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8 UNITED STATES DISTRICT COURT
9 SOUTHERN DISTRICT OF CALIFORNIA
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11 IN RE: QUALCOMM LITIGATION,

Case No.: 17-cv-00108-GPC-MDD

12 **ORDER:**

13 **(1) CONSTRUING DISPUTED**
14 **CLAIM TERMS OF U.S. PATENT**
15 **NOS. 7,096,021; 7,289,630; 6,556,549;**
16 **9,137,822; 6,694,469; 7,095,725**
17 **[DKT. NOS. 299, 300]**

18 **(2) DENYING QUALCOMM'S**
19 **MOTION TO STRIKE APPLE'S**
20 **FIRST AND SECOND AMENDED**
21 **INVALIDITY CONTENTIONS**
22 **[DKT. NO. 331]**

Apple, Inc. and the Contract Manufacturers¹ seek declarations of non-infringement and invalidity as to nine of Qualcomm's patents ("patents-in-suit").² The parties now

23 ¹ Defendants and Counterclaimants in the pre-consolidation '1010 action are Compal Electronics, Inc.
24 ("Compal"), FIH Mobile Ltd. and Hon Hai Precision Industry Co. (together "Foxconn"), Pegatron
25 Corporation ("Pegatron"), and Wistron Corporation ("Wistron") and will be collectively referred to as
26 the "Contract Manufacturers" or "CM's." As Apple and the CMs have brought the same arguments, the
27 Court will refer to Apple and the CMs claims in shorthand as "Apple's" Claims.

28 ² This Court previously dismissed nine "Additional Patents-in-Suit" added by Apple and the CMs in the
First Amended Complaint and the Contract Manufacturers' Counterclaims for a lack of declaratory
judgment jurisdiction. Dkt. No. 167. The Court granted leave to amend, but the parties did not file any
amended pleadings as to the Additional Patents-in-Suit. *See id.*

1 seek construction of ten terms used in the claims of the following patents-in-suit: U.S.
2 Patent Nos. 7,096,021 ('021 Patent); 7,289,630 ('630 Patent); 6,556,549 ('549 Patent);
3 9,137,822 ('822 Patent); 6,694,469 ('469 Patent); 7,095,725 ('725 Patent). On January
4 25, 2018, the parties filed their opening claim construction briefs and included a joint
5 appendix of common exhibits. Dkt. Nos. 299-300.³ The parties filed responsive claim
6 construction briefs on February 8, 2018. Dkt. Nos. 312, 341.⁴

7 The Court held a technology tutorial on March 8, 2018. Dkt. No. 361. The Court
8 held a claim construction hearing on March 22, 2018. Dkt. No. 388. The Court ordered
9 supplemental briefing regarding the '469 and '725 patents on March 23, 2018. Dkt. No.
10 391. The parties filed their supplemental claim construction briefs on March 29, 2018.
11 Dkt. Nos. 400-01. The Court has reviewed the claims, specifications, and other relevant
12 evidence, has considered the briefing and arguments of the parties, and provides this
13 decision: (1) construing disputed terms of six of the nine patents-in-suit and (2) denying
14 Qualcomm's Motion to Strike Apple's First and Second Amended Invalidity
15 Contentions.

16 **I. CLAIM CONSTRUCTION**

17 **A. Legal Standard**

18 Claim construction is a matter of law to be determined by the court. *Teva Pharm.*
19 *USA, Inc. v. Sandoz, Inc.*, 135 S. Ct. 831, 838 (2015); *Markman v. Westview Instr., Inc.*,
20 517 U.S. 370, 372 (1996). The purpose of claim construction is for the court to
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23 ³ The Court refers to Apple's Opening Construction Brief (Dkt. No. 300) in shortform as "AOCB" and
24 Qualcomm's Opening Construction Brief (Dkt. No. 299) as "QOCB." Responding briefs are referred to
25 as QRCB (Dkt. No. 312) and ARCB (Dkt. No. 341).

26 ⁴ Apple originally filed its responsive claim construction brief under seal. Dkt. No. 315. The Court
27 ordered Qualcomm to respond to the motion to seal and directed the parties to meet and confer prior to
28 the filing of documents designated confidential by the opposing party. Dkt. No. 336. Following this
order, Apple filed a notice to withdraw its motion to seal. Dkt. No. 338. The Court denied as moot
Apple's motion to seal and ordered Apple to file its brief publically. Dkt. No. 340. Apple filed this non-
redacted responsive brief on February 23, 2018. Dkt. No. 341.

1 “determin[e] the meaning and scope of the patent claims asserted to be infringed.” *O2*
2 *Micro Intern. Ltd. v. Beyond Innovation Tech. Co., Ltd.*, 521 F.3d 1351, 1360 (Fed. Cir.
3 2008). “It is a bedrock principle of patent law that the claims of a patent define the
4 invention to which the patentee is entitled the right to exclude.” *Phillips v. AWH Corp.*,
5 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (internal marks omitted). As such,
6 claims are to be construed in a manner that “stays true to the claim language and most
7 naturally aligns with the patent’s description of the invention.” *Id.* at 1316.

8 To construe disputed terms, the court first looks to the claims themselves. *See*
9 *Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1116 (Fed.
10 Cir. 2004). Generally, claim language is given its “ordinary and customary meaning,”
11 which is “the meaning that the term would have to a person of ordinary skill in the art in
12 question at the time of the invention.” *Phillips*, 415 F.3d at 1312-13. In cases where the
13 “ordinary and customary meaning” is clear, claim construction involves “little more than
14 the application of the widely accepted meaning of commonly understood words.” *Id.* at
15 1314. In cases where it is not immediately apparent what a person of ordinary skill in the
16 art would understand a claim to mean, the court looks to other sources to decipher the
17 correct meaning. *Id.* at 1314. Those sources include intrinsic and extrinsic evidence
18 “available to the public that show what a person of skill in the art would have understood
19 disputed claim language to mean.” *Id.* “Importantly, the person of ordinary skill in the
20 art is deemed to read the claim term not only in the context of the particular claim in
21 which the disputed term appears, but in the context of the entire patent, including the
22 specification.” *Id.* at 1313.

23 When such clarity is required, a court begins by examining the intrinsic record,
24 consisting of the language of the claims, the patent specification and, if in evidence, the
25 prosecution history of the challenged patent. *Id.* at 1314; *see also Vederi, LLC v. Google,*
26 *Inc.*, 744 F.3d 1376, 1382 (Fed. Cir. 2014). “The appropriate starting point . . . is always
27 with the language of the asserted claim itself.” *Comark Comms., Inc. v. Harris Corp.*,
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1 156 F.3d 1182, 1186 (Fed. Cir. 1998). The context in which a disputed term appears
2 often provides substantial guidance as to the meaning of the term. *See Philips*, 415 F.3d
3 at 1313-14. A disputed term should be construed “consistently with its appearance in
4 other places in the same claim or in other claims of the same patent.” *Rexnord Corp. v.*
5 *Latiram Corp.*, 274 F.3d 1336, 1342 (Fed. Cir. 2001). “A claim construction that gives
6 meaning to all the terms of the claim is preferred over one that does not do so.” *Vedderi*,
7 744 F.3d at 1383.

8 As for other intrinsic evidence, the specification “is always highly relevant to the
9 claim construction analysis” and “usually dispositive.” *Philips*, 415 F.3d at 1315. In
10 fact, it has been observed that “[a]part from the claim language itself, the specification is
11 the single best guide to the meaning of a claim term.” *Vedderi*, 744 F.3d at 1382; *see also*
12 *Philips*, 415 F.3d at 1315. “[A] claim construction that excludes [a] preferred
13 embodiment [described in the specification] is rarely, if ever, correct and would require
14 highly persuasive evidentiary support.” *Adams Respiratory Therapeutics, Inc. v. Perrigo*
15 *Co.*, 616 F.3d 1283, 1290 (Fed. Cir. 2010) (internal marks omitted). Furthermore, the
16 “written description part of the specification” should not be read to “delimit the right to
17 exclude [as] [t]hat is the function and purpose of claims.” *Markman*, 52 F.3d at 980.
18 Stated differently, a “claim construction must not import limitations from the
19 specification into the claims.” *Douglas Dynamics, LLC v. Buyers Prods. Co.*, 717 F.3d
20 1336, 1342 (Fed. Cir. 2013). It is, therefore, “improper to read limitations from a
21 preferred embodiment described in the specification—even if it is the only
22 embodiment—into the claims absent a clear indication in the intrinsic record that the
23 patentee intended the claims to be so limited.” *Dealertrack, Inc. v. Huber*, 674 F.3d
24 1315, 1327 (Fed. Cir. 2012) (citations omitted).

25 “A patentee is,” however, “free to be his own lexicographer.” *Markman*, 52 F.3d
26 at 980. Where the inventor gives a term a special meaning, “the inventor’s lexicography
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1 governs.” *Philips*, 415 F.3d at 1316. Similarly, where the inventor specifically disclaims
2 a certain scope in the specification, that disclaimer is dispositive. *Id.*

3 In most situations, “an analysis of the intrinsic evidence alone will resolve any
4 ambiguity in a disputed claim term.” *Vitrionics Corp. v. Conceptronic, Inc.*, 90 F.3d
5 1576, 1583 (Fed. Cir. 1996). Where that is the case, “it is improper to rely on the
6 extrinsic evidence” because “[t]he claims, specification, and file history, rather than
7 extrinsic evidence, constitute the public record of the patentee’s claim, a record on which
8 the public is entitled to rely.” *Id.* However, to the extent “the intrinsic record is
9 ambiguous, and when necessary,” a court “may rely on extrinsic evidence, which consists
10 of all evidence external to the patent and prosecution history, including expert and
11 inventor testimony, dictionaries and learned treatises.” *Power Integrations, Inc. v.*
12 *Fairchild Semiconductor Int’l, Inc.*, 711 F.3d 1348, 1360 (Fed. Cir. 2013). Extrinsic
13 evidence, however, is “less significant than the intrinsic record” and “less reliable than
14 the patent and its prosecution history in determining how to read claim terms.” *Phillips*,
15 415 F.3d at 1317-18 (internal quotations and citation omitted).

16 Finally, “terms do not need to be construed [where] they are neither unfamiliar to
17 the jury, confusing to the jury, nor affected by the specification or prosecution history.”
18 *See Bd. of Trustees of Leland Stanford Junior Univ. v. Roche Molecular Sys., Inc.*, 528 F.
19 Supp. 2d 967, 976 (N.D. Cal. 2007) (citing *United States Surgical Corp. v. Ethicon, Inc.*,
20 103 F.3d 1554, 1568 (Fed. Cir. 1997) (“Claim construction is a matter of resolution of
21 disputed meanings and technical scope, to clarify and when necessary to explain what the
22 patentee covered by the claims, for use in the determination of infringement. It is not an
23 obligatory exercise in redundancy.”)). A determination that a claim term “needs no
24 construction” or has the “plain and ordinary meaning” may be inadequate when a term
25 has more than one “ordinary” meaning or when reliance on a term’s ordinary meaning
26 does not resolve the parties’ dispute. *EON Corp. v. Silver Spring Networks*, 815 F.3d
27 1314, 1318 (Fed. Cir. 2016). Where the parties dispute the scope of a claim term, it is the
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1 court's duty to resolve the dispute. *O2 Micro Int'l Ltd. V. Beyond Innovation Tech. Co.*,
2 521 F.3d 1351, 1361-2 (Fed. Cir. 2008).

3 **B. Means-Plus-Function Claims**

4 35 U.S.C. § 112(f) provides a set of special rules for construing means-plus-
5 function claims.⁵ The statute states:

6 An element in a claim for a combination may be expressed as a means or step
7 for performing a specified function without the recital of structure, material,
8 or acts in support thereof, and such claim shall be construed to cover the
9 corresponding structure, material, or acts described in the specification and
10 equivalents thereof.

11 35 U.S.C. § 112(f). Accordingly, Section 112(f) allows a patentee to express an element
12 of a claim as a means for performing a specified function. In exchange for the convenience
13 of making a functional claim, the patent seeker must pay a price in that the “patent
14 specification must disclose with sufficient particularity the corresponding structure for
15 performing the claimed function and clearly link that structure to the function.” *Triton*
16 *Tech of Texas, LLC v. Nintendo of Am., Inc.*, 753 F.3d 1375, 1378 (Fed. Cir. 2014).

17 Construing a means-plus-function claim term is a two-step process. The court must
18 first identify the claimed function. *Noah Sys., Inc. v. Intuit Inc.*, 675 F.3d 1302, 1311
19 (Fed. Cir. 2012). Then, the court must determine what structure, if any, disclosed in the
20 specification corresponds to the claimed function. Where there are multiple claimed
21 functions, the patentee must disclose adequate corresponding structure to perform all of
22 the claimed functions. *Id.* at 1318–19. If the patentee fails to disclose adequate
23 corresponding structure, the claim is indefinite. *Id.* at 1311–12.

24 Structure disclosed in the specification qualifies as “corresponding structure” if the
25 intrinsic evidence clearly links or associates that structure to the function recited in the
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27 ⁵ The statute was previously referred to as 35 U.S.C. § 112 ¶ 6, but was codified as 112(f) in the
28 America Invents Act of 2012.

1 claim. *Id.* (citing *B. Braun Med., Inc. v. Abbott Labs.*, 124 F.3d 1419, 1424 (Fed. Cir.
2 1997)). Even if the specification discloses corresponding structure, the disclosure must be
3 of “adequate” corresponding structure to achieve the claimed function. *Id.* at 1311–12
4 (citing *In re Donaldson Co.*, 16 F.3d 1189, 1195 (Fed. Cir. 1994) (en banc)). Therefore, if
5 a person of ordinary skill in the art would be unable to recognize the structure in the
6 specification and associate it with the corresponding function in the claim, a means-plus-
7 function clause is indefinite. *Id.* at 1312 (citing *AllVoice Computing PLC v. Nuance*
8 *Commc'ns, Inc.*, 504 F.3d 1236, 1241 (Fed. Cir. 2007)).

9 If the function is performed by a general purpose computer or microprocessor, then
10 the specification must also disclose the algorithm that the computer performs to
11 accomplish that function. *Nintendo*, 753 F.3d at 1378 (citing *Aristocrat Technologies v.*
12 *International Game Technology*, 521 F.3d 1328, 1333 (Fed. Cir. 2008)). Failure to
13 disclose the corresponding algorithm for a computer-implemented means-plus-function
14 term renders the claim indefinite. *Id.* (citing *Ergo Licensing LLC v. Carefusion 303, Inc.*,
15 673 F.3d 1361, 1363 (Fed. Cir. 2012)).

16 It is well settled that “[s]imply disclosing software, however, ‘without providing
17 some detail about the means to accomplish the function[,] is not enough.’” *Function*
18 *Media, L.L.C. v. Google, Inc.*, 708 F.3d 1310, 1318 (Fed. Cir. 2013) (citing *Noah Sys.,*
19 *Inc. v. Intuit, Inc.*, 675 F.3d 1302, 1312 (Fed. Cir. 2012)). When dealing with a “special
20 purpose computer-implemented means-plus-function limitation,” the Federal Circuit
21 requires the disclosure of the algorithm for performing a function. *Noah Sys.*, 675 F.3d at
22 1312. The Federal Circuit requires that the structure disclosed in the specification, in this
23 scenario, to be “more than simply a general purpose computer or microprocessor.” *Id.*
24 The “specification can express the algorithm in any understandable terms including as a
25 mathematical formula, in prose, or as a flow chart, or in any other manner that provides
26 sufficient structure.” *Finisar Corp. v. DIRECTV Grp., Inc.*, 523 F.3d 1323, 1340 (Fed.
27 Cir. 2008) (internal citation omitted). While a patentee need not disclose details of
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1 structures well known in the art, the “specification must nonetheless disclose *some*
2 structure.” *Default Proof Credit Card Sys., Inc. v. Home Depot U.S.A., Inc.*, 412 F.3d
3 1291, 1302 (Fed. Cir. 2005). Consequently, the “testimony of one of ordinary skill in the
4 art cannot supplant the total absence of structure from the specification.” *Id.* Finally, the
5 “party alleging that the specification fails to disclose sufficient corresponding structure
6 must make that showing by clear and convincing evidence.” *TecSec, Inc. v. IBM Corp.*,
7 731 F.3d 1336, 1349 (Fed. Cir. 2013).

8 **II. CLAIM CONSTRUCTION DISCUSSION**⁶

9 **A. ‘021 Patent**

10 The ‘021 Patent relates to the handover from a mobile station from a first cellular
11 system, i.e., GSM to a second cellular system, i.e., CDMA. JA7 at 1:15-28; 2:40-45. The
12 ‘021 patent provides a method by which a mobile station performs power measurements
13 of the second cellular system when the power level of the first cellular system drops below
14 a certain threshold level. JA7 at 2:52-60. To determine whether it should handover to the
15 second cellular system, the mobile station requests a “free” time period during which the
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17 ⁶ For ease of reference, the Court provides basic definitions of key terms and acronyms in the field of
18 cellular radio systems. Qualcomm Opening Brief (“QOCB”) at 1-2, Apple’s Glossary of Terms,
19 provided at Technology Tutorial Hearing, Dkt. No. 361.

- 20 • Mobile stations, remote stations, access terminals, or user equipment: Cell phones such as the iPhone
- 21 • Base stations or access points: Cellular towers
- 22 • Core Network: The backbone of the network that connects to different parts of the access network
- 23 • Forward Links: Cell phone downloads which occur when base stations send information to mobile stations
- 24 • Reverse Links: Cell phone uploads which occur when mobile stations send information to base stations
- 25 • Cell: Base stations provide wireless service within a geographic area known as a cell, which contain one or more sectors
- 26 • CDMA: Code-Division Multiple Access
- 27 • GSM: Global System for Mobile Communications
- 28 • UMTS: Universal Mobile Telecommunications System
- TDMA: Time Division Multiple Access

1 mobile station is “free” from the first cellular system’s transmissions. JA8 at 3:5-10.
 2 During the “free” period, the mobile station is able to more accurately measure power from
 3 the second cellular system. JA8 at 3:10-13; JA7 at 2:5-9. Doing so reduces interference
 4 and allows the mobile station to remain connected to the first cellular system if the
 5 handover does not occur. JA11 at 10:53-55. The parties dispute three terms at issue in this
 6 patent.

7 **1. “means for comparing the measured power level with said**
 8 **at least one threshold value”**

Apple and CM Parties’ Proposed Construction	Qualcomm’s Proposed Construction
“means for comparing . . .” term	
This is a 112 ¶ 6 claim element	
<u>Function:</u> comparing the measured power level with said at least one threshold value.	
<u>Structure:</u> This term is indefinite because there is insufficient structure disclosed in the patent for performing the claimed function.	<u>Structure:</u> control unit/control block 605 and its comparison means 616, and equivalents.

19 The parties do not dispute that this term should be construed as a means-plus-
 20 function claim pursuant to 35 U.S.C. § 112(f). Further, they do not dispute that the function
 21 is “comparing the measured power level with said at least one threshold value.”

22 Apple argues that Qualcomm has not identified adequate structure in the
 23 specification corresponding to the function. Apple asserts that Qualcomm has identified
 24 only a “black box” as the specification identifies only a generic control unit or control block
 25 for performing this “comparing function.” Qualcomm argues that the ‘021 Patent discloses
 26 sufficient structure, arguing that it is a “typical” component in a mobile station.

27 For ease of reference, Figure 6 to the ‘021 patent is reproduced below. Figure 6
 28

1 presents the block diagram for a terminal or a mobile station. The mobile station comprises
 2 parts that are typical of the device such as the microphone (601), keyboard (617), antenna
 3 (609), and control unit (605), transmission block (604), reception block (611). The control
 4 block 605 comprises “means 616 with the aid of which it can compare the threshold values
 5 with the received signal power levels” and also comprises “advantageously means 617,
 6 with the aid of which it can request, depending on the result of the comparison, a permission
 7 from the cellular radio system to shift into the compressed transmission mode, in which
 8 the mobile station can measure also the transmission powers of a second system.” JA10 at
 9 8:10-34.

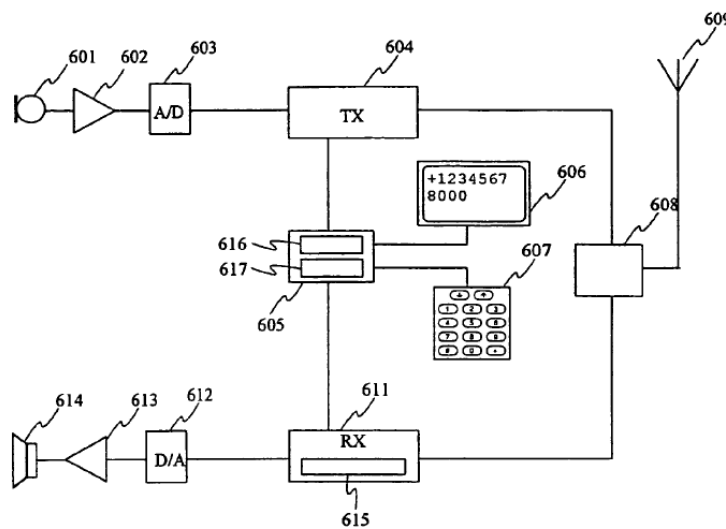


Fig. 6

21 The written description notes that control unit/block 605 comprises “means 616 and
 22 617.” JA10 at 8:23-42.⁷ The specification states that the presented means 616 can be
 23 “realized for instance with the aid of a microprocessor and software.” JA10 at 8:23-42.

24 The Court concludes that the “means for comparing the measured power level with
 25 said at least one threshold value” term is indefinite as Qualcomm has failed to disclose

26 ⁷ Apple’s expert, Dr. Wicker, opines that microprocessors and software cannot accomplish the
 27 “comparing” function without specialized algorithms accomplished through specialized programming or
 28 additional structures. JA314 at ¶ 48.

1 sufficient structure and has disclosed merely a “black box.” *See Augme Techs., Inc. v.*
2 *Yahoo! Inc.*, 755 F.3d 1326, 1338 (Fed. Cir. 2014) (“Simply disclosing a black box that
3 performs the recited function is not a sufficient explanation of the algorithm required to
4 render the means-plus-function term definite.”). Under Federal Circuit law, when an
5 inventor invokes means-plus-function claiming in a computer-implemented invention, the
6 disclosed structure must be more than simply a general purpose computer or
7 microprocessor. *See Aristocrat Techs*, 521 F.3d at 1333. The control block 605 and its
8 comparison means 616 do not constitute sufficient structure because Qualcomm has failed
9 to include a reference to an algorithm. *See Noah Sys.*, 675 F.3d at 1312 (it is well settled
10 that “[s]imply disclosing software, however, without providing some detail about the
11 means to accomplish the function is not enough”) (internal marks omitted). The patent
12 does not contain any understandable terms that could conceivably be construed as an
13 algorithm, including *inter alia* as a mathematical formula, flow chart, in prose or any other
14 manner that provides sufficient structure. *Finesar*, 523 F.3d at 1340. An inventor who
15 chooses to utilize a means-plus-function formulation must necessarily disclose adequate
16 structure so that the bounds of the invention can be perceived. *Id.* (“Without any
17 corresponding structure, one of skill simply cannot perceive the bounds of the invention.”).
18 Notably, neither Qualcomm, nor its expert Dr. Min attempts to identify how the ‘021 Patent
19 discloses any algorithm to perform the “comparing” function.

20 Qualcomm attempts to sidestep the Federal Circuit’s requirement for disclosure by
21 pointing to *Telcordia Techs. Inc. v. Cisco Sys., Inc.*, 612 F.3d 1365, 1377 (Fed. Cir. 2010).
22 In *Telcordia*, the Federal Circuit rejected an indefiniteness challenge where a controller’s
23 circuit was a “black box” that did not describe the “details of its inner circuitry.” 612 F.3d
24 at 1377. There, the term “monitoring means” was a 112(f) means-plus-function claim
25 where the function was “evaluating the integrity of the multiplexed subrate
26 communications on the first ring and the second ring,” and the corresponding structure for
27 the function was the “circuitry at a controller that determines if a defect exists with the
28

1 multiplexed subrate communications.” *Id.* at 1376. The Court concluded that the
2 specification need “only disclose adequate defining structure to render the bounds of the
3 claim understandable to an ordinary artisan.” *Id.* Because an ordinary artisan would have
4 recognized the controller as an electronic device with a known structure, there was
5 sufficient structure to render the claim definite. *Id.*

6 *Telcordia* is inapposite. The function addressed in *Telcordia* did not require the use
7 of specific programming through a microprocessor or software sufficient to trigger the
8 Federal Circuit’s requirement to disclose an algorithm. Moreover, the specification of the
9 patent in *Telcordia* disclosed significant structure:

10 Each node continuously monitors and evaluates the integrity of the
11 multiplexed subrate signals arriving at the node. Illustratively, this could be
12 accomplished by detecting the absence of a carrier signal in an analog signal
13 environment, or the lack of any incoming signal in a digital environment.
14 When node 1 recognizes major line fault 122 in ring 100, controller 118 inserts
15 an error signal onto the six subrate channels. This could illustratively be
16 accomplished by inserting a string of 1's on each channel in a digital
17 environment. Node 4 performs the identical activity by similarly placing an
18 error signal on the six subrate channels of ring 101.

19 *Telcordia*, 612 F.3d at 1376. The Court credits Apple’s argument at the claim construction
20 hearing that the detailed process discussed above could have been construed as an
21 algorithm, and explains why the *WMS Gaming* algorithm requirement was a non-issue in
22 *Telcordia*. *See DIRECTV*, 523 F.3d at 1340 (specification can express the algorithm in any
23 understandable terms including as a “mathematical formula, in prose, or as a flow chart, or
24 in any other manner that provides sufficient structure.”) (internal citation omitted).
25 Significantly, another district court has distinguished *Telcordia* by pointing to the
26 substantial disclosure in that case, while finding that the lack of such a substantial
27 disclosure related to a decoding function supported a finding of indefiniteness. *See*

1 *Microsoft Corp. v. Motorola Inc.*, No. C10-1823JLR, 2013 WL 454268, at *11-12 (W.D.
2 Wash. Feb. 7, 2013) (“The specification of the Patents-in-Suit lack [the level of detail of
3 *Telcordia*’s] disclosure (and in fact provide no disclosure at all) providing structure to the
4 claimed decoding function.”); *id.* at *13 (“The specification needs to provide a decoding
5 algorithm from which to base the understanding of one skilled in the art, and the court can
6 find no such algorithm within the specification.”).

7 Qualcomm argues that the ‘021 patent does not require the controller to be a
8 “microprocessor or software.” Qualcomm is correct that the specification’s description of
9 comparison means 616 arises in the context of a “preferred embodiment” where it can be
10 realized “for instance with the aid of a microprocessor or software.” Pointing to a series
11 of non-binding district court cases, Qualcomm asserts that in certain situations disclosure
12 of controllers alone have been found by district courts to be sufficiently definite structure.
13 The Court finds these cases distinguishable. For example, *Maury Microwave, Inc. v. Focus*
14 *Microwaves, Inc.*, 2012 WL 9161988, at *20 (C.D. Cal. July 30, 2012) is inapposite
15 because there the specification did not clearly mandate a computer algorithm to perform
16 the function. Here, the extrinsic evidence, discussed below, shows that an algorithm or
17 additional structure is necessary for control block 605 and comparison means 616 to
18 perform the comparing function. Moreover, unlike in *Goss Intern. Americas, Inc. v.*
19 *Graphic Management Associates, Inc.*, 739 F. Supp. 2d 1089, 1100 (N.D. Ill. 2010), there
20 is no indication that the 605 control block “consist[s] of only circuitry” that does not “even
21 require any algorithms at all” to perform the requisite function.⁸ Consequently, these cases
22 are inapposite because the structure disclosed here requires *both* a control block 605 *and* a
23

24 ⁸ Similarly, the Court does not find *Technologies Properties, Ltd. v. Canon, Inc.*, 2015 WL 5535830, at
25 *4-6 (N.D. Cal. Sep. 18, 2015) persuasive. There, the Court distinguished *Aristocrat* because there was
26 no argument that a microprocessor was not necessary to “accomplish the recited functions,” leading the
27 Court to find that “[t]he holding from *Aristocrat* requiring disclosure of an algorithm does not extend to
28 a function that can be performed by an integrated circuit or chip.” Here, the extrinsic evidence,
uncontested by Qualcomm’s expert Dr. Min, shows that an algorithm would be required to perform the
comparing function.

1 comparison means 616. According to the extrinsic evidence and a reading of a “preferred
2 embodiment,” comparison means 616 would likely require either a microprocessor or
3 software to perform the function.

4 The Court’s conclusion is informed by the extrinsic evidence and particularly credits
5 the Declaration of Apple’s expert Dr. Wicker. Dr. Wicker contends that microprocessors
6 and software are incapable of accomplishing the “comparing” function without specific
7 algorithms. JA314 ¶ 48 (concluding that “control block 605” as described in the ‘021
8 Patent is a “Black Box” that is not a “sufficient explanation of any algorithm.”).⁹ Wicker
9 states that “no generic hardware or software by itself can accomplish the different functions
10 of the control unit or control block recited in the patent. In fact, specialized programming
11 and/or additional structural features are required to perform the identified functions.
12 JA314. In its Responsive Claim Construction Brief, Qualcomm contends for the first time
13 that the recited function involves merely comparing two values, which “can be achieved
14 by any general purpose computer without special programming.” QRCB at 3 (citing *In re*
15 *Katz Interactive Call Processing Patent Litig.*, 639 F.3d 1303, 1316 (Fed. Cir. 2011)).

16 Pertinently, Qualcomm does not present any extrinsic evidence to rebut Dr. Wicker’s
17 claims that a POSITA would understand that the recited function cannot be accomplished
18 by the 605 controller block and comparison means 616 without specific algorithms.
19 Notably, Dr. Min *never* states that the comparing function can be accomplished without a
20 specific algorithm. The Court will accordingly conclude that *Katz* is inapposite¹⁰ and will
21 accept Dr. Wicker’s contention that the “comparing” function requires the use of
22

23 ⁹ Qualcomm challenges Dr. Wicker’s lack of “supporting citations.” QOCB at 9. In his deposition, Dr.
24 Wicker explained that this was because he was citing to an absence in a written description and that
25 these assertions are based on his “experience as a telecom engineer for 30-something years.” QEX17 at
26 75:1-25; 78:1-7

27 ¹⁰ In *Katz*, the patentee did not claim a specific function performed by a special purpose computer, but
28 merely recited claimed functions of “processing,” “receiving,” and “storing” that could have been
achieved by any general purpose computer without special programming. *See Katz*, 639 F.3d at 1313.
Here, Apple’s unrebutted expert testimony is that the comparing function requires specialized
programming. *See JA 314.*

1 specialized programming, i.e. algorithms.

2 Dr. Min asserts only that control unit/control block 605 is sufficient to perform the
3 claimed function because the structure of mobile station controllers was well known to
4 persons of ordinary skill in the art. JA397 ¶¶ 89-92. Dr. Min cites common block 605-
5 type processors such as GSM & W-CDMA baseband processors and GSM digital base-
6 band chip.¹¹ Whether the 605 block was a “typical” structure in a mobile device does not
7 automatically lead to the legal determination of adequate structure to support a means-plus-
8 function claim, particularly in light of the Federal Circuit’s case law requiring the
9 disclosure of algorithms for computer-implemented functions. Given the total absence of
10 structure, the Court need not and will not consider Dr. Min’s conclusory statements. *See*
11 *Citrix*, 792 F.3d at 1354 (“The testimony of one of ordinary skill in the art cannot supplant
12 the total absence of structure from the specification.”). This is consistent with the rationale
13 of 112(f) claims. *Williamson*, 792 F.3d at 1354 (“The prohibition against using expert
14 testimony to create structure where none otherwise exists is a direct consequence of the
15 requirement that the specification adequately disclose corresponding structure.”)

16 Accordingly, the Court concludes that this term is indefinite because the ‘021 patent
17 fails to disclose adequate structure corresponding to the “comparing” function. *See id.*

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¹¹ The Court agrees with Apple that Dr. Min’s assertions appear to argue enablement. The Court emphasizes that the indefiniteness inquiry is “concerned with whether the bounds of the invention are sufficiently demarcated, not with whether one of ordinary skill in the art may find a way to practice the invention.” *ePlus, Inc. v. Lawson Software, Inc.*, 700 F.3d 509, 519 (Fed. Cir. 2012).

1 **2. “means for transmitting to the first cellular radio system a**
 2 **request for a free time period in which to perform the**
 3 **measurement, said means being arranged to transmit the**
 4 **request for the free time period in which to perform the**
 5 **measurement only after said measured power level remains**
 6 **below said at least one threshold value”**

Apple and CM Parties’ Proposed Construction	Qualcomm’s Proposed Construction
“means for transmitting . . . “ term	
This is a 112 ¶ 6 claim element	
<p><u>Function:</u> transmitting to the first cellular radio system a request for a free time period in which to perform the measurement only after said measured power level remains below said at least one threshold value.</p>	<p><u>Function:</u> transmitting to the first cellular radio system a request for a free time period in which to perform the measurement.</p>
<p><u>Structure:</u> This term is indefinite because there is insufficient structure disclosed in the patent for performing the claimed function.</p>	<p><u>Structure:</u> transmitter block 604 and equivalents.</p>

24 The parties agree that this “transmitting” term is a 112 ¶ 6 claim element.

1 **a) Function**

2 The parties disagree as to whether the function requires that the transmitting be
3 performed “*only after said measured power level remains below said at least one*
4 *threshold value.*” AOCB at 6.

5 Apple contends that the plain language of the term requires that the function
6 include the “only after said measured power level remains below said at least one
7 threshold value” limitation. Qualcomm argues that Apple has incorporated a different
8 claim term into their proposed construction—“said means being arranged to transmit the
9 request for the free time period in which to perform the measurement only after said
10 measured power level remains below said at least one threshold value.” JA11 at 10:41-
11 46.

12 When construing functional claims under § 112(f), “[t]he statute does not permit
13 limitation of a means-plus-function claim by adopting a function different from that
14 explicitly recited in the claim.” *In re Teles AG Informationstechnologien*, 747 F.3d 1357,
15 1367-68 (Fed. Cir. 2014) (citing *Micro Chem., Inc. v. Great Plains Chem. Co.*, 194 F.3d
16 1250, 1258 (Fed. Cir. 1999) (“[T]he district court erred . . . by incorporating unrecited
17 functional limitations into the claims.”)). An “error in identification of the function can
18 improperly alter the identification of structure in the specification corresponding to that
19 function.” *Micro Chem.*, 194 F.3d at 1258. Notably, “[t]hat part of a claim contains
20 means-plus-function language does not make section 112 ¶ 6 applicable to the entirety of
21 the claim.” *Johnston v. IVAC Corp.*, 885 F.2d 1574, 1580 (Fed. Cir. 1989).

22 The Court concludes that “said means being arranged to transmit the request for
23 the free time period in which to perform the measurement only after said measured power
24 level remains below said at least one threshold value” is a *separate* claim term that is not
25 a part of the instant means-plus-function term. *See Bausch & Lomb Inc. v. Moria S.A.*,
26 222 F. Supp. 2d 616, 655-56 (E.D. Pa. 2002) (construing function to be merely “retains
27 and positions the eye on which cutting of the cornea is to be performed” where claim
28

1 language stated “means for retaining and positioning the eye on which cutting of the
2 cornea is to be performed, *said means* being capable of temporary attachment to a portion
3 of the eye surrounding the cornea being capable of exposing and presenting the cornea to
4 be cut.”) (emphasis added). The Court agrees with Qualcomm that Apple is attempting to
5 import a separate limitation in an attempt to shoehorn controller block 605 as required
6 structure. In particular, the Court credits Qualcomm’s argument that the “said means
7 *being arranged*” term is a separate limitation describing when the function occurs, and
8 does not constitute a description of the function itself.

9 The Court is not persuaded by Apple’s citation to the prosecution history. As
10 originally drafted, the patentee stated “means (617) for requesting a free measurement
11 period from the first cellular radio system, which means are arranged to request the free
12 measurement period when said measured signal strength is lower than said threshold
13 value.” AEX30 at 101. After a rejection from the PTO, the patentee amended as follows
14 (additions in underline, deletions in ~~strikethrough~~):

- 15 • means ~~(617)~~ for transmitting to the first cellular radio system a ~~requesting request~~
16 for a free time period in which to perform the measurement ~~period from the first~~
17 ~~cellular radio system, which said means are being~~ arranged to transmit the request
18 for the free time period in which to perform the measurement ~~period~~ when said
19 measured signal strength power level remains lower than ~~below~~ said at least one
20 threshold value [[,]] . . .

21 AEX30 at 109. It is not clear to the Court how the prosecution history “disclaim[s] or
22 “disavow[s]” Qualcomm’s assertion that the transmitting function should not include the
23 second post-comma clause. *See Teleflex, Inc. v. Ficosa N. Am. Corp.*, 299 F.3d 1313,
24 1326 (Fed. Cir. 2002). Even as originally drafted, the original phrasing contained an
25 explicit second clause—“radio system, *which means are arranged*” that would not have
26 served as a limitation on the means-plus-function claim asserted in the first clause of the
27 claim.

1 **3. “means for measuring a power level of a signal transmitted**
 2 **by at least one base station of the first cellular radio system”**
 3 **and “means for receiving at least one threshold value**
 4 **transmitted to the terminal by the first cellular radio system”**
 5

Apple and CM Parties’ Proposed Construction	Qualcomm’s Proposed Construction
“means for measuring . . .” term	
This is a 112 ¶ 6 claim element	
<u>Function:</u> measuring a power level of a signal transmitted by at least one base station of the first cellular radio system	
<u>Structure:</u> the CDMA or TDMA cellular radio system receiver block 611 described in 7:57–8:45. ¹²	<u>Structure:</u> power level determination means 615 of receiver block 611, and equivalents.
“means for receiving . . .” term	
This is a 112 ¶ 6 claim element	
<u>Function:</u> receiving at least one threshold value transmitted to the terminal by the first cellular radio system.	
<u>Structure:</u> the CDMA or TDMA cellular radio system receiver block 611 described in 7:57–8:45.	<u>Structure:</u> receiver block 611 and equivalents.

24 _____
 25 ¹² At oral argument, Apple appeared to shift to a theory of indefiniteness regarding these terms,
 26 attacking both the adequacy of the structures receiver block 611 and power level determination means
 27 615. Apple has never sought a construction of indefiniteness related to these terms in its briefing. *See,*
 28 *e.g.,* AOCB at 8-9, ARCB at 3-4. The Court will decline to entertain Apple’s eleventh hour arguments
 that these structures are indefinite. *See, e.g., Fujitsu Ltd. v. Belkin Int’l, Inc.,* No. 10-CV-03972-LHK,
 2012 WL 368574, at *6 (N.D. Cal. Feb. 3, 2012) (“Ordinarily, the Court would find that any arguments

1 The parties do not dispute that these terms should be construed as means-plus-
2 function claims. They agree on the respective functions for each term. Instead, the parties
3 dispute whether the structure for each term—which the parties agree involve receiver block
4 611—is limited to the CDMA or TDMA cellular radio systems disclosed in the ‘021 patent
5 at lines 7:57 to 8:45.

6 Apple argues that the ‘021 patent discloses both the measuring and receiving
7 functions, but does not provide any detail regarding the structure of receiver block 611 or
8 its implementation. AOCB at 8. According to Apple, the only networks described in the
9 ‘021 patent are CDMA or TDMA type systems, and thus the structure must be limited to
10 these networks. Importantly, Apple’s theory would exclude OFDMA systems such as
11 LTE. *Id.* Apple’s expert Dr. Wicker asserts that specialized programming and additional
12 features would be required to perform LTE functions, which are distinct from those for a
13 UMTS receiver. JA311 ¶ 41.

14 Qualcomm responds that nothing in the plain language of the ‘021 patent limits the
15 611 receiver block to only CDMA or TDMA radio systems. QOCB at 4. Qualcomm
16 asserts that any references to particular cellular systems are qualified by “exemplary
17 description” language. QOCB at 4-6.

18 The Court agrees with Qualcomm. Nothing in the specification indicates that the
19 structure should be restricted to only CDMA or TDMA systems. The ‘021 Patent describes
20 the 611 receiver block without any reference to particular cell systems. *See* JA10 at 7:63-
21 67. Indeed, the “Background of the Invention” accounts for the development of a new type
22 of cellular system, such as the OFDMA based systems that underlie modern-day LTE
23 networks. *See* JA7 at 1:25-40 (“New network topologies will rise in parallel with [the
24 GSM] network, and typically the utilization of these new topologies require new terminals.
25 In the future it must be possible to use the terminals in a number of networks. Then a
26

27 not made in the claim construction briefing have been waived and may not be raised for the first time at
28 the *Markman* hearing.”) (Koh, J.).

1 change over from the use of a first network to the use of a second network must be effected
2 without problems.”). Descriptions of the ‘021 patent referencing particular cellular
3 systems are qualified by exemplary description language. *See, e.g.*, JA9 at 5:40-46 (“[F]or
4 instance, in a situation where said first network is a WCDMA network and said second
5 network is a GSM 900 network . . .”). Finally, claims 8-11 indicate specific cellular
6 systems, while claim 12 does not, indicating that the patentee did not intend to so restrict
7 claim 12 to CDMA or TDMA systems. JA11 at 10:8-11; *see Unwired Planet, LLC v. Apple*
8 *Inc.*, 829 F.3d 1353, 1359 (Fed. Cir. 2016) (“If the patentee intended to restrict the claims-
9 at-issue to require a [specific cellular system], it could have included that same
10 limitation.”).

11 Moreover, as Qualcomm asserted in a slide nearly left on the “cutting-room floor,”
12 Federal Circuit case law supports the notion that after-arising technology can be captured
13 by broadly drafted patent claims. *See, e.g., Innogenetics, N.V. v. Abbott Laboratories*, 512
14 F.3d 1363, 1371 (Fed. Cir. 2008) (“Our case law allows for after-arising technology to be
15 captured within the literal scope of valid claims that are drafted broadly enough.”); *id.* at
16 1370 (“[A]s is well established, an applicant is not required to describe in the specification
17 every conceivable and possible future embodiment of his invention.”); *SuperGuide Corp.*
18 *v. DIRECTV Enters., Inc.*, 358 F.3d 870, 878-880 (Fed. Cir. 2004) (“regularly received
19 television signal” broad enough to encompass digital signals even though no television
20 signals could receive digital signals as of the filing date).

21 Accordingly, the Court will decline to impose a “CDMA or TDMA” limitation into
22 the structure of these terms and will construe the structures as “power level determination
23 means 615 of receiver block 611, and equivalents” and “receiver block 611 and
24 equivalents” respectively. The disclosed structure is *receiver block 611*, not a CDMA
25 receiver block or a TDMA receiver block. To construe the term otherwise would be against
26 the larger purpose of the patent—to ensure interoperability between different types of
27 cellular networks.

Apple and CM Parties' Proposed Construction	Qualcomm's Proposed Construction
“means for performing . . .”	
This is a 112 ¶ 6 claim element	
<p><u>Function:</u> “performing (1) a core network-specific authentication protocol; (2) a radio bearer-specific ciphering process; (3) generation, for each ciphering process, a count parameter comprising a cyclical sequence number and a hyperframe number which is incremented each time the cyclical sequence number completes one cycle; (4) for each core network or authentication protocol: (4a) initialization of a first radio bearer of a session with a hyperframe number exceeding the highest hyperframe number used during the previous session, (4b) sending a radio network controller a value for enabling the radio network controller to determine the same hyperframe number; and (4c) at the end of a session, storing at least part of the highest hyperframe number used during the session.”</p>	
<p><u>Structure:</u> This term is indefinite because there is no single structure that performs the claimed function.</p>	<p><u>Structure:</u> mobile station having a memory, and equivalents</p>

The parties agree that the function for this claim is: “performing (1) a core network-specific authentication protocol; (2) a radio bearer-specific ciphering process; (3) generation, for each ciphering process, a count parameter comprising a cyclical sequence number and a hyperframe number which is incremented each time the cyclical sequence number completes one cycle; (4) for each core network or authentication protocol: (4a) initialization of a first radio bearer of a session with a hyperframe number exceeding the highest hyperframe number used during the previous session, (4b) sending a radio network controller a value for enabling the radio network controller to determine

1 the same hyperframe number; and (4c) at the end of a session, storing at least part of the
2 highest hyperframe number used during the session.”

3 The parties sole dispute is whether the ‘630 patent recites sufficient structure to
4 perform the recited functions. Apple argues that: (a) Qualcomm has not disclosed adequate
5 corresponding structure to perform all of the claimed functions rendering the claim
6 indefinite, (b) the mobile station itself cannot be the structure and, (c) the specification of
7 the ‘630 patent is devoid of any algorithm that could perform the functions. AOCB 9-13.
8 Qualcomm responds that its recitation of structure—a “mobile station having memory and
9 equivalents”—is sufficient.¹³

10 The Court agrees with Apple that a “mobile station having memory” is too indefinite
11 a structure and that adequate structure should have defined the structure and algorithms
12 *within* the mobile station required to perform the six-part function of this claim. In *Net*
13 *MoneyIn, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1366 (Fed. Cir. 2008), the Federal Circuit—
14 in determining whether a claim recited sufficient structure to rebut the presumption of a
15 means-plus-function claim—held that the claim language “first bank computer containing
16 financial data therein, said financial data including customer account numbers and
17 available credit data, said first bank computer . . . generating an authorization indicia in
18 response to queries containing a customer account number and amount,” was not sufficient
19 to rebut the means-plus-function presumption. The Federal Circuit reasoned that:

20 The bank computer is not linked in the claim as the ‘means’ for generating an
21 authorization indicia. Rather, the bank computer is recited as ‘including’ those
22

23 ¹³ At oral argument, Qualcomm’s counsel attempted to tie each of the six functions to a component
24 within the mobile phone—i.e., a processor, transceiver, or memory chip—for the first time. Qualcomm
25 raised in the first instance a purported algorithm that provides sufficient structure. Dkt. No. 396 at 60-
26 63. Apple asserted that these arguments were made in the first instance at oral argument, and no experts
27 had testified to any of these new assertions. Accordingly, the Court will decline to exercise its
28 discretion to consider these new arguments that could have been raised in the claim construction
briefing. *See Fujitsu*, 2012 WL 368574, at *6 (“Ordinarily, the Court would find that any arguments not
made in the claim construction briefing have been waived and may not be raised for the first time at the
Markman hearing.”).

1 means. NMI’s argument that the first bank computer constitutes sufficient
2 structure would require the first bank computer to include a first bank
3 computer, which is both redundant and illogical. Because the claimed
4 generating means is a subset of the bank computer, there must be a recitation
5 of structure that is a component of the bank computer . . . to rebut the
6 presumption.

7 *Id.* at 1366. Accordingly, under the teachings of *Net MoneyIn*, a construction such as that
8 in this case—“wherein the mobile station comprises means for performing [the six-part
9 function]”—would similarly require the mobile station to include a mobile station, which
10 the Federal Circuit has suggested is “redundant and illogical.” *See id.*

11 Qualcomm’s citation to *HTC Corp. v. ICom GmbH & Co.*, 667 F.3d 1270 (Fed.
12 Cir. 2012) to argue that a “mobile station with memory” is sufficient structure is not only
13 inapposite, but arguably is supportive of Apple’s position that this claim lacks sufficient
14 structure. In *HTC*, the Federal Circuit found that “[a]lthough the specification here does
15 not literally disclose a processor and receiver, a person skilled in the art would understand
16 that the mobile device would have to contain a processor and a transceiver.” *Id.* at 1279.
17 Pertinently, the *HTC* Court did not find that a “mobile station” was sufficient structure for
18 the claimed function of “arrangement for reactivating,” but rather found that a processor
19 and transceiver *within* the mobile device could set forth sufficient structure for the claimed
20 function. Unlike in *HTC* where a person of ordinary skill in the art was able to identify
21 that a mobile station usually included a processor and transceiver, here Qualcomm’s expert
22 Dr. Min has not identified the analogous equivalent of components, such as the processor
23 and transceiver, required to perform the six-part function in the ‘630 patent. Dr. Min
24 concedes that the ‘630 patent describes a “mobile station itself, not any particular
25 component within it.” AEX16 at 91:13-24. Moreover, Dr. Min stated that the USIM
26 memory chip could not perform the six-part ciphering process by itself. *Id.* at 93:19-21.
27 Accordingly, Qualcomm has not disclosed any structure can perform each of the functions
28

1 described above. *See Williamson*, 792 F.3d at 1352 (“Where there are multiple claimed
2 functions, as we have here, the patentee must disclose adequate corresponding structure to
3 perform all of the claimed functions. If the patentee fails to disclose adequate
4 corresponding structure, the claim is indefinite.”) (internal citations omitted). Moreover,
5 the Court affords minimal weight to Dr. Min’s reference to the 3GPP standard¹⁴ dated after
6 the ‘630 patent as extrinsic evidence “cannot supplant the total absence of structure from
7 the specification.” *See Williamson*, 792 F.3d at 1354.

8 Finally, Qualcomm’s cited structure is indefinite for a further reason cited in *HTC*.
9 To the extent that the mobile station performs the six-part function by means of a processor,
10 *HTC* teaches that general purpose processors would not be sufficient structure. *See id.* at
11 1280. Rather, Federal Circuit precedent requires the identification of an algorithm
12 executed by the processor and transceiver.¹⁵ Here, Qualcomm has not timely identified
13 any algorithm disclosed in the specification of the ‘630 patent.

14 Accordingly, the Court concludes that this claim is indefinite for failing to
15 adequately disclose components of the mobile station and algorithms executed by those
16 components that could perform the six-part function recited in the claim.

17 **C. ‘549 Patent**

18 The ‘549 patent describes a mobile station that adjusts its transmission rate based
19 on information it obtains from multiple base stations indicating whether they have
20 available capacity to receive data on reverse links. JA21 at Abstract. The base stations
21 send “reverse link busy bits,” a term construed below, to the mobile station to indicate
22 whether or not the base station has reached its capacity limit. *Id.* Reverse link busy bits
23

24
25 ¹⁴ The Court agrees with Apple that this evidence is irrelevant insofar as a court construing patent claims
26 must accord a claim the meaning it would have to a POSITA “at the time of the invention.”
Innova/Pure Water, Inc., 381 F.3d at 1116.

27 ¹⁵ In *HTC*, the Federal Circuit did not weigh in on whether or not an algorithm was sufficiently disclosed
28 as the Federal Circuit found that HTC had waived the argument by failing to ask the district court to
address this issue. *See HTC*, 667 F.3d at 1280-83.

1 are independently generated by each base station and indicate whether the transmitting
2 base station has reached a reverse link capacity limit. *Id.*

3 The parties dispute two issues with the ‘549 patent: (1) whether the entirety of the
4 claim 1 preamble is a limitation and (2) the meaning of “reverse link busy bit.”

5 **1. Preamble**

Apple and CM Parties’ Proposed Construction	Qualcomm’s Proposed Construction
Preamble of Claim 1	
Preamble is limiting	<p>The Court does not need to construe the entire preamble.</p> <p>In a communication system in which each base station in communication with a remote station transmits a reverse link busy bit indicating whether its reverse link capacity has been exhausted, a method of determining the reverse link transmission rate of said remote station comprising:</p> <p><u>Underline</u>: Qualcomm concedes these terms provide antecedent basis for terms in the body of claim 1</p> <p>Bold: Qualcomm contends these aspects of the preamble need not be a limitation</p>

6 A preamble can limit the scope of a claim where it “recites essential structure or
7 steps, or if it is ‘necessary to give life, meaning, and vitality’ to the claim.” *Catalina*

1 *Mktg. In'l Inc. v. Coolsavings.com, Inc.*, 289 F.3d 801, 808 (Fed. Cir. 2002). A preamble
2 is not limiting “where a patentee defines a structurally complete invention in the claim
3 body and uses the preamble only to state a purpose or intended use for the invention.” *Id.*
4 Whether to treat a preamble as a claim limitation is “determined on the facts of each case
5 in light of the claim as a whole and the invention described in the patent.” *Bicon, Inc. v.*
6 *Straumann Co.*, 441 F.3d 945, 952 (Fed. Cir. 2006).

7 The preamble of claim 1 states:

8 In a communication system in which each base station in communication
9 with a remote station transmits a reverse link busy bit indicating whether its
10 reverse link capacity has been exhausted, a method of determining the
11 reverse link transmission rate of said remote station comprising:

12 JA37 at 11:63-67.

13 Apple argues that the entire preamble should be construed as a limitation. AOCB
14 14. According to Apple, phrases in the preamble such as “indicating whether its reverse
15 link capacity has been exhausted,” and “each base station in communication with a
16 remote station” exceeds more than a mere description of the intended use of the
17 invention. The preamble defines a limitation by stating that *each* base station *in*
18 *communication with the remote station* sends a reverse link busy bit to the remote station.
19 Moreover, Apple contends that later limitations lack antecedent basis, including that
20 “base stations” appears in the body of claim 1, and the use of “said” in the body relies on
21 the “base stations” defined in the preamble.

22 In its opening brief, Qualcomm concedes two phrases in the preamble are
23 limitations: (1) “each base station in communication with a remote station transmitting a
24 reverse link busy bit” and (2) “the reverse link transmission rate.” QOCB at 19
25 (conceding these aspects of the preamble provide antecedent basis for certain limitations
26 recited in the body of the claim). Nonetheless, Qualcomm contends that even when a
27 preamble provides antecedent basis that “does not necessarily convert the entire preamble
28

1 into a limitation.” *Id.* (citing *TomTom Inc. v. Adolph*, 790 F.3d 1315, 1322-24 (Fed. Cir.
2 2015). As such, Qualcomm contends that the remaining terms in the preamble provide a
3 “statement of purpose” for the claim, and are not limitations. These terms would
4 necessarily include:

- 5 • “In a communication system in which”
- 6 • “indicating whether its reverse link capacity has been exhausted,”
- 7 • “a method of determining”
- 8 • “of said remote station”

9 *Both* parties cite the “indicating whether its reverse link capacity has been
10 exhausted” language in their interpretation of “reverse link busy bit” below. Given the
11 importance of the “indicating whether its reverse link capacity has been exhausted”
12 language in the construction of “reverse link busy bit,” the Court concludes that this
13 preamble language is necessary to give “life, meaning, and vitality” to the claim by
14 providing a critical definitional limitation of what constitutes a reverse link busy bit. *See*
15 *Catalina Mktg. In’l Inc. v. Coolsavings.com, Inc.*, 289 F.3d 801, 808 (Fed. Cir. 2002).

16 At oral argument, the parties informed the Court that they had stipulated that they
17 now agreed that the entire preamble constitutes a limitation. Dkt. No. 396 at 68.
18 Accordingly, the Court concludes that the entire preamble is a limitation as the preamble
19 cannot be parsed into limiting and non-limiting portions. *See Blue Calypso, Inc. v.*
20 *Groupon, Inc.*, 93 F. Supp. 3d 575, 594 (E.D. Tex. 2015).

2. “reverse link busy bit”

Apple and CM Parties’ Proposed Construction	Qualcomm’s Proposed Construction
“reverse link busy bit”	
information sent by a base station indicating whether its reverse link capacity has been exhausted, i.e., has no remaining capacity	information sent by the base station indicating whether the transmitting base station has reached a reverse link capacity limit

Next, the parties ask the Court to construe the term “reverse link busy bit.” The parties agree that this term is “information sent by a base station indicating whether” a certain condition exists, and disagree on the construction of this condition. Apple contends that the condition is “whether its reverse link capacity has been *exhausted*, i.e., has *no remaining capacity*.” AOCB at 15. Qualcomm contends that this condition is “whether the base station has reached a reverse link capacity limit.” QOCB at 20.

a) Claim Language

The Court begins with an analysis of the claim language. Both Qualcomm and Apple cite to the Preamble of Claim 1 of the ‘549 patent to support their positions. AOCB at 16; QOCB at 20. The preamble states: “In a communication system in which each base station in communication with a remote station transmits a reverse link busy bit indicating whether its reverse link capacity has been exhausted . . .” JA37 at 11:63-67. Apple does not cite additional claim language to support its construction. In its responsive brief, Qualcomm cites claim 9, which states: “the reverse link busy bit indicating when a base station has reached its reverse link capacity limit.” The claim language teaches that the critical term to define here is “exhausted.” The Court turns to the specification to do so.

b) Specification

Both parties point to a particular aspect of the specification to support their

1 respective constructions. In describing a mobile station communicating with multiple base
2 stations, the specification states:

3 It should be noted that the power control commands from different base
4 stations may have different values and so cannot be combined meaningfully.
5 That is base station 102 may have exhausted its reverse link capacity while
6 base station 104 may still have remaining reverse link capacity, and as such
7 would transmit reverse link busy bits having different values.

8 JA33 at 4:50-56. Qualcomm argues that this embodiment makes clear that exhausted
9 means reaching a capacity limit. QOCB at 21. Apple, on the contrary, asserts that this
10 statement contrasts an “exhausted” reverse link capacity with one that has remaining
11 capacity. AOCB at 16. Apple contends that the patent teaches that the busy “bit” may
12 only have one of two values, either “0” or “1”, such that there is one value indicating the
13 base station has “exhausted” its reverse link capacity and “another value indicating the base
14 station ha[s] remaining reverse link capacity.” *Id.* (citing JA35 at 7:16-17).

15 Apple’s construction fails to take into account that Qualcomm’s construction is not
16 antithetical to the premise that the “bit” value would be zero so long as the base station had
17 “exhausted” its reverse link capacity. Qualcomm’s construction effectively defines
18 “exhausted” as a condition when the base station reaches its “reverse link capacity *limit*.”
19 Under Qualcomm’s construction, the bit value would be “0” when the base station reaches
20 a reverse link capacity *limit*, and would be “1” when it has not. Pertinently, the difference
21 is that a reverse capacity limit could be reached while the base station still has *some* reverse
22 link capacity. As such, a reverse link capacity *limit* need not have “no remaining capacity.”
23 Accordingly, Apple’s citation to this part of the specification does not support the “has no
24 remaining capacity” definition of “exhausted.” Moreover, the Court agrees that
25 Qualcomm’s construction is more accurately derived from the specification and stays “true
26 to the claim language.” *See In re Papst Licensing Digital Camera Patent Litigation*, 778
27 F.3d 1255, 1261 (Fed. Cir. 2015).

1 Qualcomm supports its construction by reference to the specification’s repeated
2 statements that a reverse link busy bit indicates when a base station has reached a “reverse
3 link capacity limit.” The Court agrees that this weighs greatly in favor of Qualcomm’s
4 construction. Statements throughout the specification compel the conclusion that a reverse
5 link busy bit indicates whether a link has reached its “capacity limit.” *See, e.g.*, JA32 at
6 2:40-44 (stating that for an exemplary embodiment reverse link busy bits are . . . “indicative
7 of whether the transmitting base station has reached a reverse link capacity limit.”); *id.* at
8 2:24-27 (“The reverse link busy bit indicates when the base station has reached its reverse
9 link capacity limit.”); JA21 at Abstract (“Reverse link busy bits are independently
10 generated by each base station and indicative of whether the transmitting base station has
11 reached a reverse link capacity limit.”); *id.* (remote station, in a first exemplary
12 embodiment, transmits a reverse link signal only when all of the reverse link busy bits
13 indicate that the base stations in the remote stations Active Set *have reverse link capacity*);
14 4:19-21 (“The reverse link busy bits indicate that the *reverse link capacity limit* of the base
15 station has been reached”); JA34 at 6:43-47 (rate determination element 510 inhibits
16 transmission of the reverse link signal when any of the busy bits from a base station in the
17 Active Set *indicate that the reverse link capacity limit* for that base station has been
18 reached).

19 Accordingly, Qualcomm’s intrinsic evidence strongly supports a construction that a
20 reverse link busy bit indicates whether the transmitting base station has reached a “reverse
21 link capacity limit.” Further, it supports a construction that “exhausted” in the context of
22 claim 1 of the ‘541 patent means reaching a “reverse link capacity limit.”

23 c) Extrinsic Evidence

24 Apple contends that the ordinary meaning of exhausted means that capacity is
25 “exhausted” when there is no remaining capacity. *See* AEX19 at 29 (Webster’s II New
26 College Dictionary defining “exhaust” as “to use up” or wear out completely.”); AEX21 at
27 36 (defining “exhaust” as “consume or use up the whole of”). Qualcomm, relying
28

1 exclusively on intrinsic evidence, contends that Apple’s extrinsic evidence is not relevant
2 in comparison to the definitions provided in the specification and claim language.

3 The Court agrees with Qualcomm. In light of the strength of the intrinsic evidence,
4 Apple’s citations to extrinsic evidence should be afforded minimal weight. *See Novartis*
5 *Pharm. Corp. v. Abbott Labs.*, 375 F.3d 1328, 1335 (Fed. Cir. 2004) (extrinsic evidence
6 may not “be used to vary, contradict, expand, or limit the claim language from how it is
7 defined, even by implication, in the specification.”). The Court makes a further
8 observation—not all dictionary definitions conclusively support Apple’s “consume
9 entirely” or “use up entirely” construction. For example, Merriam Webster’s Collegiate
10 Dictionary Eleventh Edition (2003) provides alternative definitions of “exhaust,” including
11 “to tire *extremely* or completely” and “to deprive of a valuable quality or constituent.”¹⁶
12 Such a definition would necessarily indicate that “exhausted” could mean to use up *almost*
13 entirely.

14 Apple’s expert Jonathan Wells, PhD submitted a declaration that is largely
15 duplicative of the arguments made in Apple’s opening and responsive claim construction
16 briefing. The Court accordingly affords little weight to the Wells Declaration regarding
17 this patent. *See* JA260-264. However, the Court does find salient the fact that Dr. Wells
18 conceded in his deposition that the ‘549 patent did not expressly define “exhausted” as “no
19 remaining capacity.” *See* QEX20 at 77:4-78:16.

20 **d) Court’s Construction**

21 Based on the above reasoning, the patent’s claim language, the specification, and the
22 extrinsic evidence, the Court will construe the term “reverse link busy bit” to mean
23 “information sent by a base station indicating whether its reverse link capacity has been
24 exhausted, i.e., whether it has reached a reverse link capacity limit.” By doing so, the Court
25

26 ¹⁶ The Court observes that the modern Merriam-Webster online dictionary defines “exhausted,” to mean
27 “completely *or almost completely* depleted of resources or contents.” *See Merriam-Webster*, available
28 at <https://www.merriam-webster.com/dictionary/exhausted>.

1 makes clear that the primary basis of the construction derives from claim 1’s “exhausted”
 2 language, while recognizing that the entirety of the patent, particularly language in the
 3 specification and in another claim, suggests that “exhausted” means reaching a “reverse
 4 link capacity limit.” *See Philips*, 415 F.3d at 1314 (“Because claim terms are normally
 5 used consistently throughout the patent, the usage of a term in one claim can often
 6 illuminate the meaning of the same term in other claims.”); *id.* at 1315 (stating that usually
 7 the specification is “dispositive; it is the single best guide to the meaning of a disputed
 8 term.”).

9 **D. ‘822 Patent**

10 The ‘822 patent is an improvement in the acknowledgment process for a base station
 11 to grant access to a mobile station, by using location information to reduce the required
 12 power to send acknowledgment messages. JA50 at Abstract. Prior to this invention, a
 13 mobile station would send a preamble sequence to a base station, which would respond by
 14 sending an acknowledgment message—at full power because the base station is unaware
 15 of the mobile station’s location—back to the mobile station. JA70 at 2:4-14. The ‘822
 16 patent overcomes the issue by dividing the preamble sequences into multiple sets based on
 17 different channel qualities. JA70 at 2:18-23. The channel quality is estimated based on a
 18 “metric of forward link geometry.” *Id.* at 2:36-30. The parties dispute the construction of
 19 this term.

20 **1. “metric of forward link geometry”**

Apple and CM Parties’ Proposed Construction	Qualcomm’s Proposed Construction
“metric of forward link geometry”	
Measure that utilizes observed power and noise on a forward link	A measurement of one or more characteristics of a signal indicating the quality of the forward link channel

1 **a) Claim Language**

2 Claim 12 recites an apparatus comprising: “a processor configured to determine a
3 metric of forward link geometry as a function of an observed transmission, wherein said
4 observed transmission is selected from a group consisting of pilot signals, noise, and traffic
5 on data channels, or any combination thereof, and to determine an estimate of channel
6 quality as a function of at least the metric of the observed transmission.” JA75 at 12:8-17.

7 The parties agree that a “metric of forward link geometry” is a measurement of the
8 forward link channel, but dispute whether the measurement is “based on one or more
9 characteristics of the signal” (Qualcomm) or whether the measurement must always use
10 “power and noise.” (Apple).

11 Qualcomm emphasizes the claim language, defining an “observed transmission” as
12 “selected from a group consisting of **pilot signals, noise, and traffic** on data channels, **or**
13 any combination thereof.” JA75 at 12:13-15. To Qualcomm, the use of the disjunctive
14 “or” demonstrates that the metric of forward link geometry *may*, but does not always
15 *require* both power and noise. Apple, in contrast, cites the “observed transmission” claim
16 language to argue that nothing in this claim states that “forward link geometry” can be
17 calculated *without* noise.

18 Apple’s argument is a distortion of the plain language of the claim, which clearly
19 indicates that pilot signals [power], noise, and traffic on data channels, “or any combination
20 thereof” could be considered in the metric of forward link geometry. Accordingly, the
21 plain meaning of the claim language *does not* support Apple’s construction limiting the
22 construction to require both “power and noise.” Nonetheless, the plain meaning of the
23 claim also does not support Qualcomm’s overly broad construction requiring only a
24 “measurement of one or more characteristics of a signal.” The Court turns to the
25 specification.

26 **b) Specification**

27 In support of its argument that “forward link geometry” is unambiguously defined
28

1 to require both power and noise, Apple points to an embodiment in the specification, which
2 states:

3 In an embodiment, observations of forward link geometry are used. For
4 example, metrics such as C/I , where C is the received pilot power and I is the
5 observed noise, may be used. Also $C/(C+I)$ may be used. In other words,
6 some measure that utilizes observed signal *power and noise* is used.

7 JA 72 at 6:54-59 (emphasis added). According to Apple, this specification language
8 teaches that *only* power and noise may be used as the requisite metrics of forward
9 link geometry. The Court disagrees. That a single embodiment requires both power
10 and noise as the requisite metric does not mean that that all embodiments of this
11 patent must necessarily also require power and noise. *See Williamson*, 792 F.3d at
12 1346-47 (cautioning against “limiting the claimed invention to preferred
13 embodiments or specific examples in the specification.”).

14 Qualcomm, meanwhile, references several points in the specification where the ‘822
15 Patent teaches that the metric of forward link geometry may be determined “as a function
16 of observed pilot signals, noise, *and/or* traffic on data channels.” JA70 at 2:35-37. *See*
17 *also* JA72 at 6:61-7:3 (“For example, Region R_1 defines a Region having CQI values
18 corresponding to power and/or noise levels greater than P_1 .”). Qualcomm argues that this
19 language *can*, but does not require the use of power and noise, as “and/or” indicates two
20 or more alternatives. The Court agrees with Qualcomm’s construction insofar as the case
21 law clearly indicates that the use of “and/or” indicates two or more alternatives that may
22 be taken together or individually. *See Cipher Pharms. Inc. v. Actavis Labs. FL, Inc.*, 99 F.
23 Supp. 3d 508, 518 (D.N.J. 2015) (“and/or” is a function word to indicate that “two words
24 or expressions are to be taken together or individually.”).

25 The specification, accordingly, makes clear that signal power and noise are
26 unquestionably aspects of the signal that the patent holder intended to be considered as a
27 “metric of forward link geometry.” The pertinent questions, then, are whether (1) power
28

1 *and* noise are the *only* characteristics to be considered and (2) whether *both* power and
2 noise are required in this construction.

3 **c) Prosecution History**

4 During prosecution, the applicant amended his original claim—“determining a
5 metric of observed transmission”—to the revised language “determining a metric of
6 *forward link geometry as a function of an* observed transmission.” See AEX36 at 206.
7 Apple asserts that Qualcomm cannot ignore this explicit limitation. Nonetheless, Apple
8 fails to note that the amended claims in the prosecution history also *set forth* the limiting
9 definition of “observed transmission” to be “pilot signals, noise, and traffic on data
10 channels, *or any combination thereof.*” AEX36 at 204, 206. Accordingly, the Court
11 concludes that the prosecution history is of limited value, except to the extent that it
12 reinforces that a metric of forward link geometry was explicitly limited to a specific
13 definition of “observed transmission” such that an observed transmission could constitute
14 “any combination thereof” of “pilot signals, noise, and traffic on data channels.” See
15 AEX36 at 206.

16 **d) Extrinsic Evidence**

17 Apple asserts that one of ordinary skill in the art would understand “forward link
18 geometry” to include both power *and* noise values. See AOCB at 19 (citing AEX22-26—
19 contemporaneous documents from cellular standards organizations). Furthermore, Apple,
20 citing its expert Dr. Bims, asserts that noise is inherently included in the process of
21 determining both a pilot signal or traffic. AEX27 (Bims. Tr.) at 167:25-168:4 (“[o]bserved
22 signal power is what is selected from the group of what is received.”). In contrast,
23 Qualcomm’s expert Dr. Villasenor asserts that “geometry” can be used in the wireless
24 communications context to constitute more than signal power and noise. JA449 ¶¶ 49-50.

25 In light of the clarity of the intrinsic evidence, the Court affords minimal weight to
26 the extrinsic evidence and is not persuaded that it lends significant support for Apple’s
27 construction.

1 **e) Construction**

2 Based on the plain language of the claim, the Court concludes that power and noise
3 are *not* the only aspects that may be included in determining the “metric of forward link
4 geometry.” See JA75 at 12:13-15 (“observed transmission is selected from a group
5 consisting of *pilot signals, noise, and traffic* on data channels, *or* any combination
6 thereof.”). The plain language, in particular the “any combination thereof” language,
7 indicates that power and noise are not the exclusive parameters of this term. Nonetheless,
8 neither party seeks to offer constructions of other specific elements that can comprise a
9 metric of forward link geometry.¹⁷

10 Next, the claim language and specification teach that power *or* noise is a
11 reasonable reading of “observed transmission” as defined in this claim. See JA75 at
12 12:13-15 (“or any combination thereof.”); JA70 at 2:35-37 (defining metric of forward
13 link geometry as a “function of observed pilot signals, noise, *and/or* traffic on data
14 channels.”). Moreover, based on Qualcomm’s oral argument at the claim construction
15 hearing, the Court will add language to clarify that “power and noise” can also be a
16 metric of forward link geometry. Dkt. No. 396 at 90.

17 Given the clarity in the intrinsic evidence, the Court affords minimal weight to
18 Apple’s extrinsic evidence. Accordingly, the Court agrees with Qualcomm to the extent
19 that (1) power and noise are not the exclusive metrics relied upon in this term and (2) that
20 power *or* noise is an acceptable construction.

21 Nonetheless, Apple is correct that “Qualcomm’s construction, which requires no
22 specific parameters and encompasses any indication of channel quality” is overbroad and
23 frustrates the purpose of the alleged invention. AOCB at 20. Under Qualcomm’s broad
24
25

26 _____
27 ¹⁷ At oral argument, Qualcomm asserted that they could “live with” the Court’s construction of power or
28 noise, and were not concerned about other aspects of the metric. Apple did not contest this assertion.
Dkt. No. 396 at 90.

1 construction—“A measurement of one or more characteristics of a signal”¹⁸—irrelevant
2 characteristics like modulation and frequency that do not provide sufficient information
3 for the base station to capture spatial distance (aka, geometry)—could be considered as
4 part of the metric of forward geometry. This would frustrate the very purpose of the
5 invention to transmit information indicating spatial distance and allow for a lower power
6 acknowledgment to a mobile station. *See AK Steel Corp. v. Sollac*, 344 F.3d 1234, 1239-
7 40 (Fed. Cir. 2003) (claims should be interpreted consistent with stated purposes and
8 goals of the invention). The Court also finds the Declaration of Harry Bims persuasive
9 on this issue where he notes that “Qualcomm’s construction would allow the term
10 ‘geometry’ to capture characteristics of the signal that have no relationship to the spatial
11 distance, such as the frequency or modulation of the signal, which is improper.” JA171.

12 Accordingly, based on the claim language, the specification, and the extrinsic
13 evidence, the Court concludes that a “metric of forward link geometry” is a measurement
14 that utilizes “observed (1) power and noise or (2) power or (3) noise on a forward link
15 channel.”

16 **E. ‘469 Patent**

17 The ‘469 patent is a method and apparatus for quick retransmission of signals in a
18 communication system. JA85 at 1:8-28. Upon detection of missing or erroneously
19 received packets at a receiving terminal, the receiving terminal uses a quality metric to
20 determine if the packet is correctly received, and then sends a feedback signal to indicate
21 whether retransmission has been requested. JA78 at Abstract.

27 ¹⁸ After the tentative order was issued, Qualcomm no longer sought this construction at the *Markman*
28 hearing. Dkt. No. 396 at 90.

1 **1. “unit(s) of signal”/ “unit of received signal”¹⁹**

2 Apple and CM Parties’ Proposed 3 Construction	Qualcomm’s Proposed Construction
4 “unit(s) of signal” / “unit of received signal”	
5 A preamble, a payload, and a quality 6 metric	7 [Original Construction] 8 This term should be given its plain and 9 ordinary meaning. 10 [Revised Construction] 11 A portion of a signal including at least a 12 payload and a quality metric ²⁰

13 **a) Claim Language**

14 Independent Claim 1 of the ‘469 patent recites “an apparatus configured to
15 retransmit signals in a communication system comprising: a decoder configured to
16 decode contents of a unit of a received signal . . .” JA89 at 10:33-37. Claim 2, a
17 dependent claim, recites “[t]he apparatus of claim 1 wherein the unit of signal is a
18 packet.” JA89 at 10:35-37.

19 Independent Claim 11 recites “An apparatus configured to retransmit signals in a
20 communication system, comprising: a decoder configured to decode contents of a unit of
21

22 _____
23 ¹⁹ At the Claim Construction hearing, Qualcomm abandoned its request for a plain and ordinary meaning
24 construction, conceding that no jury could ascribe a plain and ordinary meaning to this term. Dkt. No.
25 396 at 94. On March 23, 2018, the Court ordered supplemental briefing regarding this term. Dkt. No.
26 391. As the Court is not wholly satisfied with Apple’s construction which it recognizes is using the
27 definition of “packet” in the specification to define “unit of signal,” the Court will allow new argument
28 regarding Qualcomm’s revised construction.

²⁰ In its initial email to Apple, Qualcomm appears to have proposed a substantially similar construction
that included a reference to a “payload *unit*.” AEX37. Qualcomm’s supplemental brief no longer seeks
this construction. Dkt. No. 401. *See also* Dkt. No. 400 at 5 (Apple’s argument that “payload unit” is an
improper construction).

1 received signal.” JA90 at 11:7-9. Claim 2, dependent on this claim, states “[t]he
2 apparatus of claim 11 wherein the unit of signal is a packet.” JA90 at 11:20-21.

3 Apple contends that other elements of claims 1, 11, and 21 require “a quality
4 metric of said unit of signal” and “a preamble of said unit of signal.” JA89 at 10:39-41;
5 JA90 at 11:15-16.

6 Because the pertinent definition of “packet” is defined in the specification, the
7 Court concludes that the claim language standing alone does not provide any particular
8 insight into the proper construction of “unit of signal” and “unit of received signal.”

9 **b) Specification**

10 Apple’s primary argument is that the specification provides a definitive definition of
11 “unit of signal.” Specifically, Apple points to a statement in the “BACKGROUND OF
12 THE INVENTION” subtitled “Description of the Related Art” defining a “packet”:²¹

13 Unless defined differently, a packet is a unit of a signal comprising a
14 preamble, a payload, and a quality metric.

15 JA85 at 1:22-24. Apple relies upon this definition of a “packet” to apply to “unit of signal”
16 so that a unit of a signal (and received signal) must *always* comprise a preamble, payload,
17 and quality metric in the context of this patent.

18 Qualcomm disagrees and further asserts that claims 2 and 12 recite that the “unit of
19 signal is a packet,” and that under the doctrine of claim differentiation these dependent
20 claims cannot limit the independent claims in claims 1 and 11. QOCB at 16-17 (citing
21 *Trustees of Columbia Univ. v. Symantec Corp.*, 811 F.3d 1359, 1370 (Fed. Cir. 2016)
22 (“Thus, in a situation where dependent claims have no meaningful difference other than an
23 added limitation, the independent claim is not restricted by the added limitation in the
24 dependent claim.”)).

25
26
27 ²¹ The Court notes that Apple’s constrained definition of “unit of a signal” arises in the context of a
28 definition of the term *packet*, not a definition of the term unit of signal.

1 **c) Extrinsic Evidence**

2 Apple’s expert Dr. Wicker asserts that the claimed invention cannot even work if
3 “unit of signal” does not mean “a preamble, payload, and a quality metric.” Wicker points
4 to Figure 4 of the patent indicating the necessity of the preamble, quality metric, and
5 payload in performing the method outlined in this patent. *See* JA319 at ¶65; JA87-88 at
6 6:63-7:25. Dr. Wicker also asserts that a POSITA would not have found an ordinary
7 meaning to the contested terms at the time the patent was filed. Apple has not provided a
8 supplemental declaration by Dr. Wicker to challenge Qualcomm’s revised construction.

9 **d) Court’s Revised Construction**

10 At the *Markman* hearing, Qualcomm abandoned its request for a plain and ordinary
11 meaning construction and proposed a new construction such that unit of signal be
12 construed as “preamble, payload unit, quality metric, individually and collectively.”
13 AEX38 at 100:22-23. In its supplemental brief Qualcomm has, once again, pivoted its
14 requested construction to now be a “portion of a signal that includes at least a payload
15 and a quality metric.” Dkt. No. 401 at 1.²² While the Court admonishes Qualcomm for
16 its repeatedly tardy constructions, the Court observes that Qualcomm’s revised offering is
17 a more accurate assertion of what can constitute a “unit of signal” in the ‘469 patent.

18 The parties’ revised dispute now revolves around whether a “preamble” is always
19 required to be part of a “unit of signal.” The Court concludes that Apple’s construction is
20 not entirely accurate as it uses the definition of “packet” to define “unit of signal.”
21 Qualcomm’s primary argument is that a preamble is not a *required* component, but *can*
22 be a component of a unit of signal as used in the ‘469 patent. *See* Dkt. No. 401 at 1-4.
23 Qualcomm concedes that in at least some cases, such as in Claim 11, a preamble
24 constitutes a part of a unit of signal. Dkt. No. 401 at 4.

25
26 ²² Qualcomm asserts that in response to the Court’s question regarding whether a quality metric could be
27 an individual unit, “upon further consideration of the Court’s question” Qualcomm now believes the
28 answer is “no” such that a unit of signal now must constitute the “portion of a signal that includes at
least a payload and a quality metric.” Dkt. No. 401 at 2 n.1.

1 To illustrate that the ‘469 Patent teaches that a preamble is not required to be part
2 of a unit of signal, Qualcomm points to an embodiment:

3 In an exemplary embodiment, a preamble is transmitted within a new packet.
4 The preamble enables identification of the intended destination MS [mobile
5 station] during decoding. In an exemplary embodiment, only the first time
6 slot of the multiple-slot packet is transmitted with the preamble. The
7 preamble could alternatively be transmitted in every forward link time slot.
8 JA87 at 6:21-34. Qualcomm asserts that in this case the preamble could be sent with
9 only the (1) first payload unit in the series or (2) with every time slot, i.e., with each
10 payload unit in the series. Claim 1 recites that decoding of a unit of signal is prevented
11 “if an indication received on a control channel indicates that said unit of signal is not to
12 be decoded.” The above embodiment indicates that a unit of signal can be sent *without* a
13 preamble because the “indication received on a control channel” can be sent before a
14 “series of associated payload units of signal, or alternatively, by information on a control
15 channel sent before each associated payload unit of signal.” Dkt. No. 401 at 4. Thus, the
16 unit of signal described in Claim 1 need not always require a preamble and could be
17 satisfied solely by a payload and quality metric. *See* JA89 at 10:39-45 (“and to prevent
18 decoding of said *unit of signal* if an indication received on a control channel indicates
19 that said *unit of signal* is not to be decoded.”). Apple’s assertion that claim 11 requires a
20 unit of signal to always include a preamble is not persuasive; the Court reads claim 11 to
21 only indicate that a preamble *may* be part of a unit of signal. *See* JA90 at 5-20 (“a
22 preamble detector configured to decode a preamble of said unit of signal; and wherein
23 said first processor is further configured to prevent decoding of said unit of signal if said
24 preamble indicates that said unit of signal is not to be decoded.”). Moreover, the Court
25 observes that not always requiring a preamble honors the doctrine of claim differentiation
26 by not reading into the independent claims 1 and 11 the definition of “packet” appearing
27 in dependent claims 2 and 12. *See InterDigital Commc’ns, LLC v. ITC*, 690 F.3d 1318,
28 1324 (Fed. Cir. 2012).

1 Nevertheless, the Court will not accept Qualcomm’s construction in full. As Apple
2 points out, Qualcomm has presented no evidence to indicate that the language “portion of
3 a signal” should be included in the construction. The Court concludes that such language
4 would be untethered to the specification and the claim language.

5 Accordingly, the Court will construe unit(s) of signal” / “unit of received signal as
6 “a preamble, a payload, and a quality metric” OR “a payload and a quality metric.” By
7 doing so, the Court makes clear that a preamble *can* be but is not a required component of
8 a “unit of signal.”

9 **F. ‘725 Patent**

10 U.S. Patent No. 7,095,725 (“the ’725 Patent”) aims to decrease delays and improve
11 data transmission between cell phones and cell towers. JA142 at Abstract. Specifically,
12 the ’725 Patent deals with situations where a cell phone does not have data to transmit,
13 and the data-justified rate subsequently drops to zero. QOCB at 28. A sudden drop in
14 data-justified rate²³ causes cell phone delay as the data-justified rate needs time to “ramp
15 back up.” *Id.* at 29 (citing JA142 at Abstract). The ’725 Patent addresses this issue by
16 the utilization of a “dummy rate” that constrains the data-justified rate “to decrease in a
17 controlled manner” and prevents the rate from suddenly dropping to zero. JA142 at
18 Abstract. The “data-justified rate is compared to the dummy rate and is not allowed to
19 fall below the dummy rate.” JA152 at 3:28-33. Preventing a sudden drop in data-
20 justified rate ensures that a cell phone will not experience delays when the phone
21 increases transmission rate for functions like real-time video.

22 The Parties disagree over “dummy rate” as it appears in Claim 10 of the claim
23

24 ²³ The ‘725 patent teaches that “data-justified rate is essentially the maximum rate that can be justified
25 by the amount of data that is queued for transmission by the access terminal.” JA151 at 2:5-8. If there
26 is no data in the access terminal’s transmission queue, then no transmission rate at all is justified. JA151
27 at 10-12. As such, a data-justified rate is the rate warranted in view of how much data the mobile station
28 needs to send at a given time. A “ramp-up-limited rate is the maximum rate that is allowed, considering
the fact that a rapid ramp-up will suddenly increase the interference perceived by other access terminals
and will degrade their performance.” JA151 at 13-16.

1 language.²⁴ JA158 at 16:31-34. This analysis proceeds in two parts. First the Court
 2 analyzes whether dummy rate should be construed to “decay” or “decrease.” Apple
 3 describes “dummy rate” as a rate which can “*decay* in a predetermined manner.”
 4 Qualcomm describes “dummy rate” as being able to “*decrease* in predetermined manner
 5 over time without reaching zero.” *Id.* (emphasis added). Second, the Court analyzes
 6 whether the term “dummy rate” should include a negative limitation indicating that a
 7 dummy rate cannot reach zero.

Apple and CM Parties’ Proposed Construction	Qualcomm’s Proposed Construction
“dummy rate”	
a rate which is allowed to decay in a predetermined manner	a rate that may decrease in predetermined manner over time without reaching zero

14 **1. “dummy rate” — decrease v. decay**

15 **a) Claim Language**

16 While Claim 10 addresses “dummy rate,” Claim 10 does not mention “decay” or
 17 “decrease.” JA158 at 16:31-34. “Decay” does not appear in the claim language, and
 18 “decrease” appears four times, in Claims 2, 3, 11 and 12, when describing “dummy rate.”
 19 JA158-59. The ’725 Patent’s claim language states:

- 20 2. The method of claim 1, wherein the dummy rate *decreases* by
- 21 a fraction per one or more transmission frames.
- 22 3. The method of claim 1, wherein the dummy rate *decreases* by
- 23 a predetermined number of rate index levels per one or more
- 24 transmission frames.
- 25 11. The apparatus of claim 10, wherein the dummy rate
- 26 *decreases* by a fraction per one or more transmission frames.
- 27 12. The apparatus of claim 10, wherein the dummy rate
- 28 *decreases* by a predetermined number of rate index levels per
- one or more transmission frames.

²⁴ See Exhibit A of the Joint Claim Construction Chart. Dkt. No. 217-1 at 68.

1
2 JA158 at 15:45-50, 16:34-39 (emphasis added).

3 **b) Specification**

4 Apple argues dummy rate “is not a common, well-understood term” in the wireless
5 telecommunications community, and the best source of interpretation is the patent
6 specification. AOCB at 29. Apple refers to language from the patent specification that
7 states:

8 “[T]he decrease in the second data transmission rate is constrained by
9 controlling decreases in the data-justified rate. This is accomplished in one
10 embodiment by maintaining a dummy rate which is allowed to *decay* in a
11 predetermined manner. The conventionally calculated data-justified rate is
12 compared to the dummy rate and is not allowed to fall below the dummy rate.”

13 *Id.* at 29-30 (quoting JA152 at 3:27-31) (emphasis added). Apple describes this process
14 as “a controlled decay” that satisfies the ’725 Patent’s stated goal. AOCB at 30. The
15 patent specification mentions “decay” when describing “dummy rate” in two other
16 instances: (1) in a description of how the processor controls the data-justified rate through
17 “maintaining a “dummy rate” which is caused to decay in a predetermined manner.”
18 JA152 at 3:49-53 and (2) in a description stating that the “dummy rate” can “prematurely
19 decay” in response to changes in data-justified rate. JA156 at 11:55-61.

20 Qualcomm references the Abstract to argue that “dummy rate” constrains the data-
21 justified rate “to decrease in a controlled manner.” QOCB at 29 (quoting JA142 at
22 Abstract). The patent specification introduces the term “decay factor.” JA 142-59. A
23 “decay factor” can be used “to decrease the value of a dummy rate.” JA156 at 11:26-28.

24 **c) Extrinsic Evidence**

25 Apple’s expert witness, Dr. Jonathan Wells, gives a declaration in support of
26 Apple’s claim construction brief. Joint Ex. 11. In his declaration, Dr. Wells suggests that
27 a person of ordinary skill in the art (“POSITA”) for the ’725 Patent has a bachelor’s
28

1 degree in engineering and two-plus years of experience with telecommunications
2 networks. Dkt. No. 301-1 at 245. Dr. Wells considers himself a POSITA. *Id.* He
3 believes the patent specification supports use of “decay” and specifically allows the
4 “dummy rate” to “prematurely decay.” *Id.* at JA248-50. Dr. Wells argues that
5 Qualcomm fails to cite any extrinsic evidence in support of its construction, and given
6 Apple’s intrinsic evidence, a POSITA would understand “dummy rate” as “a rate which
7 is allowed to decay in a predetermined manner.” *Id.* at JA255-57. Dr. Wells contends
8 Qualcomm’s use of “may decrease” instead of “decay” does not carry the same
9 connotation to a POSITA. *Id.* at 293.

10 Qualcomm chooses not to provide any extrinsic evidence. Apple argues that
11 Qualcomm is unable to provide any extrinsic evidence that supports Qualcomm’s
12 construction. AOCB at 30.

13 **d) Court’s Construction**

14 Courts consider intrinsic evidence to be “the most significant source of the legally
15 operative meaning of disputed claim language.” *Vitronics Corp.*, 90 F.3d at 1582. Most
16 of the time, analyzing “the intrinsic evidence alone will resolve any ambiguity in a
17 disputed claim term. *Id.* at 1583. Here, because “decay” and “decrease” appear multiple
18 times in the intrinsic evidence and both parties cite to the intrinsic evidence, the Court
19 determines that intrinsic evidence alone is sufficient to resolve this dispute. *See Pall*
20 *Corp. v. Micron Separations, Inc.*, 66 F.3d 1211, 1216 (Fed. Cir. 1995) (suggesting that
21 in situations where intrinsic evidence is sufficient to determine the meaning of a disputed
22 term, a court should not rely on extrinsic evidence). Accordingly, the Court will not rely
23 on the Wells Declaration for purposes of this analysis. *See Markman*, 52 F.3d at 979.

24 The Court finds that although “decrease” is not used to describe “dummy rate” in
25 Claim 10, the fact that dummy rate is described with “decrease” in other parts of the
26 surrounding claim language weighs significantly in favor of Qualcomm’s construction.
27 *See Conoco, Inc. v. Energy & Environmental Intern., L.C.*, 460 F.3d 1349, 1362 (Fed.
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1 Cir. 2006) (“search for the ordinary and customary meaning of a claim term” can “be
2 informed by the surrounding claim language”). Further, the Court determines that
3 because “decrease” is found in surrounding claim language and because the patent
4 specification does not offer an explanation for using “decay” instead of “decrease” in
5 several instances, “decay” is essentially a synonym for “decrease” and not a replacement.
6 *See Anderson Corp. v. Fiber Composites, LLC*, 474 F.3d 1361, 1368 (Fed. Cir. 2007)
7 (determining that “composite material” was just a synonym for “composite composition”
8 and not an entirely different expression.). The claim language favors the use of
9 “decrease” over “decay,” and the Court will construe the term accordingly.²⁵

10 **2. “dummy rate” — reaching zero**

11 Qualcomm seeks to impose a “negative limitation” in the definition of dummy rate
12 such that a dummy rate may decrease in a predetermined manner over time “without
13 reaching zero.” Negative claim limitations are adequately supported when the
14 specification describes a reason to exclude the relevant limitation. *Santarus, Inc. v. Par*
15 *Pharm., Inc.*, 694 F.3d 1344, 1351 (Fed. Cir. 2012); *Omega Eng'g, Inc. v. Raytek Corp.*,
16 334 F.3d 1314, 1322-23 (Fed. Cir. 2003) (declining to add a negative limitation when there
17 was no “express disclaimer or independent lexicography in the written description that
18 would justify adding that negative limitation”). *See also Parthenon Unified Memory*
19 *Architecture LLC v. ZTE Corp.*, No. 215CV00225JRGRSP, 2016 WL 310174, at *8 (E.D.
20 Tex. Jan. 25, 2016) (“The inclusion of a negative limitation within a claim construction
21 generally requires support from the intrinsic evidence.”).

22 In its tentative order, the Court tentatively agreed with Qualcomm that the purpose
23 of the invention would be frustrated without the imposition of the negative limitation
24 “without reaching zero.” Upon reconsideration of the briefing, oral argument, the
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26 ²⁵ At the *Markman* hearing, Apple conceded that it was prepared to “essentially give up on” the “decay”
27 construction as it did not believe there was a significant difference between decay and decrease. Dkt.
28 No. 396 at 116-117.

1 supplemental briefing, and particularly the Declaration of Dr. Wells, the Court will decline
2 to impose the negative limitation based on the reasoning provided below.

3 **a) Claim Language**

4 There is no claim language that explicitly addresses whether “dummy rate” can reach
5 zero. The Court turns to the specification to address this issue.

6 **b) Specification**

7 Apple contends that nothing in the intrinsic evidence suggests that the “dummy
8 rate” cannot reach zero, and indeed that the patent specification provides specific
9 examples where the “dummy rate” does drop to zero. AOCB at 30 (citing JA156 at
10 11:64-12:05). In its responsive brief, Apple argues that because Qualcomm stresses the
11 importance of preventing “sudden” drops of data-justified rate so frequently, preventing
12 “sudden” drops is the true purpose of the ’725 Patent, and Apple’s construction
13 accomplishes this purpose. ARCB at 13-14. Apple contends that Qualcomm fails to
14 provide any specific examples as to why the “dummy rate” cannot reach zero. *Id.* Apple
15 argues “Qualcomm’s construction improperly grafts on the negative limitation that the
16 rate cannot equal zero.” AOCB at 30 (citing *Omega Eng’g, Inc. v. Raytek Corp.*, 334
17 F.3d 1314, 1323 (Fed. Cir. 2003)).

18 Qualcomm argues that both the intrinsic evidence and purpose of a “dummy rate”
19 support construing “dummy rate” to be a rate that cannot reach zero. QOCB at 29.
20 According to Qualcomm, allowing the data-justified rate to drop to zero creates delays in
21 transmitting time-sensitive data, and that this is precisely what the ’725 Patent aims to
22 prevent. *Id.* Qualcomm explains the “dummy rate,” as described in the ’725 Patent,
23 prevents such sudden drops by not allowing the data-justified rate to fall below the
24 “dummy rate.” *Id.* Qualcomm posits that because the data-justified rate can never be a
25 negative number and the “dummy rate” need always be below the data-justified rate, the
26 “dummy rate” can never reach zero. *Id.* at 30. Qualcomm supports this notion by citing
27 the Abstract’s statement that “the data-justified rate is constrained to decrease in a
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1 controlled manner and cannot suddenly drop to 0.” JA 142 at Abstract. Qualcomm
2 argues that, because one of the purposes of the ’725 Patent is to prevent the data-justified
3 rate from reaching zero, allowing the “dummy rate” to reach zero would frustrate the
4 purpose of the invention. *Id.* at 30. Qualcomm contends that Apple’s construction would
5 allow the data-justified rate to reach zero and thus require the cell phone to ramp up the
6 data-justified rate from zero, thus causing sporadic data transmission, something the ’725
7 Patent is designed to prevent. *Id.* Qualcomm claims it is allowed to impose a “negative
8 claim limitation” on the rate because the contention is “adequately supported” and “the
9 specification describes a reason to exclude the relevant limitation.” QRCB at 15 (citing
10 *Santarus, Inc. v. Par Pharm., Inc.*, 694 F.3d 1344, 1351 (Fed. Cir. 2012)).

11 c) Extrinsic Evidence

12 Apple’s expert Dr. Wells contends the patent specification gives specific examples
13 where the “dummy rate” reaches zero. JA255 at 255. Dr. Wells posits that the “dummy
14 rate’s” purpose is to prevent *sudden* drops in data-justified rate and not to prevent the
15 data-justified rate from reaching zero. JA256 at 1. Dr. Wells argues that Qualcomm’s
16 construction, by stating the “dummy rate” “may decrease,” allows the “dummy rate” to
17 “decrease” from a high numeric value to zero, thus defeating the purpose of “dummy
18 rate” as found in the ’725 Patent. JA293 at 2. Qualcomm claims it does not provide any
19 extrinsic evidence because its construction comes directly from the intrinsic evidence.
20 QRCB at 15.

21 On March 29, 2018, Apple submitted the Declaration of Jonathan Wells in Support
22 of their Supplemental Claim Construction Brief. AEX39. In that Declaration, Dr. Wells
23 laid out in great detail the step-by-step process described in Figure 5 of the embodiment.
24 JA156 at 11:23-35. Dr. Wells’ revised declaration specifically addressed the Court’s
25 concerns in its Dkt. No. 391 order requesting supplemental briefing as to:

- 26 • Whether the specification supports that a dummy rate establishes a “threshold”—
27 represented by a dotted blue line—that a data-justified rate cannot drop below as
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1 asserted by Qualcomm in Slides 86 and 87 of their technology tutorial. The parties
2 should include specific citations to the specification in their response.

- 3 • The impact of the embodiment set forth in Figure 5 of the patent and described at
4 JA156 at 11:23-12:8, with particular emphasis on steps (1)-(3) set forth at 11:35-
5 38. The Court is particularly interested regarding (a) the calculation of the dummy
6 rate in comparison to a tentative data-justified rate; (b) what the value R3
7 represents in this embodiment; and (c) the impact of a dummy rate of zero on the
8 process described in this embodiment.

9 In its revised construction discussed below, the Court gives considerable weight to the
10 findings and explanations provided by Dr. Wells.

11 **d) Court's Construction**

12 A party arguing that a particular interpretation would “frustrate the purpose of the
13 invention” must adequately explain their reasoning. *See Atlantic Construction Fabrics,*
14 *Inc. v. Dandy Products, Inc.* 64 F. App’x 757 (Fed. Cir. 2003) (determining that plaintiff
15 failed to explain why a certain interpretation would “completely frustrate the purpose of
16 the invention.”). Upon reconsideration, the Court finds that Qualcomm has not
17 adequately shown that a dummy rate of zero would frustrate the purpose of the patent.

18 The core of the parties’ dispute revolves around different conceptions of the
19 purpose of the patent. To Apple, the ‘725 patent prevents the data-justified rate and the
20 access terminal’s rate from dropping “suddenly” or “precipitously.” *See* JA151 at 2:46-
21 50; JA155 at 10:22-27, 10:36-39; JA156 at 12:14-18. Under Apple’s view, the patent is
22 concerned with a *sudden* drop from, for example, a rate index of four to a rate index of
23 zero. The dummy rate controls the rate of this drop, by decreasing the data-justified rate
24 by a predetermined amount in each frame. Importantly, Apple’s construction would
25 allow the access terminal’s rate to eventually reach zero.

26 Qualcomm has consistently asserted that the patent’s goal is to allow the patent to
27 start off at a higher rate index by never reaching the zero rate index, i.e. to prevent the
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1 dummy rate from reaching zero. QEX24 at 4. Under that theory, an access terminal
2 starting from a zero rate index ramping up to four would require four frames to ramp up,
3 while a dummy-rate controlled terminal would require only three frames since a dummy
4 rate would keep an access station at a rate index of 1. *See id.* As such, Qualcomm argues
5 that the “dummy rate establishes a permanent threshold below which the transmission
6 rate cannot drop.” Dkt. No. 401 at 8.

7 Upon further review, the Court agrees with Apple that the purpose of the ‘725
8 patent is to prevent “sudden” drops in data-justified rate to zero. The specification
9 contains repeated references to preventing sudden drops, but does not indicate that a
10 dummy rate establishes a threshold below which the transmission rate cannot drop. *See,*
11 *e.g.*, JA142 at Abstract (“In one embodiment, the data-justified rate is constrained to
12 decrease in a controlled manner and cannot *suddenly* drop to 0.”) (emphasis added);
13 JA151 at 2:30-32 (“If the access terminal runs out of data, the data-justified rate will
14 suddenly drop to zero.”).

15 The Court agrees with Apple that a negative limitation is not warranted here,
16 particularly in light of the embodiment disclosed at Figure 5 and described at JA156-11:23-
17 12:8. The pertinent algorithm for this embodiment is set forth below:

18 transmitted. The method of this embodiment is set forth
19 below and is illustrated in the flow diagram of FIG. 5.

- 20 (1) compute R_t (as R_3 is conventionally computed above)
- 21 (2) compute $R_d = R_d + \log_2(\text{decay factor})$
- 22 (3) set $R_3 = \max(g(R_d), R_t)$
- 23 (4) set $R_{new} = \min(R_1, R_2, R_3, R_4)$
- 24 (5) set $R_d = R_{new}$

25 where

26 R_t is the tentative data-justified rate as conventionally
27 computed

28 R_d is the dummy rate (which either has a default value, or
29 was previously computed)

30 $g(\)$ maps R_d to the lowest viable rate index greater than
31 or equal to R_d

1 JA156 at 11:34-49. This embodiment describes one possible method of controlling the
2 drop in R_3 , the data justified rate, through the use of a decay factor. JA156 at 11:23-25.
3 In this embodiment, R_t represents a tentative data-justified rate that is conventionally
4 computed, whereas R_d represents a dummy rate that either has a default value or is
5 previously computed. In step 2, a dummy rate is calculated by taking \log_2 of a decay
6 factor. Using a decay factor of .5, as suggested in the embodiment, leads to the dummy
7 rate decreasing by -1 in each frame. Accordingly, the specification indicates that:

8 In one embodiment, the decay factor is set to 0.5. In other words, the rate is
9 only allowed to decrease by half each time it is calculated. This is equivalent
10 to dropping by one rate index level . . . An access terminal transmitting at a
11 rate index of 5 would therefore take five frames to drop all the way down to
12 the 0 rate index.

13 JA156 at 11:64-12:2. Qualcomm asserts that this embodiment does not “explicitly or
14 implicitly” state that the “dummy rate goes to zero,” and that this embodiment “does not
15 involve a dummy rate.” Dkt. No. 401 at 7. This assertion is incorrect—this embodiment
16 unquestionably addresses the impact of a dummy rate as it involves and addresses the
17 impact of a decay factor of 0.5, which is part of the dummy rate calculation in Step 2 of
18 the embodiment. *See* JA156 at 11:37. Moreover, Apple’s expert Dr. Wells’ latest
19 declaration lays out the step-by-step reasoning for why the access terminal’s rate is
20 directly tied to the dummy rate and requires the dummy rate to fall to zero:

21 Because R_1 , R_2 , and R_4 are always positive numbers, the access terminal’s
22 transmission rate R_{new} cannot drop to zero unless the data-justified rate R_3 also
23 drops to zero. Moreover, because the data-justified rate R_3 cannot fall below
24 the dummy rate R_d (see step (3) above), *the access terminal’s transmission*
25 *rate R_{new} cannot drop to zero unless the dummy rate R_d also drops to zero.*

26 AEX39 at 13 (emphasis in original). Stated another way, the embodiment utilizing a
27 decay factor of 0.5 described in the patent *cannot* reach the zero rate index, as explicitly
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1 stated in the patent, *without* the dummy rate reaching zero. *See also* AEX39 at 18-19
2 (describing the decrease in R_d from 1 to 0 where R_3 would be set to 0, because $R_d=0$ and
3 $R_t=0$, thus requiring the access terminal's transmission rate to decrease to rate index 0 for
4 the next frame). Because the Court is now convinced that the patent explicitly discloses
5 an embodiment where the dummy rate is necessarily required to reach zero, the Court
6 will not impose a negative limitation that the dummy rate cannot reach zero as this would
7 be entirely unsupported by the specification.

8 Moreover, the Court is not convinced that Qualcomm's assertion of a "threshold"
9 below which the dummy rate does not fall is sufficiently supported by the specification to
10 warrant a negative limitation. In a step-by-step review of Qualcomm's theory of the '725
11 patent as presented at the technology tutorial hearing, Dr. Wells asserts that the
12 technology was inaccurately presented to the Court, as the specification does not provide
13 support that the dummy rate forever remains at a rate index of 1.²⁶ AEX39 at 48
14 ("Nothing in the specification suggests that the dummy rate reaches some kind of
15 artificial limit that it does not fall below (other than reaching the ultimate limit of
16 zero)."). Dr. Wells asserts, and the Court now agrees, that Qualcomm's theory "directly
17 contradicts the dummy rate algorithm" described in Figure 5. Instead, Dr. Wells'
18 presents a "corrected" version wherein the dummy rate is allowed to eventually drop to
19 zero after five frames. Doing so promotes the purpose of gradually decreasing the data
20 rate down to zero over five frames, rather than suddenly dropping to zero in the first
21 frame. *See* JA156 at 11:23-12:13. Nothing in the specification cited by Qualcomm
22 unequivocally shows that the patent cannot drop to zero. *See, e.g.,* JA155 at 10:64-67 ("If
23 the queue length drops to zero, R_3 will also drop to zero, and the ramp-up process will
24 have to start over, once more causing the delays in transmission."); JA151 at 2:28-30 ("If
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26 ²⁶ Despite the Court's directive to address the specification's basis for establishing a "threshold" rate
27 index, Qualcomm states only that its technology tutorial depicted a controlled ramp-down based on the
28 "independently maintained" dummy rate, rather than the "decay" dummy rate described throughout the
technology tutorial. QEX24 at 86-87; Dkt. No. 401 at 9.

1 the access terminal suddenly has enough data to justify a very high rate, the data-justified
2 rate will suddenly increase.”).

3 Accordingly, the Court will decline to construe a negative limitation such that the
4 dummy rate is not allowed to fall to zero. For the foregoing reasons, the Court
5 determines the construction of “dummy rate” is the following: “a rate that may decrease
6 in a predetermined manner over time.”²⁷

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25 ²⁷ The Court adds an “a” to correct a typo in Qualcomm’s construction. The Court also maintains the
26 “may decrease” language as Qualcomm has sufficiently indicated that there are situations contemplated
27 by the patent where the dummy rate may be independently maintained or even increase. *See* Dkt. No.
28 396 at 131-132 (“[t]here are times when you want to reset the dummy rate. It may actually increase back
up before it declines. So it’s not always decreasing, Your Honor.”).

1 **CONCLUSION AND ORDER**

2 The Court construes the terms at issue as follows:

Patent Number	Term	Court’s Construction
‘021	“means for comparing the measured power level with said at least one threshold value”	indefinite
	“means for transmitting to the first cellular radio system a request for a free time period in which to perform the measurement, said means being arranged to transmit the request for the free time period in which to perform the measurement only after said measured power level remains below said at least one threshold value”	<u>Function</u> : transmitting to the first cellular radio system a request for a free time period in which to perform the measurement. <u>Structure</u> : transmitter block 604 and equivalents
	“means for measuring . . .”	<u>Structure</u> : power level determination means 615 of receiver block 611, and equivalents.
	“means for receiving . . .”	<u>Structure</u> : receiver block 611 and equivalents.

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Patent Number	Term	Court's Construction
'630	"means for performing . . ."	indefinite
'549	Preamble	Entire Preamble is a Limitation
	"reverse link busy bit"	information sent by a base station indicating whether its reverse link capacity has been exhausted, i.e., whether it has reached a reverse link capacity limit
'822	"metric of forward link geometry"	observed (1) power and noise or (2) power or (3) noise on a forward link channel.
'469	"unit(s) of signal" / "unit of received signal"	"a preamble, a payload, and a quality metric" or "a payload and a quality metric."
'725	"dummy rate"	A rate that may decrease in a predetermined manner over time

1 **III. MOTION TO STRIKE**

2 On February 14, 2018, Qualcomm filed a Motion to Strike Apple’s First and Second
3 Amended Invalidity Contentions. Dkt. No. 331. Apple and the Contract Manufacturers
4 filed a response on March 1, 2018. Dkt. No. 345.

5 Pursuant to the Court’s Case Management Order Regulating Discovery and Other
6 Pretrial Proceedings for Patent Claims, Apple and the CMs filed Joint Invalidity
7 Contentions on October 30, 2017. Dkt. No. 117 ¶ 2; Ex. A. Claim construction discovery
8 concluded on January 11, 2018. Dkt. No. 117 ¶ 6. On January 3, 2018, Apple served
9 Qualcomm with a set of first Amended Joint Invalidity Contentions. Ex. B. On January
10 11, 2018, Apple served Qualcomm with a second set of Amended Invalidity Contentions
11 (“Second Amended Invalidity Contentions.”). Ex. C.

12 Qualcomm argues that the plain language of Patent Local Rule 3.6(b) states that only
13 a “party *opposing* a claim of patent infringement” may serve “as a matter of right” amended
14 invalidity contentions. Patent L.R. 3.6(b). According to Qualcomm, Apple and the CMs
15 are not parties “opposing a claim of patent infringement” as Qualcomm has never
16 counterclaimed that Apple infringes the nine patents-in-suit. *See, e.g.*, Dkt. No. 72.

17 The plain language of the Magistrate Judge’s scheduling order makes clear that he
18 considered Apple a party “opposing a claim of patent infringement” and made a specific
19 scheduling determination to allow Apple to amend its Invalidity Contentions as of right up
20 and until January 11, 2018, the date of completion of claim construction discovery.
21 Notably, the Magistrate Judge’s Order recognized that Qualcomm was not claiming
22 infringement, and yet the Scheduling Order still included a date for a party—which can
23 only be Apple under any plain reading—to file as of right Amended Invalidity Contentions.
24 Under any common sense interpretation of the scheduling order, it is apparent that the
25 Magistrate Judge was allowing for a slight alteration in the Patent Local Rules to take into
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1 account the procedural posture of the case.²⁸ This interpretation is confirmed by a review
2 of the Patent Local Rules template wherein the Magistrate Judge removed the deadline for
3 filing as of right Amended Infringement Contentions under Local Rule 3.6(a), but retained
4 the deadline for filing as of right Amended Invalidity contentions. *See* Dkt. No. 117 ¶¶ 5-
5 7.

6 This Court’s prior ruling in *Zest IP Holdings, LLC v. Implant Direct Mfg., LLC*, No.
7 10CV0541-GPC-WVG, 2013 WL 5674834, at *7 (S.D. Cal. Oct. 16, 2013) is inapposite.
8 In *Zest*, the Court considered a *motion* to file amended infringement contentions *after* the
9 deadline for “matter of right” amendment deadline had already passed. There, the Court
10 held that the addition of thirty prior art references would have resulted in undue prejudice
11 to *Zest*, though the Court granted the motion to amend invalidity contentions as to a single
12 prior art reference. Local Rule 3.6(b) states: “As a matter of right, a party opposing a claim
13 of infringement may serve ‘Amended Invalidity Contentions’ no later than the completion
14 of claim construction discovery. Thereafter, absent undue prejudice to the opposing party,
15 a party opposing infringement may only amend its invalidity contentions . . .” Here, Apple
16 served their amended contentions by the date of completion of claim construction
17 discovery. Accordingly, *Zest* is irrelevant to the instant question because Apple—under a
18 plain reading of the scheduling order—was still within its period to file “matter of right”
19 Amended Invalidity Contentions.

20 Qualcomm has also waited too long to challenge the scheduling order’s ambiguous
21 provision. Qualcomm was on full notice of the scheduling order as of August 18, 2017
22 and never challenged the scheduling order or sought clarification of the ambiguous
23 paragraph. For example, Qualcomm could have submitted an inquiry to Magistrate Judge
24 Dembin to clarify the scope of the scheduling order. Pertinently, Qualcomm had more than
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26 ²⁸ Nothing in this Order should be read to hold that a party seeking a declaratory judgment in the Southern
27 District of California will always be considered a party “opposing a claim of patent infringement” entitled
28 to an amendment as of right. This Order is limited to a specific ambiguity in the Scheduling Order issued
in this case.

1 five months to submit a request for clarification or a challenge to the Scheduling Order.
2 Even if Qualcomm had not carefully parsed through the nuances of the scheduling order,
3 it certainly was on notice as of January 3, 2018 (the date Apple served their first Amended
4 Invalidity Contentions), that Apple believed it had an “as of right” amendment right based
5 on the scheduling order. Yet, no motion for clarification or motion to strike was filed at
6 that time.

7 Further, Qualcomm has not shown diligence in challenging any transgression by
8 Apple. It was served with the Second Amended Invalidity Contentions on January 11,
9 2018, and yet did not file a Motion to Strike these Contentions until February 14, 2018,
10 more than a month after Apple’s document was served. *See* Dkt. No. 331.

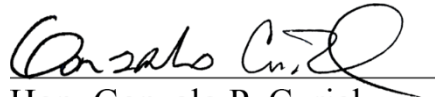
11 Next, Qualcomm further contends that the Amended Invalidity Contentions are
12 deficient under the Patent Local Rules by failing to sufficiently explain their asserted
13 grounds of indefiniteness and lack of written description under Patent Local Rule 3.3(d).
14 Courts have held that the level of detail required for invalidity contentions is lower than
15 that required for a claim of obviousness but still must “give the other party enough notice
16 that it can engage in full, timely discovery and litigate its case.” *Medimmune LLC v. PDL*
17 *Biopharma, Inc.*, No. C-08-5590, 2010 WL 760443, at *3 (N.D. Cal. Mar. 4, 2010).
18 Apple’s First Amended Invalidity Contentions presented sufficiently adequate contentions
19 to provide Qualcomm with notice of its theories of invalidity. *See, e.g.*, Ex. B at 143-44
20 (describing indefiniteness theory based on failure to disclose corresponding structures as
21 to ‘630 patent). Moreover, the Court finds that Apple’s Invalidity Contentions provide
22 adequate detail, including through claim charts, concerning the background knowledge of
23 skilled artisans and sufficiently specific reasons as to why skilled artisans would have
24 combined/modified references. These references include nearly 5,000 pages in detailed
25 analysis. *See, e.g.*, Dkt. No. 331-2, Kazi Decl., Ex. C. Apple has provided far more detail
26 in its invalidity contentions than the contentions rejected in *MediaTek Inc. v. Freescale*
27 *Semiconductor, Inc.*, 2014 WL 690161, at *6 (N.D. Cal. Feb. 21, 2014) (invalidity
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1 contentions listed only barebones description of “Indefiniteness, Written
2 Description/Enablement”).

3 Accordingly, the Court will **DENY** Qualcomm’s motion to strike Apple’s First and
4 Second Amended Invalidity Contentions in its entirety.

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6 **IT IS SO ORDERED.**

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8 Dated: May 16, 2018

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10 Hon. Gonzalo P. Curiel
11 United States District Judge
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