shown above, the parties’ constructions overlap—both sides include the
 9 phrase “transmission of significant energy in certain directions.” The only dispute is
 10 whether “transmission peaks” is the transmission *itself* (as Defendants propose) or
 11 whether it is a portion of the electromagnetic signal pattern resulting from that
 12 transmission (as Vivato proposes).

13 The surrounding claim language, specification, and basic grammar all make
 14 clear that Vivato’s construction is the only correct one. The specification teaches
 15 that a “transmission peak *occurs in the transmission pattern when* a not
 16 insignificant amount of energy is directed in a particular direction.” ’231 patent at
 17 6:9–11.¹ This confirms two important points. *First*, a transmission “peak” reflects a
 18 portion of the transmission pattern because it “occurs *in the transmission pattern*.”
 19 In the context of the claims, this must be portions of the claimed “electromagnetic
 20 signal.” This is precisely Vivato’s proposal.

21 *Second*, the specification makes clear that the peak “*occurs [] when*” a not
 22 insignificant amount of energy is directed in a particular direction. This confirms
 23 that a transmission peak is *the result* of transmission in a particular direction, not—
 24 as Defendants propose—the transmission itself. Defendants’ proposal confuses
 25 cause and effect and purports to define a transmission peak by its cause. Vivato’s
 26 proposal explains what a transmission peak *is*.

27 Further, Defendants’ proposal (that “transmission peaks” are a “transmission
 28

¹ All emphasis added unless otherwise noted.

of . . .”) is inconsistent with claim 1’s requirement that the transmission peaks be selectively “placed” within “a far field region of a coverage area.” ’231 cl. 1. The parties don’t dispute that the claimed transmission does not itself originate in the transmission area, but rather comes from the wireless routing device apparatus. See, e.g., ’231 patent Fig. 2, 102 and 7:22–24. And it makes no sense to “place” a “transmission of” significant energy within a region of a coverage area, as Defendants’ proposal would require.

On the other hand, Vivato’s proposal (that “transmission peaks” are “portions of the electromagnetic signal pattern . . .”) is consistent with claim 1. As Figure 2 makes clear, a portion of the electromagnetic signal pattern (at elements 124 or 126) can be placed within a region of a coverage area. This is exactly Vivato’s proposal. Vivato’s proposal is also consistent with the testimony of the only expert who opined on this term, Dr. Vojcic, who explains that a transmission peak corresponds with the location of the transmission pattern that demonstrates significant energy. Corrected Declaration of Branimir Vojcic, Ph.D. (“Vojcic Decl.,” Ex. 4) ¶ 51.

Still further, Defendants’ proposal is wrong in terms of simple grammar and logic. If their proposal is inserted into claim 1, the resulting limitation would read: “to transmit corresponding outgoing multi-beam electromagnetic signals exhibiting a plurality of selectively placed transmission of significant energy in a particular direction.” But there cannot be a plurality of “transmission,” singular. And even if the proposal were stated in the plural, it still would read “to *transmit* signals exhibiting a plurality of *transmissions*.” Defendants’ proposal would render the claim circular and confusing, and cannot be correct.

4.3 “transmission nulls” (’231 cl. 1, 4, 6, 9)

Vivato’s Proposed Construction	Defendants’ Proposed Construction
portions of the electromagnetic signal pattern resulting from transmission of no or insignificant energy in certain directions	transmission of no or insignificant energy in a particular direction

The parties agree that the construction of “transmission nulls” essentially follows from the construction of “transmission peaks”—whereas transmission peaks involve significant energy, transmission nulls involve no or insignificant energy. Thus, for the same reasons already discussed, Vivato’s construction for “transmission nulls” is correct.

The specification teaches that transmission nulls occur *in* a portion of the transmission pattern and that they are the *result* of transmitting no or insignificant energy in a particular direction. ’231 6:16–20; Fig. 2 and at 7:22–24. Vivato’s construction is consistent with these points, whereas Defendants’ proposal is not. Further, Defendants’ proposal (that “transmission nulls” are a “transmission of . . .”) is inconsistent with claim 1’s requirement that the null be selectively “placed” within “a far field region of a coverage area.” ’231 cl. 1. Defendants’ proposal is also grammatically awkward and circular when inserted into claim 1.

4.4 “cross-correlated signal information” (’231 cl. 1)

Vivato’s Proposed Construction	Defendants’ Proposed Construction
No construction necessary	signal information cross-correlated <u>at the apparatus</u>

The disputed term, “cross-correlated signal information,” needs no construction. As Dr. Vojcic explains, a POSITA would understand its plain meaning, which—consistent the normal English interpretation of the words “cross-correlated” and “signal information”—refers to types of information about some property of a received signal in relation to those of a known signal. Defendants provided no rebuttal of Dr. Vojcic on this point. In fact, Defendants’ expert, Dr. Akl, admitted that a POSITA would have no problem understanding this term. Deposition of Dr. Robert Akl (“Akl Dep.,” Ex. 5) at 111:22–114:1. And he also essentially agrees with Dr. Vojcic on the ordinary meaning. *Id.*; Vojcic Decl. ¶¶ 79–81.

Indeed, as shown in the chart above, Defendants essentially acknowledge that

1 the term needs no construction by recasting every word of the disputed term, “cross-
 2 correlated signal information,” in their proposal. Instead of construing the disputed
 3 term, Defendants merely *import another limitation* that is nowhere found in the
 4 claims. Specifically, Defendants add the words “at the apparatus,” which
 5 presumably means at the same apparatus that is claimed, where the claimed adaptive
 6 antenna resides. That attempt must be rejected under Federal Circuit Law.

7 *First*, longstanding Federal Circuit precedent forbids the practice of importing
 8 limitations into the claim “even when a specification describes very specific
 9 embodiments of the invention” that include such limitations. *JVW Enters.*, 424 F.3d
 10 at 1335. Thus, though it is unclear where Defendants are importing limitations from,
 11 that does not matter and its proposal should be rejected regardless.

12 *Second*, Defendants’ importation actually *excludes embodiments* described in
 13 the specification. As Dr. Vojcic explains in an unrebutted opinion, Figure 15 teaches
 14 an embodiment in which signal information received by the apparatus is cross-
 15 correlated *not at the apparatus*, but at another device. Vojcic Decl. ¶ 90. Defendants’
 16 construction requires signal information to be cross-corrected at the apparatus and
 17 reads out this embodiment. Such constructions are “rarely, if ever, correct.” *SanDisk*
 18 *Corp. v. Memorex Prod., Inc.*, 415 F.3d 1278, 1285 (Fed. Cir. 2005).

19 *Third*, Defendants’ proposed limitation also fails under the doctrine of claim
 20 differentiation. Defendants seek to import a limitation that doesn’t exist in claim 1
 21 but exists in claim 20, another independent claim. Claim 20, unlike claim 1, requires
 22 that the claimed “adaptive antenna” in the apparatus perform the cross-correlation.
 23 *Compare* ’231 cl. 1 (cross-correlated signal information received by said receiver
 24 using said adaptive antenna”), *with* cl. 20 (“wherein said adaptive antenna **is further**
 25 **configured to cross-correlate** data sequences). Defendants’ proposal would “render
 26 additional, or different, language in another independent claim superfluous” and
 27 should be rejected. *Wright Flow Control Corp., v. Velan, Inc.* 438 F.3d 1374, 1381
 28 (Fed. Cir. 2006).

4.5 “cross-correlatable data sequence” (’231 cl. 2)

Vivato’s Proposed Construction	Defendants’ Proposed Construction
No construction necessary	a data sequence cross-correlated <u>at the apparatus</u>

This dispute is essentially the same as the previous term, and Defendants’ proposal for “cross-correlatable data sequence” should be rejected for the same reasons. Like the previous term, Defendants attempt to import the limitation “at the apparatus” without any legal or factual bases. Defendants also attempt to change the word “cross-correlatable” to “cross-correlated.” But the words have different meanings, and the patentee knew how to claim both. See ’231 cl. 2 (reciting both “cross-correlated” and “cross-correlatable”).

4.6 “control logic” (’231 cl. 1, 4, 9)

Vivato’s Proposed Construction	Defendants’ Proposed Construction
No construction necessary; not means-plus-function Alternatively, should the term be treated as means-plus-function: see Ex. A, JCC (Dkt. 85-1) at 18–19 (entry for “control logic”) for proposed function and structure.	Indefinite under 35 U.S.C. § 112(f)

“Control logic” has a well-known meaning in wireless communications and the ’231 patent uses the term consistent with that well-known, structural meaning. Thus, means-plus-function does not apply and no construction is necessary.

4.6.1 The intrinsic *and* extrinsic record confirm that “control logic” is a known class of electronic-circuitry structures.

“Control logic” is a well-known class of electronic structures in the field of wireless communications. Vojcic Decl. ¶¶ 194–208. It is a specific class of electronic circuitry, which, by implementing Boolean operations, controls other structures within a wireless communication device. *E.g., id.* ¶¶ 200 (“Control logic connotes well-known electronic circuits [] capable of performing controlling operations”),

201 (“Control logic is sometimes referred to as a control circuit or controller”). And because the term “has a structural definition that is . . . generally known in the art,” it cannot be a means-plus-function term. *Flo Healthcare Solutions LLC v. Rioux Vision, Inc.*, 697 F.3d 1367, 1374 (Fed. Cir. 2012) (“We will not apply § 112, ¶ 6 if the limitation contains a term that ‘is used in common parlance or by persons of skill in the pertinent art to designate structure.’”).

The intrinsic evidence confirms that “control logic,” is a known class of structures. The specification explains that “logic” alone refers to hardware, firmware, software or any combination thereof that may be implemented to perform logical operations. ’231 patent at 6:34–42. But Dr. Vojcic and Dr. Akl agree that the claimed “control logic” could not rely on software alone to execute the operations without such circuitry. Vojcic Decl. ¶ 210; Akl Dep. at 26:5–20. Instead, both experts agree that a POSITA would understand that “control logic” requires executing Boolean logical operations and corresponding “logic” circuitry. Vojcic Decl. ¶¶ 197–201; Akl Dep. at 32:4–24, 33:9–34:21, 37:5–38:7. The specification consistently depicts the “control logic” structure connected to—and sometimes including—other known wireless-communication structures, such as adaptive antennas, wireless transmitters and receivers. Vojcic Decl. ¶¶ 197–203. The specification further illustrates the inputs and outputs of the “control logic” (specifically, to the wireless transmitters and receivers) and the objectives of “control logic,” which are to control certain functionality and operations of those other known structures. Vojcic Decl. ¶¶ 201–02, 204, 209. This *confirms* that the claimed “control logic” must be a class of electronic circuitry that controls other structures within a wireless-communication device. *Id.* ¶¶ 202.

Consistent with the specification and plain meaning, the *claim language* itself makes clear that “control logic” describes a class of structures. In each case, within the full “control logic” claim term itself, the claims describe that the “control logic” is ***coupled to said transmitter,*** which itself is coupled to another known wireless

1 structure, namely, “an adaptive antenna[.]” ’231 patent at 29:9–14 (cl. 1), 7:1–6.
 2 This contextual claim language **must** be considered in determining whether means-
 3 plus-function applies. *Apex, Inc. v. Raritan Comp., Inc.*, 325 F.3d 1364, 1372 (Fed.
 4 Cir. 2003) (“[t]he primary source of this error [in construing the terms under § 112,
 5 ¶ 6,] lies in the district court’s reliance on single words of the limitation, e.g.,
 6 “circuit,” as opposed to the limitations as a whole, e.g., “a first interface circuit for
 7 receiving keyboard and cursor control device signals from the workstation.”).

8 Although extrinsic evidence is unnecessary to decide this issue, that evidence
 9 further supports that “control logic” itself has a well-known structural meaning—
 10 and that meaning is precisely what is described in the ’231 specification, claims, and
 11 by Dr. Vojcic. For example, the Microsoft Computer Dictionary includes a definition
 12 for “control logic,” which is the “**electronic circuitry** that generates, interprets, and
 13 uses control data.” *Microsoft Computer Dictionary*, at 128 (5th ed. 2002) (Ex. 7);
 14 *see also, e.g.*, Vojcic Decl. ¶¶ 198–201. Indeed, even the prefix “control” *alone*
 15 connotes structure, namely, an electronic “circuit” for applying the proper digital
 16 signals to an arithmetic unit in a computing structure. *Id.* ¶¶ 200–01.

17 **4.6.2 Defendants’ contention that “control logic” is so lacking in**
 18 **structure that it is a means-plus-function term is contradicted by**
 19 **the facts and controlling law.**

20 Because the disputed term here does not use “means,” there’s a presumption
 21 that § 112, ¶ 6 doesn’t apply. *Williamson v. Citrix Online, LLC*, 792 F.3d 1339 (Fed.
 22 Cir. 2015). “From a procedural standpoint, this presumption imposes on
 23 [Defendants] a burden of going forward with evidence to rebut . . . the presumption,”
 24 and that burden does not shift to Vivato, but instead, “remains with” the Defendants.
 25 *Apex*, 325 F.3d at 1372. To meet this burden, Defendants must prove by a
 26 preponderance of the evidence, that the entire “control logic” limitation fails to recite
 27 sufficiently definite structure or else recites a function without reciting sufficient
 28 structure for performing that function.” *Williamson*, 792 F.3d at 1348.

For example, in *Williamson*, the Federal Circuit held that the defendant met

1 its burden of proving that § 112, ¶ 6 should apply to the claim term “distributed
 2 learning control module.” *Id.* at 1348–52. The court noted that the intrinsic and
 3 extrinsic record failed to establish that the prefix “distributed learning control”
 4 connoted sufficient structure to those in the field of distributed classroom learning.
 5 *Id.* Instead, the evidence showed that “distributed learning control,” as described in
 6 the patent and recited in the claims, did not impart any class of structures or even
 7 inputs, outputs or objectives” and there was no evidence to the contrary.

8 This case is very different from *Williamson*. Critically, “logic” and “control
 9 logic” are not nonce words, and instead connote well-known classes of electronic
 10 structures. Vojcic Decl. at ¶¶ 194–208. Further, unlike *Williamson*, the intrinsic
 11 record confirms that the “control logic” is “coupled to” specific classes of wireless-
 12 communication structures. ’231 patent at 7:1–6. And in sharp contrast to *Williamson*,
 13 the extrinsic evidence is replete with technical definitions proving Vivato’s point
 14 and contradicting Defendants’ contention that the term imparts no structure. Given
 15 the intrinsic and extrinsic record, Defendants cannot meet their burden.

16 In analogous cases, the Federal Circuit has repeatedly refused to apply § 112,
 17 ¶ 6 to a claim limitation that does not use “means.” This is particularly true where,
 18 as here, the intrinsic record describes the claim limitation’s operation, such as input,
 19 outputs, and connections. For example, in *Apex*, the court found that, in light of the
 20 technical definitions in the record, a POSITA would understand that the term
 21 “circuit” itself would connote structure and, when used with the appropriate
 22 identifier, “such as [] **logic**,” the term “**certainly identifies some structural**
 23 **meaning[.]**” 325 F.3d at 1372. Likewise, in a very recent decision involving a
 24 wireless-communication patent, this Court found that “transport logic” should not
 25 be construed under § 112, ¶ 6, because—just like this case—the term itself connoted
 26 sufficient structure and, further, the patent explained the term’s input, output and
 27 objectives. *Broadcom Corp., v. Amazon.com, Inc.*, Case No. SACV-16-01774-JVS,
 28 2017 WL 5151356, at *9 (C.D. Cal Sept. 1, 2017).

4.7 “search receiver logic” (’231 cl. 1, 12)

Vivato’s Proposed Construction	Defendants’ Proposed Construction
No construction necessary; not means-plus function Alternatively, should the term be treated as means-plus-function: <i>see</i> Ex. A, JCC (Dkt. 85-1) at 21–22 (entry for “search receiver logic”) for proposed function and structure.	Indefinite under 35 U.S.C. §112(f) ² Alternatively, if not indefinite: <i>see</i> Ex. A, JCC (Dkt. 85-1) at 21–22 (entry for “search receiver logic”) for proposed function and structure.

4.7.1 The intrinsic *and* extrinsic record confirm that “search receiver logic” is a known class of electronic-circuitry structures.

In the field of wireless communications, the term “search receiver logic” is a well-known class of electronic structures. Vojcic Decl. at ¶¶ 194–208. It is a specific class of electronic circuitry that processes digital radio signal information. *E.g., id.* ¶¶ 226–28. And because the term “has a structural definition that is . . . generally known in the art[.]” it cannot be a means-plus-function term under § 112, ¶ 6. *Flo Healthcare Solutions LLC*, 697 F.3d at 1374.

The intrinsic record of the ’231 patent further confirms that “search receiver logic” is a known structure. For example, the claim language itself makes clear that “search receiver logic” must describe a class of structures because it term recites that it is “coupled to” a wireless receiver. ’231 patent at 13:10–28, 9:26–39, 25:1–11, 9:55–62; Vojcic Decl. ¶¶ 228–30. As Dr. Vojcic explains, the claim limitation must connote a class of electronic circuitry structure to be used and connected in this manner. Vojcic Decl. ¶ 229. And a POSITA would understand that not any old logic structure would do. The specification further illustrates the inputs and outputs of the “search receiver logic” (for example, to the wireless receivers) and the objectives of “search receiver logic.” ’231 patent at 13:10–28; Vojcic Decl. ¶ 232. In fact, in one embodiment, the patent teaches how the “search receiver” logic behaves like an

² For each of the “logic” terms, Defendants bear the burden of proving indefiniteness by clear and convincing evidence. Defendants have not articulated their bases for indefiniteness, and Vivato reserves the right to respond once they do.

1 “adaptive filter,” which is a known class of electronic circuit structures for detecting
2 and processing signals. ’231 patent at 25:65–26:34, 26:38–27:33, 22:1–21, 9:26–54,
3 22:43–24:22, 19:19–26; Vojcic Decl. ¶¶ 24, 84, 239.

4 Although extrinsic evidence is unnecessary to decide this issue, a review of
5 that evidence only confirms that “search receiver logic” has a known, structural
6 meaning. And that meaning is precisely what is described in the ’231 patent, claims
7 and by Dr. Vojcic. For example, “logic” alone describes a particular class of
8 electronic circuits. *See, e.g.*, Vojcic Decl. ¶¶ 224. But various technical dictionaries
9 further confirm that the descriptive prefix “search receiver” is a type of receiver
10 logic that can detect digital RF signals and process the corresponding signal
11 information. *See, e.g., id.* ¶¶ 224–26.

12 **4.7.2 Defendants’ contention that “search receiver logic” is a means-** 13 **plus-function term is contradicted by the facts and controlling law.**

14 Again, because the claim limitation does not use the term “means,” there is a
15 legal presumption that §112, ¶ 6 does not apply. *Williamson*, 792 F.3d at 1348. Here,
16 Defendants cannot overcome this presumption and meet their burden that it does.

17 Critically, “search receiver logic” (or even “logic” alone) is not a “nonce”
18 word. Instead, the terms connote a well-known class of electronic structures, namely,
19 a specific class of electronic circuitry that processes digital radio signal information.
20 *E.g., id.* ¶¶ 226–28. Further, the intrinsic record—including *the claim language*
21 *itself*—confirms that the “search logic” is “coupled to” specific classes of wireless-
22 communication structures, such as wireless receivers. ’231 patent at 13:10–28;
23 Vojcic Decl. ¶¶ 222, 228–31. And again, the extrinsic record is replete with technical
24 dictionary definitions proving Vivato’s point and contradicting Defendants’
25 contention that the term imparts no structure. *See id.* ¶ 224.

26 Notably, both sides acknowledge that the prefix term “receiver” alone
27 describes a known and specific wireless communication structure. *See, e.g.*, Akl
28 Dep. at 45:12–47:17, 19:8–17. In fact, neither side even asked for a construction of

this term, let alone that this Court construe it as a means-plus-function term. This point is dispositive, because *even if the disputed term used “means”* and, therefore, triggered the presumption that § 112, ¶ 6 did apply, the structural “receiver” or “search receiver” prefix *nevertheless would* render § 112, ¶ 6 inapplicable. The Federal Circuit and this Court previously have held the same in other electronics patent cases. *Optimal Recreation Solutions LLP v. Leading Edge Techs., Inc.*, 6 Fed.Appx. 873, 878 (Fed. Cir. 2001) (concluding that the term “global positioning receiver means” in a wireless communication patent was sufficiently structural and thus is not subject to § 112, ¶ 6); *Alfred E. Mann Foundation, v. Cochlear Corp.*, No. CV-07-8108-GHK, 2012 WL 12977984, at *4 (C.D. Cal. June 8, 2012) (concluding that “receiver means” is not subject to § 112, ¶ 6).

5. DISPUTED TERMS FOR '296 AND '728 PATENTS

5.1 “smart antenna” ('296 cl. 1, 4–7, 17, 20–23, 33, 35–37)

Vivato’s Proposed Construction	Defendants’ Proposed Construction
antenna that transmits directed beams	<u>directional</u> antenna that transmits <u>narrow main</u> beams

The Federal Circuit “indulge[s] a heavy presumption that claim terms carry their full ordinary and customary meaning[.]” *Omega Eng’g*, 334 F.3d at 1323. The full ordinary meaning of “smart antenna” is “antenna that transmits directed beams.” See Vojcic Decl. ¶¶ 36–37. Dr. Vojcic is un rebutted on this point. As he explains, a POSITA would understand that a smart antenna “is antenna capable of transmitting directed beams” and one that typically, “can vary the directed beams.” *Id.*

The intrinsic record uses “smart antenna” in the same way. The '296 specification explains that smart antennas are those that “***are capable of transmitting directed beams*** to one or more receiving devices (e.g., client devices.)” '296 patent at 1:58–61. This is consistent with the claims. Claim 1 recites (in part):

configuring a first device having a **smart antenna** to selectively allow a second device to operatively associate with a *beam downlink transmittable to said second device using said smart antenna*;

1 configuring said first device to determine information from at least one
 2 *uplink transmission receivable from said second device through said*
 3 **smart antenna**;

4 configuring said first device to determine if said associated second device
 5 should operatively associate with *a different beam downlink transmittable*
 6 *using said smart antenna* based on said determined information

7 This claim language shows that a “smart antenna” is an antenna that can
 8 transmit beams (e.g., “*beam downlink transmittable*”) to a receiving device (e.g.
 9 “*said second device.*”). As Dr. Vojcic’s unrebutted testimony demonstrates, a
 10 POSITA would view the claims and specification and understand that the ’296 patent
 11 uses “smart antenna” in its ordinary sense. See Vojcic Decl. ¶¶ 36–38.

12 Defendants’ construction—“directional antenna that transmits narrow main
 13 beams”—is not the ordinary meaning. But to depart from the ordinary meaning,
 14 Defendants must show that the patentee acted as his own lexicographer in defining
 15 the term or else set forth a “clear and unmistakable” disavowal of the full scope of
 16 the term, in the specification or during prosecution.” *Thorner*, 669 F.3d at 1367–68.
 17 Defendants can show neither.

18 Indeed, based on the intrinsic record, the extraneous limitations Defendants
 19 improperly import are plainly wrong. For example, Defendants’ proposal requires
 20 that a smart antenna must always be a “directional antenna.” But this is contradicted
 21 by the specification. Indeed, in the only place where the term “directional antenna”
 22 is found, the patent expressly states that “the smart antenna **may include** a
 23 directional/adaptive antenna” ’296 patent at 4:36–39. A POSITA would
 24 certainly view this disclosure and understand that “the smart antenna **may or may**
 25 **not** be a directional or adaptive antenna.” Vojcic Decl. ¶ 40. Defendants’ proposal
 26 converts this express “may” into a “must,” and cannot be correct. See *NTP, Inc. v.*
 27 *Research in Motion, Ltd.*, 418 F.3d 1282, 1297 (Fed. Cir. 2005) (constructions that
 28 contradict the written description must be rejected).

Defendants’ construction also requires a smart antenna to transmit “narrow
 main” beams. But this is not part of the plain meaning of “smart antenna,” and there

is no clear and unmistakable disclaimer. Although the specification gives examples in certain embodiments of smart antennas that are capable of transmitting beams that are “narrower” than those transmitted by some omni-directional antennas at the time of the invention, it never defines smart antennas to require “narrow” beams. See ’296 patent at 2:41–46, 5:26–33 (discussing FIG. 1 embodiment). A POSITA would view these disclosures and understand that “smart antenna is being used in its ordinary sense, i.e., in contrast with ‘dumb antennas’ that either cannot use beams or that have fixed beams.”” *Vojcic Decl.* ¶ 40. A POSITA would also understand that “‘narrower’ in this context doesn’t necessarily refer to any particular degree of narrowness, or to any particular shape.”” *Id.* ¶ 114

Importantly, nothing in the specification disavows the plain meanings of “smart antenna” or “beam.” *Id.* ¶¶ 40, 114–17. A POSITA would view in FIG. 1 and understand that the beams are spread out and may have a large number of shapes. *Id.* ¶ 116. A POSITA would view the ’296 patent in context and understand that “a beam may be *relatively wide*.” *Id.* ¶ 117. Dr. Vojcic is unrebutted on this point. Thus, disclaimer does not apply, and Defendants’ proposal must be rejected.

5.2 “phased array antenna” (’728 patent cl. 16)

Vivato’s Proposed Construction	Defendants’ Proposed Construction
antenna array with operatively supporting mechanisms that change the phases of the signals at the antenna elements	array of <u>directional</u> antenna elements that <u>transmit a narrow main beam</u> by changing the phases of signals at antenna elements

The plain and ordinary meaning of “phased array antenna” is: “antenna array with operatively supporting mechanisms that change the phases of the signals at the antenna elements.” See *Vojcic Decl.* ¶¶ 43–44 (in the context of the ’728 patent, a “phased array antenna” is an antenna “comprising two or more individual antenna elements and that can transmit beam downlinks by adjusting the excitation signal associated with the antenna elements, e.g., by varying the phase or amplitude or both”). The ’728 patent uses “phased array antenna” in its ordinary sense, starting

with the claims. See *id.* ¶¶ 43, 45. For example, claim 16 recites (in part):

a **phased array antenna** configured to *transmit beam downlinks*;

a transceiver operatively coupled to the **phased array antenna** and configured to *send and receive electromagnetic signals via the phased array antenna*; and [...]

wherein the access point is further configured to actively probe the receiving device by generating a signal to initiate that the **phased array antenna** *transmit at least one downlink transmittable message over the beam downlinks*, and gather signal parameter information from *uplink transmittable messages received from the receiving device through the phased array antenna*.

This claim language shows that a “phased array antenna” is an antenna that is configured to send and receive electromagnetic signals, and to transmit messages over beam downlinks. *Id.* ¶ 45. A POSITA would understand that claim 16 uses “phased array antenna” in its ordinary sense.

Vivato’s proposal is also consistent with the specification and technical dictionaries. The specification explains that a “phased array antenna panel” is configured to transmit a main beam to a client device and to receive signals transmitted from the client device. ’728 patent at 2:1–6. Likewise, the *Communications Standard Dictionary* (2d. ed. 1989) (Ex. 6 at 792) defines “phased array” as: “An arrangement of antennas of any type in which the signal feeding each antenna can be varied in such a way that radiation is reinforced in a desired direction and suppressed in undesired directions” A POSITA would view these teachings as supporting Vivato’s construction. See Vojcic Decl. ¶¶ 46–47.

Defendants’ proposed construction is not the plain and ordinary meaning, and imports the bolded limitations: “array of **directional** antenna elements that transmit a **narrow** main beam.” Defendants cannot show any lexicography or disclaimer that would justify these additions. For example, the term “phased array antenna” appears only twice in the specification, and neither mentions *directional* antennas or transmitting *narrow* beams. See ’728 patent at 2:1–7; 5:6–10.

To the extent Defendants attempt to conflate “phased array antenna” with “smart antenna,” that is unsupported. The two terms different and have different

meanings under the intrinsic and extrinsic evidence. For example, the '728 specification states that “smart antenna 114 *may include* one or more phased array antenna panels[.]” *Id.* at 5:6–10. It never defines a phased array antenna as a smart antenna or type of smart antenna. Regardless, the alleged disclaimer concerning one claim term (“smart antenna,” claimed in the '296 patent) cannot operate as a disclaimer concerning a different claim term in another patent (“phased array antenna,” claimed in the '728 patent”). Defendants’ construction must be rejected.

5.3 “beam downlink transmittable to said second device using said smart antenna” ('296 cl. 1, 17, 33, '728 cl. 16)

Vivato’s Proposed Construction	Defendants’ Proposed Construction
No construction necessary	[a/said] first available beam transmitted to said second device by said smart antenna

Claim construction is “not an obligatory exercise in redundancy.” *US Surgical Corp. v. Ethicon, Inc.*, 103 F.3d 1554, 1568 (Fed. Cir. 1997). A POSITA would readily understand every word of this claim phrase and understand it doesn’t require construction. Vojcic Decl. ¶¶ 112–19. The Court should not recharacterize this phrase with words different from its plain meaning. *See Mentor H/S, Inc. v. Med. Device Alliance, Inc.*, 244 F.3d 1365, 1380 (Fed. Cir. 2001) (“[T]he court properly instructed the jury that these terms should receive their ordinary meanings.”).

Defendants’ proposed construction rewrites the claim language by replacing: (a) “beam downlink” with “*first available* beam”; (b) “transmittable” with “transmitted”; and (c) “using said smart antenna” with “*by* said smart antenna.” There is no basis for these rewritings. For example, the terms “first available beam” and “by said smart antenna” do not appear anywhere in the '296 claims or specification. Likewise, the word “available” doesn’t appear in the claims. Further, the words “transmittable” and “transmitted” have different meanings, and the patentee knew how to claim both. *Compare* '296 cl. 1 (“beam downlink transmittable to said second device”), with cl. 8 (“downlink transmitted to said client

device”). Claims mean what they say, and there is no reason to replace the patentee’s chosen words with different words. *See SuperGuide Corp. v. DirecTV Enters., Inc.*, 358 F.3d 870, 874–75 (Fed. Cir. 2004).

Defendants cannot justify departing from the plain and ordinary meaning especially where, as here, there is no lexicography and the claim language is clear. *See Tate Access Floors, Inc. v. Interface Architectural Resources, Inc.*, 279 F.3d 1357, 1370 (Fed. Cir. 2002) (strong presumption for ordinary meaning may be overcome if term would render claim “devoid of clarity”). To the contrary, Defendants’ proposal creates ambiguity and could lead to disputes about whether and when a beam is “available.”

5.4 “a downlink transmitted to the receiving device via the phased array antenna” (’728 cl. 16)

Vivato’s Proposed Construction	Defendants’ Proposed Construction
No construction necessary	a first available beam transmitted to the receiving device by said phased array antenna

Like the previous term, a POSITA would understand every word of this claim phrase and understand that it does not require construction. Vojcic Decl. ¶¶ 120–22. Defendants’ proposal rewrites the claim language by replacing: (a) “beam *downlink*” with “*first available* beam” and (b) “*via the* phased array antenna” with “*by* said phased array antenna.” There is no basis for these rewritings. For example, the terms “first available beam” and “by said phased array antenna” don’t appear anywhere in the ’728 claims or specification. Likewise, “available” doesn’t appear in the claims.

5.5 “[a/said] different beam downlink transmittable using said smart antenna” (’296 cl. 1, 7, 17, 33)

Vivato’s Proposed Construction	Defendants’ Proposed Construction
No construction necessary	[a/said] second available beam transmitted by said smart antenna

Like the previous terms, a POSITA would understand every term of this claim

phrase and understand that it does not require construction. Vojcic Decl. ¶¶ 123–26. Defendants first rewrite the claim by replacing “*different* beam downlink” with “*second available* beam.” But the word “different” does not require construction and does not mean “second available.” Regardless, the term “second available beam” does not appear anywhere in the ’728 claims or specification.

Defendants also rewrite “transmittable using said smart antenna” as “***transmitted to said second*** device by said smart antenna.” There is no basis for this rewrite, which changes “transmittable” to “transmitted” and then inserts the phrase “to said second device” in the middle of the claim term. Defendants’ proposal is unsupported and substantially changes the plain meaning of the claim language.

5.6 “[a/the] different beam downlink” (’728 cl. 16)

Vivato’s Proposed Construction	Defendants’ Proposed Construction
No construction necessary	[a/the] <u>second available</u> beam <u>transmitted by said phased array antenna</u>

Like the previous terms, a POSITA would understand every term of this claim phrase and understand that it does not require construction. Vojcic Decl. ¶¶ 127–29. Defendants first rewrite the claim by replacing “*different* beam downlink” with “*second available* beam.” But the word “different” does not require construction and does not mean “second available.” Regardless, “second available beam” does not appear anywhere in the ’728 claims or specification. Defendants also add the entire phrase “transmitted by said phased array antenna” to the end of the claim term. This is unsupported and divorced from the claim language.

5.7 “logic” (’296 cl. 33, 35–38)

Vivato’s Proposed Construction	Defendants’ Proposed Construction
No construction necessary; not means-plus function Alternatively, should the term be treated as means-plus-function: see Ex. A, JCC (Dkt. 85-1) at 13–27 (entry for “logic”) for proposed function and structure.	Indefinite under 35 U.S.C. § 112(f)

5.7.1 Consistent with its ordinary meaning, the claim language confirms that the claimed “logic” limitation conveys known classes of electronic circuitry.

The plain and ordinary meaning of “logic” in wireless communications is an electronic circuit structure used to perform Boolean operations. Vojcic Decl. ¶¶ 163–70. Even Defendants’ expert, Dr. Akl, agrees that a POSITA would understand that “logic” is a class of electronic circuitry. Akl Dep. at 37:5–38:7, 42:25–45:11. And though extrinsic evidence is unnecessary to decide this issue, that evidence further confirms the plain (and structural) meaning of the term “logic” itself. For example, as Dr. Vojcic explains, dictionaries available to a POSITA defined the term as “the arrangement of circuit elements . . . needed for computation; also; the circuits themselves.” Vojcic Decl. ¶ 166. These facts alone confirm that the limitation should not be interpreted under § 112, ¶ 6. *Flo Healthcare Solutions*, 697 F.3d at 1374 (“We will not apply § 112, ¶ 6 if the limitation contains a term that ‘is used in common parlance or by persons of skill in the pertinent art to designate structure.’”).

Consistent with its ordinary meaning, the claim language here further confirms that the *claimed* “logic” limitation conveys classes of known structures of electronic circuitry that perform certain operations, including determination and control operations. Vojcic Decl. ¶¶ 171–73. The language within the “logic” limitation further clarifies that, consistent with its plain meaning, that the claimed “logic” must have inputs and outputs to the wireless transceiver structure. *Id.* ¶¶ 171–72. And, also consistent with its plain meaning, the claim language provides even further context about its objective, which is to perform determination and control operations on other electronic structures in the wireless access point. This claim language is dispositive, because the claim construction inquiry “begins and ends in all cases with the actual words of the claim.” *Renishaw*, 158 F.3d at 1248.

Indeed, in deciding whether means-plus-function applies, *all* the words in the “logic” limitation as a whole *must be considered*. *Apex*, 325 F.3d at 1372 (“[t]he primary source of this error [in construing the terms under § 112, ¶ 6,] lies in the

district court’s reliance on single words of the limitation, e.g., “circuit,” as opposed to the limitations as a whole[.]”). Here, the words in the entire limitation only further confirm that the claimed “logic” limitation conveys sufficient structure to a POSITA. For example, the claimed “logic” limitation is a structure that is “coupled to [a] transceiver,” which, the parties agree, is a known electronic structure in wireless communications. *E.g.*, Claim 33. As Dr. Vojcic explains, based on this context, a POSITA could only conclude that the claimed “logic” must be an electronic circuit, like an application-specific integrated circuit (“ASIC”) or FPGA, to detect and control specific signals in the transceiver. Vojcic Decl. ¶¶ 165, 170, 174.

Though column 4 of specification provides a further, general description of “logic,” which includes, for example, other implementations using “software” or “data,” both experts agree that *the claims* use “logic” in a narrower sense. For instance, as Dr. Akl admitted in his deposition, the claimed “logic” term cannot be “data” or even solely “software.” Akl Dep. at 42:25–44:7, 44:13–45:11. And Dr. Vojcic makes clear that a POSITA reading the contextual language in the claims would understand that the claimed “logic” must be narrower than the general description in column 4. Vojcic Decl. ¶¶ 162–64, 171–74. Specifically, the claims use the term in a way to convey classes of electronic circuitry structure that perform certain operations. *Id.* And because it conveys to a POSITA classes of electronic circuitry structure, it cannot, as a matter of law, be interpreted under § 112, ¶ 6. *Personalized Media Communs., LLC v. ITC*, 161 F.3d 696 (Fed. Cir. 1998).

5.7.2 Defendants’ contention that the claimed “logic” limitation is a means-plus-function term is contradicted by the claims and controlling law.

Because the term does not use the word “means,” Defendants carry the burden of proving the claimed “logic” limitation fails to recite sufficiently definite structure or else recites a function without reciting sufficient structure for performing that function.” *Williamson*, 792 F.3d at 1348. Defendants cannot meet that burden here.

As *Phillips* mandates, courts should apply a means-plus-function

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1 interpretation “**only to purely functional limitations** that do not provide the structure
 2 that performs the recited function.” *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir.
 3 2005). But the claimed “logic” limitation is not purely functional. In fact, a POSITA
 4 plainly would not recognize the claimed “logic” limitation as a “nonce” word or
 5 verbal placeholder that can apply to any apparatus, like “means” or “module.” *Vojcic*
 6 Decl. ¶¶ 161, 163, 165. To the contrary, as explained above, the term connotes a
 7 known class of electronic structures. *Id.* ¶¶ 163–70. And the claims further confirm
 8 that the “logic” is “coupled to” other wireless-communication structures, such as a
 9 transceiver, which both sides agree is not a means-plus-function term. ’296 patent at
 10 5:1–12. And if there were any doubt, the extrinsic evidence is chalk full of technical
 11 dictionary definitions proving Vivato’s point and contradicting Defendants’
 12 contention that the term imparts no structure. *Vojcic Decl.* ¶¶ 166–67.

13 The Federal Circuit has repeatedly refused to apply § 112, ¶ 6 in analogous
 14 cases in which the term “means” was not used in the claims. For example, in *Linear*
 15 *Technology Corp. v. Impala Linear Corp.*, the court held that the term “circuit” had
 16 a known structural definition and that the patent further confirmed that § 112, ¶ 6
 17 should not apply because it described the circuit’s input, output and objectives. 379
 18 F.3d 1311, 1320–21 (Fed. Cir. 2004); *see also, e.g., Lighting World v. Birchwood*
 19 *Lighting, Inc.*, 382 F.3d 1354, 1358 (Fed. Cir. 2004) (finding the term “connector”
 20 had a known structural definition and that § 112, ¶ 6 also cannot apply because the
 21 patent further described its objectives and requirements). In this case, the claimed
 22 “logic” limitation likewise connotes a similar, known structure to a POSITA and the
 23 patent specification and claims further confirm the inputs, outputs and objectives of
 24 the claimed structure. Thus, the holding in *Linear Technology* applies here.

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DATED: February 15, 2018

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