IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

INTELLECTUAL VENTURES I LLC, Plaintiff, v. AT&T MOBILITY LLC; AT&T MOBILITY II LLC; NEW CINGULAR WIRELESS SERVICES, INC.; SBC INTERNET SERVICES, INC.; and WAYPORT, INC., Defendants.	:	C.A. No. 12-193-LPS
INTELLECTUAL VENTURES II LLC, Plaintiff, v. AT&T MOBILITY LLC; AT&T MOBILITY II LLC; NEW CINGULAR WIRELESS SERVICES, INC.; SBC INTERNET SERVICES, INC.; and WAYPORT, INC., Defendants.	:	C.A. No. 13-1631-LPS
INTELLECTUAL VENTURES I LLC, Plaintiff, v. T-MOBILE USA, INC.; and T-MOBILE US, INC., Defendants.	:	C.A. No. 13-1632-LPS

INTELLECTUAL VENTURES II LLC, Plaintiff, v. T-MOBILE USA, INC.; and T-MOBILE US, INC., Defendants.	: : : : : : : : : : :	C.A. No. 13-1633-LPS
INTELLECTUAL VENTURES I LLC, Plaintiff, v. NEXTEL OPERATIONS INC.; and SPRINT SPECTRUM LP, Defendants.	: : : : : : : : : : :	C.A. No. 13-1634-LPS
INTELLECTUAL VENTURES II LLC, Plaintiff, v. NEXTEL OPERATIONS INC.; and SPRINT SPECTRUM LP, Defendants.	: : : : : : : : : : :	C.A. No. 13-1635-LPS

INTELLECTUAL VENTURES I LLC, Plaintiff, v. UNITED STATES CELLULAR CORPORATION, Defendant.	: : : : : : : : : :	C.A. No. 13-1636-LPS
INTELLECTUAL VENTURES II LLC, Plaintiff, v. UNITED STATES CELLULAR CORPORATION, Defendant.	: : : : : : : : : :	C.A. No. 13-1637-LPS

MEMORANDUM OPINION

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STARK, U.S. District Judge:

On February 16, 2012, Plaintiffs Intellectual Ventures I LLC ("IV I") and Intellectual Ventures II LLC ("IV II") (collectively, "IV" or "Plaintiffs") filed suit against numerous defendants alleging infringement of various patents. (C.A. No. 12-193-LPS D.I. 1) In an Order dated March 26, 2013, the Court severed the claims brought by Plaintiffs into eight separate actions. (C.A. No. 12-193-LPS D.I. 59)

Pursuant to that Order, on October 1, 2013, the following actions were created: IV I v. AT&T Mobility LLC, AT&T Mobility II LLC, New Cingular Wireless Services, Inc., SBC Internet Services, Inc., and Wayport, Inc. (collectively, "AT&T") (C.A. No. 12-193-LPS); IV II v. AT&T (C.A. No. 13-1631-LPS); IV I v. T-Mobile USA, Inc. and T-Mobile US, Inc. (collectively, "T-Mobile") (C.A. No. 13-1632-LPS); IV II v. T-Mobile (C.A. No. 13-1633-LPS); IV I v. Nextel Operations Inc. and Sprint Spectrum LP (collectively, "Nextel") (C.A. No. 13-1634-LPS); IV II v. Nextel (C.A. No. 13-1635-LPS); IV I v. United States Cellular Corporation (C.A. No. 13-1636-LPS); and IV II v. United States Cellular Corporation (C.A. No. 13-1637-LPS).

Across the related actions, IV asserts sixteen (16) patents: U.S. Patent Nos. 5,790,793 ("the '793 patent"); 6,131,032 ("the '1032 patent"); 6,170,073 ("the '073 patent"); 5,960,032 ("the '0032 patent"); 7,496,674 ("the '674 patent"); 8,078,200 ("the '200 patent"); 7,450,957 ("the '957 patent"); 5,768,509 ("the '509 patent"); 5,557,677 ("the '677 patent"); 6,977,944 ("the '944 patent"); 7,136,392 ("the '392 patent"); 7,343,011 ("the '011 patent"); 5,339,352 ("the '352 patent"); 6,115,737 ("the '737 patent"); RE41,490 ("the '490 patent"); and RE43,306 ("the '306 patent") (collectively, "the patents-in-suit"). "The 16 asserted patents name 24 inventors and

originally were assigned to 11 different entities." (Defs. Resp. Br. at 1)

The parties appear to agree that the patents can be meaningfully categorized into four groups: the Messaging Patents, the Wi-Fi Patents, the Carrier Services Patents, and the Air Interface/Infrastructure Patents. (D.I. 282) The Court has found it somewhat helpful to use these categories. However, in hopes of avoiding future disputes in this case, the Court emphasizes that it is utilizing the parties' general categories, and providing very short descriptions of the general subject matter of each of the patents, solely for reference purposes. The Court does not mean in this portion of the Opinion to be making any statements as to the scope of the patents' claims.

With these caveats, the Court understands the patents to be capable of being categorized and characterized, very generally, as follows:

(1) Messaging patents: these patents relate broadly to sending and receiving text messages, and more specifically:

- (a) '793: multimedia message services ("MMS")
- (b)(c) '957 and '200: transmission of Short Message Service ("SMS") messages
- (d) '509: SMS centers
- (e)(f) '490 and 306: inter-carrier transmission of multimedia messages

(2) Wi-Fi patents: these patents relate broadly to enabling and securing wireless communication, including Wi-Fi technology (i.e., using radio frequencies to transmit data through the air), and more specifically:

- (a) '677: data transmission in fragments
- (b) '944: allowing interoperability among devices

(c) '392: allocating transmission resources over shared communication channel

(d) '011: applying security to wireless local area networks

(3) Carrier services patents: these patents relate broadly to additional services, beyond basic telephone subscriptions, that Defendants offer their customers, and more specifically:

(a) '1032: assistance for law enforcement authorities to lawfully intercept communications

(b) '352: directory assistance for wireless callers

(c) '737: customer contact services over network

(4) Air Interface/Infrastructure patents: these patents relate broadly to when a mobile device user makes a call, and more specifically:

(a) '674: using different security protocols

(b) '073: detecting/responding to errors in wireless transmission of speech data

(c) '0032: direct sequence spread spectrum

Essentially everyone involved in this case has had occasion to comment that its size and complexity are massive even by the standards of contemporary patent litigation. As Defendants write (Defs. Open. Br. at 1), Plaintiffs "asserted 67 claims from 16 patents that cover 14 separate technologies against ten defendants from four separate defendant groups." Plaintiffs acknowledge that "the patented subject matter varies and is fairly complex." (Pls. Open. Br. at 1) The Court has previously remarked, "The complexity of this case is attributable to Plaintiffs'

pleadings (which allege infringement of 16 patents having 14 unique specifications and containing more than 400 claims, implicating 5 technologies)." (D.I. 85)

Presently pending before the Court is the issue of claim construction of various disputed terms in the patents-in-suit. Depending on how one counts, there are as many as ***77 claim terms in dispute***. (Defs. Open. Br. at 1; Defs. Resp. Br. at 1) Consequently, the Court was far more generous than is typical and allowed each side ***600 pages of briefing and five hours of argument*** for claim construction and refrained (at least initially) from limiting the number of disputed claim terms it would construe. (D.I. 244, 262) Given the number and complexity of these disputes, the Court ordered the parties to jointly identify the ten most important claim terms to be construed. (D.I. 244, 247) The Court focuses this Memorandum Opinion on construing those terms the parties so identified and, beyond that, the additional disputed terms the parties argued at the *Markman* hearing. (*See* D.I. 282)[1]

The parties completed briefing on claim construction on September 4, 2014. (C.A. No. 12-193-LPS D.I. 252, 254, 272, 275, 294[2]) The parties also submitted technology tutorials (D.I. 270, 277) and provided expert reports (D.I. 253, 254-2, 273). The Court held a two-day *Markman* hearing on September 10 and 12, 2014. (D.I. 309, 310) (hereinafter, "Tr.")

I. LEGAL STANDARDS

The ultimate question of the proper construction of a patent is a question of law. *Teva*

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[1]The Court will solicit the parties' views on whether any of the remaining claim construction disputes still need judicial resolution, with the hope (if not expectation) that they do not.

[2]For simplicity, in the remainder of this Opinion the Court refers to the "D.I." number in C.A. No. 12-193-LPS, unless otherwise indicated.

Pharm. USA, Inc. v. Sandoz, Inc., 135 S. Ct. 831, 837 (2015) (citing *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 388-91 (1996)). "It is a bedrock principle of patent law that the claims of a patent define the invention to which the patentee is entitled the right to exclude." *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (internal quotation marks omitted). "[T]here is no magic formula or catechism for conducting claim construction." *Phillips*, 415 F.3d at 1324. Instead, the court is free to attach the appropriate weight to appropriate sources "in light of the statutes and policies that inform patent law." *Id.*

"[T]he words of a claim are generally given their ordinary and customary meaning . . . [which is] the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date of the patent application." *Id.* at 1312-13 (internal citations and quotation marks omitted). "[T]he ordinary meaning of a claim term is its meaning to the ordinary artisan after reading the entire patent." *Id.* at 1321 (internal quotation marks omitted). The patent specification "is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term." *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996).

While "the claims themselves provide substantial guidance as to the meaning of particular claim terms," the context of the surrounding words of the claim also must be considered. *Phillips*, 415 F.3d at 1314. Furthermore, "[o]ther claims of the patent in question, both asserted and unasserted, can also be valuable sources of enlightenment . . . [b]ecause claim terms are normally used consistently throughout the patent . . . ." *Id.* (internal citation omitted).

It is likewise true that "[d]ifferences among claims can also be a useful guide . . . . For example, the presence of a dependent claim that adds a particular limitation gives rise to a

presumption that the limitation in question is not present in the independent claim." *Id.* at 1314-15 (internal citation omitted). This "presumption is especially strong when the limitation in dispute is the only meaningful difference between an independent and dependent claim, and one party is urging that the limitation in the dependent claim should be read into the independent claim." *SunRace Roots Enter. Co., Ltd. v. SRAM Corp.*, 336 F.3d 1298, 1303 (Fed. Cir. 2003).

It is also possible that "the specification may reveal a special definition given to a claim term by the patentee that differs from the meaning it would otherwise possess. In such cases, the inventor's lexicography governs." *Phillips*, 415 F.3d at 1316. It bears emphasis that "[e]ven when the specification describes only a single embodiment, the claims of the patent will not be read restrictively unless the patentee has demonstrated a clear intention to limit the claim scope using words or expressions of manifest exclusion or restriction." *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 906 (Fed. Cir. 2004) (internal quotation marks omitted), *aff'd*, 481 F.3d 1371 (Fed. Cir. 2007).

In addition to the specification, a court "should also consider the patent's prosecution history, if it is in evidence." *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 980 (Fed. Cir. 1995), *aff'd*, 517 U.S. 370 (1996). The prosecution history, which is "intrinsic evidence," "consists of the complete record of the proceedings before the PTO [Patent and Trademark Office] and includes the prior art cited during the examination of the patent." *Phillips*, 415 F.3d at 1317. "[T]he prosecution history can often inform the meaning of the claim language by demonstrating how the inventor understood the invention and whether the inventor limited the invention in the course of prosecution, making the claim scope narrower than it would otherwise be." *Id.*

In some cases, "the district court will need to look beyond the patent's intrinsic evidence and to consult extrinsic evidence in order to understand, for example, the background science or the meaning of a term in the relevant art during the relevant time period." *Teva*, 135 S. Ct. at 841. Extrinsic evidence "consists of all evidence external to the patent and prosecution history, including expert and inventor testimony, dictionaries, and learned treatises." *Markman*, 52 F.3d at 980. For instance, technical dictionaries can assist the court in determining the meaning of a term to those of skill in the relevant art because such dictionaries "endeavor to collect the accepted meanings of terms used in various fields of science and technology." *Phillips*, 415 F.3d at 1318. In addition, expert testimony can be useful "to ensure that the court's understanding of the technical aspects of the patent is consistent with that of a person of ordinary skill in the art, or to establish that a particular term in the patent or the prior art has a particular meaning in the pertinent field." *Id.* Nonetheless, courts must not lose sight of the fact that "expert reports and testimony [are] generated at the time of and for the purpose of litigation and thus can suffer from bias that is not present in intrinsic evidence." *Id.* Overall, while extrinsic evidence "may be useful" to the court, it is "less reliable" than intrinsic evidence, and its consideration "is unlikely to result in a reliable interpretation of patent claim scope unless considered in the context of the intrinsic evidence." *Id.* at 1318-19. Where the intrinsic record unambiguously describes the scope of the patented invention, reliance on any extrinsic evidence is improper. *See Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1308 (Fed. Cir. 1999) (citing *Vitronics*, 90 F.3d at 1583).

Finally, "[t]he construction that stays true to the claim language and most naturally aligns with the patent's description of the invention will be, in the end, the correct construction."

Renishaw PLC v. Marposs Societa' per Azioni, 158 F.3d 1243, 1250 (Fed. Cir. 1998). It follows that "a claim interpretation that would exclude the inventor's device is rarely the correct interpretation." *Osram GmbH v. Int'l Trade Comm'n*, 505 F.3d 1351, 1358 (Fed. Cir. 2007).

II. CONSTRUCTION OF DISPUTED TERMS

1. "message" ['793 patent, claims 1, 4, 19, 40, 41, 44]

IV's Proposed Construction	Defendants' Proposed Construction
Plain or Ordinary Meaning. No Construction Necessary.[3] In the alternative: "information or data that may be transmitted from one place to another"	"Internet electronic mail"
Court's Construction: "information or data that may be transmitted from one place to another"	

The parties dispute whether "message" is limited to "Internet electronic mail." It is undisputed that the plain and ordinary meaning of the term "message" as it appears in Claim 1 is not limited to e-mail transmitted over the Internet. Furthermore, Claims 6 and 9 give rise to the presumption that Claim 1's steps involving "a message" are not limited to creating "***electronic mail*** messages" ('793 patent at 9:42-44) (emphasis added) and transmitting them "***over the Internet***" (*id.* at 9:55-58) (emphasis added). Defendants point to no place in the specification that expressly contradicts the claim language's broad meaning, relying instead on the contention that the patentee implicitly redefined the term through reference to the "present invention." The

[3]Throughout this Opinion, unless the Court indicates that "no construction is necessary" or that it is adopting the "plain and ordinary meaning," the Court has determined that the parties have raised an actual dispute regarding the proper scope of the claims, which the Court must resolve by claim construction. *See O2 Micro Int'l Ltd. v. Beyond Innovation Tech. Co., Ltd.*, 521 F.3d 1351, 1360 (Fed. Cir. 2008).

passages cited by Defendants often describe the "present invention" as relating to the context in which it arose – i.e. "sending and receiving Uniform Resource Locators (URLs) in electronic mail over the Internet." (*See id.* at Abstract; *see also id.* at 1:8-14; 3:28-34 ("The invention is ***more particularly*** related to applying these methods and systems to Internet electronic mail and a multimedia browser.") (emphasis added)) However, Defendants have not pointed to evidence in the specification that makes clear the inventive concept underlying the patentee's claimed invention somehow depends on Internet based electronic mail only. Moreover, the remainder of the specification expressly contemplates other types of messages. (*See, e.g.*, *id.* at 3:6-7 ("[T]he invention is ***not*** limited to the Internet as the network or medium by or through which these methods and systems are used.") (emphasis added); *id.* at 5:22-26; Figure 4 (depicting step of receiving or transmitting message "via electronic mail or ***other server***") (emphasis added)) "While clear language characterizing 'the present invention' may limit the ordinary meaning of claim terms, such language must be read in context of the entire specification and the prosecution history." *Rambus Inc. v. Infineon Technologies Ag*, 318 F.3d 1081, 1094 (Fed. Cir. 2003) (internal citations omitted). Here, the references do not amount to either a clear and ambiguous disavowal of claim scope nor a situation in which the patentee clearly redefined the term by implication.[4]

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[4]Defendants' arguments relying on the specification are not entirely unfounded, but do not overcome the clear breadth of claim language, which Defendants largely ignore. Defendants' arguments here more closely resemble an argument for patent invalidity due to inadequate written description under § 112, ¶ 1, where the inventor claimed more than he invented as evidenced by the disclosure in the specification. *See Ariad Pharm., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010) (stating inquiry turns on "whether the disclosure of the application relied upon reasonably conveys to those skilled in the art that the inventor had possession of the claimed subject matter as of the filing date"). Issues relating to the validity of the patents-in-suit may need to be addressed at a subsequent point in this litigation.

Finding IV's alternative construction supported by the plain language of the claims and the specification, the Court adopts its construction.

2. (a) "reference to a predetermined location" ['793 patent, claims 1, 4, 41]

(b) "address to a predetermined location" ['793 patent, claim 19]

IV's Proposed Construction	**Defendants' Proposed Construction**
Plain or Ordinary Meaning. No Construction Necessary. In the alternative: "reference to a particular location that is predetermined"	"pointer to an Internet site containing information to be retrieved"
Court's Construction: "reference to a particular location that is predetermined"	

The parties dispute whether the "reference"/"address" must be (i) "a pointer" to (ii) "an Internet site." There is no evidence in either the claims or the specification that suggests the terms "reference" and "address" as used in the claims would be understood by a person of ordinary skill as meaning "pointer." While the specification describes a "URL type message" as being "essentially a pointer to another location or address on the Internet" ('793 patent at 5:27-30), there is no evidence limiting the disputed terms to this single embodiment. *See Kara Tech. Inc. v. Stamps.com Inc.*, 582 F.3d 1341, 1348 (Fed. Cir. 2009) ("The patentee is entitled to the full scope of his claims, and we will not limit him to his preferred embodiment or import a limitation from the specification into the claim."). Furthermore, the evidence relied on in support of limiting the reference to a pointer to "an Internet site" either does not actually support that proposition (*see, e.g.*, '793 patent at 3:21-34 (describing "site on the ***network***") (emphasis added)), merely recites an advantage or feature of a particular embodiment (*see id.*), or simply rehashes the prior dispute over whether the "present invention" is limited to the Internet. For the

reasons stated in connection with construction of the preceding "message" term, the Court concludes the invention is not so limited.[5]

Finding IV's alternative construction supported by the plain language of the claims, the Court adopts its construction.

3. "format which indicates that a type of the message is of a format which contains an address" ['793 patent, claim 19]

IV's Proposed Construction	Defendants' Proposed Construction
Plain or Ordinary Meaning. No Construction Necessary. In the alternative: "an arrangement of information or data including any one or more of syntax, header, or content indicating that the message includes an address"	"html"
Court's Construction: "an arrangement of information or data including any one or more of syntax, header, or content indicating that the message includes an address"	

The parties dispute whether the term "format" is limited to "html." The broad language

[5]Recognizing that their argument for this term expressly contemplates § 112, ¶ 1, Defendants argue "without something more, the '793 patent cannot provide an adequate written description, or enablement, for a patent claim that is construed so broadly as to comprise any network that is not the Internet." (Defs. Resp. Br. at 22) Such arguments are inapposite here. At claim construction, the maxim that "claims should be construed to preserve their validity" is "limited to cases in which the court concludes, after applying all the available tools of claim construction, that the claim is still ambiguous." *Pfizer, Inc. v. Teva Pharm., USA, Inc.*, 429 F.3d 1364, 1376 (Fed. Cir. 2005). There is no such ambiguity here. Defendants' reliance on *Kinetic Concepts, Inc. v. Blue Sky Med. Grp.*, 554 F.3d 1010, 1019 (Fed. Cir. 2009), to support the relevance of these § 112, ¶ 1 arguments, is unavailing. There, in refusing to adopt a construction that would "expand the scope of the claim far beyond anything described in the specification," *Kinetic Concepts* did not base its ruling on either § 112, ¶ 1 written description or enablement. *See id.* at 1018-19 (finding plain and ordinary meaning to person of ordinary skill limited, since "all examples in the specification involve skin wounds" and neither specification nor prosecution history expressly or implicitly indicated patentee intended to cover more than plain meaning).

of Claim 19's "encoding" step requires only that a message be encoded into "a format" which indicates that a message of that type (i) "is of a format which contains an address to a predetermined location" and (ii) "contains the address to the predetermined location without including data corresponding to the predetermined location." (*Id.* at 10:48-52) The specification indicates that while html is one preferred embodiment of such a message, there are other messages – specifically "message type URL" – capable of having a format that indicates it is a message type that both has an address and contains an address without the data corresponding to that predetermined location. (*Id.* at 5:21-26; 5:38-41 ("Step 408 may determine the message type 'URL' simply by looking at a header in the message or may scan the message for specific syntax which indicates the message type.")) Accordingly, IV's alternative construction is best supported by the intrinsic record and the Court adopts it.

4. **(a) "receiving said short message at a first network node and screening said short message to determine if said short message is forwardable" ['957 patent, claim 1]**

(b) "receiving said short message at said second network node and screening said short message based at least in part on a set of criteria" ['957 patent, claim 1]

(c) "the SMS message has been screened" ['200 patent, claim 16]

(d) "determining if the SMS message is allowed to be forwarded" ['200 patent, claim 16]

IV's Proposed Construction	**Defendants' Proposed Construction**
(a) "at a first network node, receiving and checking the short message, as to whether it is among those not authorized or permitted, based on: (1) the particular numerical space or intended destination address; and/or (2) a specific search word and/or specified textual information content; and/or (3) originating subscriber information such as a message originating telephone number"	(a) "at a first network node, receiving and checking the short message, as to whether it is among those not authorized or permitted, based on (1) the particular numerical space or intended destination address, or (2) a specific search word and/or specified textual information content"
(b) "at the second network node, [remainder same as term (a) above]"	(b) "at the second network node, [remainder same as term (a) above]"
(c) "checking the SMS message, as to whether it is among those not authorized or permitted, based on: (1) the particular numerical space or intended destination address; and/or (2) a specific search word and/or specified textual information content; and/or (3) originating subscriber information such as a message originating telephone number"	(c) "the SMS message has been checked, as to whether it is among those not authorized or permitted, based on (1) the particular numerical space or intended destination address, or (2) a specific search word and/or specified textual information content"
(d) [same as term (c) above]	(d) "at the second node, checking the SMS message, as to whether [remainder same as term (c) above]"

Court's Construction:
(a) "receiving and checking the short message, as to whether it is among those not authorized or permitted, based on: (1) the particular numerical space or intended destination address; and/or (2) a specific search word and/or specified textual information content; and/or (3) originating subscriber information such as a message originating telephone number"

(b) "at the second network node, receiving and checking the short message, as to whether it is among those not authorized or permitted, based on: (1) the particular numerical space or intended destination address; and/or (2) a specific search word and/or specified textual information content; and/or (3) originating subscriber information such as a message originating telephone number"

(c) "checking the SMS message, as to whether it is among those not authorized or permitted, based on: (1) the particular numerical space or intended destination address; and/or (2) a specific search word and/or specified textual information content; and/or (3) originating subscriber information such as a message originating telephone number"

(d) same as (c) directly above.

The parties agree that independent Claim 1 of the '957 patent and independent Claim 16 of the '200 patent both recite two steps in which a short message/SMS message is screened at a first node before being sent to a second node, and then screened again – in both circumstances to determining whether a message is "forwardable." The Court agrees with Plaintiffs further that the claim language does not limit the "screening"/"determining if forwardable" step such that it must be based on either (1) "the particular numerical space or intended destination address," or (2) "a specific search word and/or specified textual information content." To hold otherwise would impermissibly limit the claims to a preferred embodiment. (*See* '957 patent at 5:10-13 ("The first checking condition may, by way of preferred example, determine whether the intended destination number or address of the short message is among or within a predetermined numerical address space or range."), 15-16, 21-25; '200 patent at 5:17-20, 20-25, 28-32) Hence, the Court adopts IV's construction.

5. "predetermined criterion is present in the SMS message" ['200 patent, claim 1]

IV's Proposed Construction	Defendants' Proposed Construction
"a predefined search word or phrase, and/or a numerical space or intended destination address, and/or originating subscriber information such as a message-originating telephone number, is present in any part of the SMS message"	"a predefined search word or phrase is present within the contents of the SMS message text"
Court's Construction: "a predefined search word or phrase, and/or a numerical space or intended destination address, and/or originating subscriber information such as a message-originating telephone number, is present in any part of the SMS message"	

The parties dispute (i) whether "predetermined criterion" includes "a numerical space or intended destination address" as well as "originating subscriber information" – the two embodiments disclosed in the specification – and (ii) whether the claim term is limited to what is contained in the text of the message. In keeping with the broad language in Claim 1, the specification provides ample support for reading the "predetermined criterion" term to cover both of these embodiments. (*See, e.g.*, '200 patent at 2:18-23 ("It is a particular object of the invention to provide a method and system that permits the selective blocking of transmission of short messages that are addressed to a particular numerical space or intended destination address, or which contain a specific search word and/or specified textual information content."); *see also id.* at 3:7-27, 6:13-20, 6:59-7:3, 7:25-34) As for the prosecution history, applicant distinguished the Donovan reference (which taught ***determining eligibility*** of a destination number to receive certain types of messages) and the Mukherjee reference (which taught determining whether the origin number was ***authorized to access the multipoint SMS message feature*** to transmit a message to a special pre-defined group) on the basis that these references neither (1) "analyze the

SMS message to determine if a predetermined criterion is present" nor (2) "block transmission of the SMS message" if that criterion is present. (*See* D.I. 231, 232 (collectively, Joint Claim Construction Chart) ("JCCC") Ex. CC at 12-13) Contrary to Defendants' interpretation, these statements do not amount to a clear disavowal of claim scope limiting the claim to only what is contained within ***the text*** of the SMS message.

6. "blocking transmission of the SMS message" ['200 patent, claim 1]

IV's Proposed Construction	**Defendants' Proposed Construction**
"preventing further transmission of the SMS message"	"intentionally preventing or delaying further transmission of the SMS message"
Court's Construction: "making a decision to prevent or delay further transmission of the SMS message and doing so"	

It is undisputed that "blocking" cannot occur unintentionally (e.g., due to a glitch, an error, a slow down in processing because of limits of the electronic components, etc.) and that a decision to block must affirmatively be made. (Tr. at 84) (Plaintiffs: "[Y]ou have to have a computer program that makes a decision and then blocks.") The claim language of Claim 1 itself requires only blocking of some duration – it does not require that the message must be permanently blocked, nor does it set a minimum period of required delay. (*See also* '957 patent at 7:58-61) ("[T]he blocking service . . . may store a message for later or delayed delivery.")[6] Therefore, the Court construes the term to mean "making a decision to prevent or delay further transmission of the SMS message and doing so."

[6]Once a claim term is defined with "whatever ***specificity and precision is warranted*** by the language of the claim and the evidence . . . the task of determining whether the construed claim reads on the accused product is for the finder of fact." *See PPG Indus. v. Guardian Indus. Corp.*, 156 F.3d 1351, 1355 (Fed. Cir. 1998) (emphasis added).

7. "location information and return code information" ['509 patent, claims 1, 10]

IV's Proposed Construction	Defendants' Proposed Construction
"information indicating the last known location of the destination and information indicating whether the destination is valid and/or authorized"	"data in a field which provides the last known location of the destination, and data in a separate field which indicates whether the destination is valid and authorized"
Court's Construction: "(1) information indicating the last known location of the destination and (2) information indicating whether the destination is valid and authorized"	

The parties dispute whether Claims 1 and 10 require that "location information" and "return code information" be located in two separate fields. Both the claims and specification establish that "location information" and "return code information" are distinct pieces of information, and are conjunctively required in order to satisfy the claim limitation. (*See* '509 patent at 6:14-18 (Claim 2), 7:1-5 (Claim 11) (discussing "return code information" by itself); *id.* at 1:53-56, 1:61-64 ("the SMS[C] checks its database to determine whether the short message destination is ***valid and authorized*** to receive the short message" and "the SMS[C] then initiates routing queries . . . to the home location register (HLR) about the ***location*** of the destined subscriber") (emphasis added)) However, nothing in the intrinsic record suggests that these pieces of information must be contained in separate fields. Accordingly, the Court declines the invitation to rely on a dictionary definition[7] to find such a requirement, especially given the likelihood that doing so would improperly read in a limitation from the specification (*see id.* at

[7]Defendants ask the Court to rely on extrinsic evidence alone to define the term "field." (*See* Defs. Open. Br. Ex. '509-1 (NEWTON'S TELECOM DICTIONARY (8th ed. 1994)) at 442-3) (defining "field" to mean: "The specific location to data within a record . . . . The record on you in your company's database might include your name, your address, your salary, etc. A field is simply one of these – e.g. your salary, your last name, or your street address.")

4:31-61). *See Phillips*, 415 F.3d at 1320 ("[O]ne of the cardinal sins of patent law [is] reading a limitation from the written description into the claims.").

8. "multimedia message" ['490 patent, claims 17, 20; '306 patent, claims 17, 18]

IV's Proposed Construction	**Defendants' Proposed Construction**
Plain or Ordinary Meaning. No Construction Necessary. In the alternative: "a message that is capable of including two or more different media components or content, such as an image, voice, text and/or graphics, and address information"	"a message that contains two or more different media components or content, such as an image, voice, text and/or graphics"
Court's Construction: "a message that contains two or more different media components or content, such as an image, voice, text and/or graphics"	

The parties dispute (1) whether the message must contain, or merely be capable of containing, "two or more different media components or content," and (2) whether "address information" should be included as an example of "media components or content." As evidenced by the specifications of the reissue patents, the patentee acted as his own lexicographer in expressly defining "multimedia message." (*See* '490 patent at 2:18-21; '306 patent at 2:22-25) ("As used herein, the term 'multimedia message' is intended to denote a message which advantageously consists of or includes a plurality of different media components or content, such as an image, voice, text and/or graphics.") In doing so, the patentee expressly defined the term "multimedia message" to contain (i.e., "consist[] of or include[]") at least two different media components, and not merely be capable of doing so. Moreover, nothing in the patentee's express definition supports inserting "address information" into this term. *See CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002) ("[P]atentee acted as his own

lexicographer and clearly set forth a definition of the disputed claim term in either the specification or prosecution history"); *Abbott Labs. v. Andrx Pharms., Inc.*, 473 F.3d 1196, 1210 (Fed. Cir. 2007) (finding patentee, by invoking "as used herein" language, "unambiguously provide[d] definitions" for terms at issue); *see also, e.g.*, *Chiron Corp. v. Genentech, Inc.*, 363 F.3d 1247, 1258 (Fed. Cir. 2004).

9. "processor means for [1] receiving ... [2] forwarding ... [3] generating ... [4] receiving ... [5] retrieving ... and [6] sending ..." ['509 patent, claim 1]

IV's Proposed Construction	**Defendants' Proposed Construction**
Not a means-plus-function term, as the claim language itself provides the necessary structure or algorithm. As such: Plain or Ordinary Meaning. No Construction Necessary. Alternatively, if this is a means-plus-function limitation under § 112, ¶ 6:	Means-plus-function limitation under § 112, ¶ 6

Functions: [1] "receiving a properly formatted request for transmission of a short message from an originator, said properly formatted request including a destination and a short message," [2] "forwarding all short messages of all properly formatted requests to said memory means regardless of whether or not the destination of the message is to an authorized subscriber," [3] "generating a routing information request to the HLR in response to a properly formatted request," [4] "receiving a routing response from the HLR having location information and return code information," [5] "retrieving said short message from said memory means," and [6] "sending said short message to an MSC based on said location information when said destination is valid and authorized" Construction: Plain or Ordinary Meaning. No Construction Necessary. Corresponding structure (generally): A server, network element, personal computer, and/or workstation. *See* 3:29-4:3, Fig. 3; *see also* steps for performing the functions disclosed above, described at 3:22-4:61. Corresponding structure for [1]: An algorithm that includes receiving a properly formatted request for transmission of a short message from an originator, said properly formatted request including a destination and a short message, sending an acknowledgment (ACK) to the originator of the request for	Functions: [1] "receiving a properly formatted request for transmission of a short message from an originator, said properly formatted request including a destination and a short message," [2] "forwarding all short messages of all properly formatted requests to said memory means regardless of whether or not the destination of the message is to an authorized subscriber," [3] "generating a routing information request to the HLR in response to a properly formatted request" (construed as "generating a routing information request to the HLR in response to each properly formatted request that was forwarded to the memory means"), [4] "receiving a routing response from the HLR having location information and return code information," [5] "retrieving said short message from said memory means," and [6] "sending said short message to an MSC based on said location information when said destination is valid and authorized" Structure: Indefinite for lack of algorithm

message in memory block (SM-SC) along with proper identification, regardless of whether or not the destination of the message is to an authorized subscriber. *See* 4:4-15; *see also* 3:29-4:3, 5:64-6:13, Fig. 3. Corresponding structure for [3]: An algorithm that includes generating a TCAP routing information request (TCAP Send_Routing_ Info_For_SM) to the HLR preferably utilizing specifications GSM03.04 and GSM09-02, the routing information request including, inter alia, a destination number (as provided by the originator in the original request), an origination number (i.e., the number or point code of the SMS), a priority field, and a teleservice field (which sets forth the purpose of the query). *See* 4:15-27; *see also* 3:29-4:3, 5:64-6:13, Fig. 3. Corresponding structure for [4]: An algorithm including receiving a routing response from the HLR, which includes a location field for the destination as well as a return code field; the data in the destination field thereby providing the SMS with the last known location of the destination and thereby dictating to which MSC the SMS will forward the short message (if valid); the return code field, on the other hand, indicating whether the message is valid. The return code field may include various error codes such as illegal subscriber (E_Illegal_Sub), and absent subscriber (E_Absent_Sub). *See* 4:33-52; *see also* 3:29-4:3, 5:64-6:13, Fig. 3. Corresponding structure for [5] and [6]: An algorithm including receiving the routing response and, if the return code indicates an error such as the destination not being valid or authorized, sending an error message to the originator of the short message and	

indicates that the destination is valid and authorized, sending the short message to the MSC indicated by the location field. In response to sending the short message, the MSC responds to the SMS, and the SMS sends a report of delivery status to the HLR. *See* 4:47-61; *see also* 3:29-4:3, Fig. 3.	

Court's Construction:

Means-plus-function limitation under § 112, ¶ 6

Functions:
[1] "receiving a properly formatted request for transmission of a short message from an originator, said properly formatted request including a destination and a short message,"

[2] "forwarding all short messages of all properly formatted requests to said memory means regardless of whether or not the destination of the message is to an authorized subscriber,"

[3] "generating a routing information request to the HLR in response to a properly formatted request,"

[4] "receiving a routing response from the HLR having location information and return code information,"

[5] "retrieving said short message from said memory means," and

[6] "sending said short message to an MSC based on said location information when said destination is valid and authorized"

Structure:
[1]: "An algorithm that includes receiving a properly formatted request for transmission of a short message from an originator, said properly formatted request including a destination and a short message, sending an acknowledgment (ACK) to the originator of the request for transmission. *See* 4:4-15, *see also* 3:29-4:3, 5:64-6:13, Figs. 2, 3,"

[2] "An algorithm that includes receiving a properly formatted request for transmission of a short message, accepting said request, and storing the short message in memory block (SM-SC) along with proper identification, regardless of whether or not the destination of the message is to an authorized subscriber. *See* 4:4-15; *see also* 3:29-4:3, 5:64-6:13, Fig. 3,"

[3] "An algorithm that includes generating a TCAP routing information request (TCAP Send_Routing_ Info_For_SM) to the HLR preferably utilizing specifications GSM03.04 and GSM09-02, the routing information request including, inter alia, a destination number (as provided by the originator in the original request), an origination number (i.e., the number or point code of the SMS), a priority field, and a teleservice field (which sets forth the purpose of the query). *See* 4:15-27; *see also* 3:29-4:3, 5:64-6:13, Fig. 3,"

[4] "An algorithm including receiving a routing response from the HLR, which includes a location field for the destination as well as a return code field; the data in the destination field

> thereby providing the SMS with the last known location of the destination and thereby dictating to which MSC the SMS will forward the short message (if valid); the return code field, on the other hand, indicating whether the message is valid. The return code field may include various error codes such as illegal subscriber (E_Illegal_Sub), and absent subscriber (E_Absent_Sub). *See* 4:33-52; *see also* 3:29-4:3, 5:64-6:13, Fig. 3," and
>
> [5] and [6] "An algorithm including receiving the routing response and, if the return code indicates an error such as the destination not being valid or authorized, sending an error message to the originator of the short message and eliminating the message from the memory block. If, on the other hand, the return code indicates that the destination is valid and authorized, sending the short message to the MSC indicated by the location field. In response to sending the short message, the MSC responds to the SMS, and the SMS sends a report of delivery status to the HLR. *See* 4:47-61; *see also* 3:29-4:3, Fig. 3."

The claims recite the word "means," raising a presumption the claim limitation is governed by 35 U.S.C. § 112, ¶ 6. (*See* '509 patent at 5:63) The language of Claim 1 recites a "processor means" for performing six individual functions. IV advances a theory that these somehow amount to a "complete algorithm" such that the presumption collapses because the claims recite sufficient structure to perform the claimed function. Yet IV fails even to identify a claimed function that this purported algorithm performs and relies chiefly on conclusory statements by its expert. (*See* D.I. 273 Ex. 41, Declaration of Tim Williams ("Williams Decl.") at ¶ 23) IV has failed to rebut the presumption by a preponderance of the evidence. Hence, § 112, ¶ 6 controls.

Under the required § 112, ¶ 6 analysis, the parties agree on the claimed functions. The parties dispute whether the specification discloses sufficient corresponding structure through each algorithm, or whether it fails to do so such that the claim is therefore invalid as indefinite.

"A structure disclosed in the specification qualifies as a 'corresponding structure' if the specification or the prosecution history 'clearly links or associates that structure to the function recited in the claim.'" *Noah Sys., Inc. v. Intuit Inc.*, 675 F.3d 1302, 1311 (Fed. Cir. 2012)

(quoting *B. Braun Med., Inc. v. Abbott Labs.*, 124 F.3d 1419, 1424 (Fed. Cir. 1997)). A means-plus-function element is indefinite "if a person of ordinary skill in the art would be unable to recognize the structure in the specification and associate it with the corresponding function in the claim." *Id.* at 1312 (internal quotation marks omitted). In cases involving a special purpose computer-implemented means-plus-function limitation, the structure disclosed by the specification must be "an algorithm for performing the claimed function." *Id.* The specification can disclose an algorithm "in any understandable terms including as a mathematical formula, in prose, or as a flow chart, or in any other manner that provides sufficient structure." *Id.* (internal quotation marks omitted); *see also Typhoon Touch Techs., Inc. v. Dell, Inc.*, 659 F.3d 1376, 1384-85 (Fed. Cir. 2011) (defining algorithm broadly as "a step-by-step procedure for solving a problem" or "accomplishing a given result"). The patentee is not "required to produce a listing of source code or a highly detailed description of the algorithm to be used to achieve the claimed functions in order to satisfy 35 U.S.C. § 112 ¶ 6." *Aristocrat Techs. Austl. Pty Ltd. v. Int'l Game Tech.*, 521 F.3d 1328, 1338 (Fed. Cir. 2008). Instead, "the patent need only disclose sufficient structure for a person of skill in the field to provide an operative software program for the specified function." *Typhoon,* 659 F.3d at 1385. "[T]he amount of detail that must be included in the specification depends on the subject matter that is described and its role in the invention as a whole, in view of the existing knowledge in the field of the invention." *Id.*

For five of the six functions, Defendants challenge the sufficiency of the structure disclosed by each algorithm. For each algorithm, IV has pointed to specific portions of the specification disclosing a basic step or steps for performing the function, each of which are disclosed with reference to certain protocols existing at the pertinent time. (*See* '509 patent at

3:29-4:3 (discussing prior art GSM standards); *see also id.* at 1:26-31 ("Detailed technical specifications (standards) such as GSM Technical Specifications 03.40 and 09.02 (which are hereby incorporated by reference herein in their entireties) are available which define many of the protocols and functionalities regarding short message servers.")) Read in the context of Figure 3 and the accompanying discussion, the specification clearly links the very basic steps – accomplished using the referenced GSM protocols – with each of the claimed functions. (*See* '509 patent at 4:4-15 (for "receiving a properly formatted request" algorithm); 4:4-15 (for "forwarding" algorithm); 4-15-27 (for "generating" algorithm); 4:33-52 (for "receiving a routing request" algorithm); 4:47-61 (for "retrieving" and "sending" algorithms))

What remains disputed is the adequacy of that algorithmic structure. Both sides provided expert declarations giving some explanation as to how a person of ordinary skill might understand the structure imparted by these protocols – specifically, for algorithms concerning two of the claimed functions. (*See, e.g.*, Defs. Open. Br. Ex. 509-2, Declaration of Randall A. Synder ("Synder Decl.") ¶¶ 26-62) (discussing purported algorithms for "generating" and "sending" functions) Defendants are correct that "the testimony of one of ordinary skill in the art cannot supplant the total absence of structure from the specification," *Noah Sys.*, 675 F.3d at 1312 (internal quotation marks omitted). Here, however, rather than there being a total absence of structure, there is a finer factual dispute about the ***extent of the structure*** these existing GSM protocols disclose to a person of ordinary skill. At present, the intrinsic evidence does not answer that question and the limited expert testimony in the record does not resolve the inquiry.[8]

[8]Insofar as Defendants' expert addresses the algorithms performing the "generating" and "sending" functions, he discusses some of the GSM standards and then takes the position that the

Therefore, while there remains some doubt as to whether references to these specific protocols disclose sufficient structure, Defendants have failed to show by clear and convincing evidence that these disclosures would not allow a person of ordinary skill in the art to implement an operative software program for the specified function. *See Budde v. Harley-Davidson, Inc.*, 250 F.3d 1369, 1380-81 (Fed. Cir. 2001) ("The party alleging that the specification fails to disclose sufficient corresponding structure must make that showing by clear and convincing evidence.") (internal citation omitted).

Separately, Defendants suggest that IV may not rely on the GSM standards or other protocols referenced in the specification whatsoever because, in Defendants' view, *Atmel Corp. v. Info. Storage Devices, Inc.*, 198 F.3d 1374, 1382 (Fed. Cir. 1999), and its progeny stand for the blanket proposition that "incorporations by reference" cannot disclose corresponding structure. Defendants' attempt to liken industry protocols cited in the specification to instances where the specification discloses nothing more than bald titles of prior art references – and the patentee

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algorithms do not expressly "recite any sequence of computational steps." (Synder Decl. ¶ 32) He reaches this conclusory statement without explaining in any way why the GSM standard components do not impose such an exacting sequence. Even if the Court assumes these GSM standards do not provide an express, linear sequence of steps to be mechanically followed without any room for a choice, that does not end the inquiry. Indeed, "[f]or a claim to be definite, a recited algorithm, or other type of structure for a section 112(f) claim limitation, need not be so particularized as to eliminate the need for any implementation choices by a skilled artisan; but it must be sufficiently defined to render the bounds of the claim – declared by section 112(f) to cover the particular structure and its equivalents – understandable by the implementer." *Ibormeith IP, LLC v. Mercedes-Benz USA, LLC*, 732 F.3d 1376, 1379 (Fed. Cir. 2013) (citing *AllVoice Computing PLC v. Nuance Commc'ns, Inc.*, 504 F.3d 1236, 1245-46 (Fed. Cir. 2007)). Defendant's expert provides a single conclusory sentence at the beginning of his opinion about what a person of ordinary skill would understand and then proceeds to list a series of characteristics and options related to the GSM protocols – once again without any clear explanation as to why an artisan, when armed with these GSM standards, would still be left without an operative algorithm performing the function. (*See* Synder Decl. ¶ 33)

seeks to reach into the text of those references to find corresponding structure – is inapposite.[9] *See AllVoice Computing PLC v. Nuance Commc'ns, Inc.*, 504 F.3d 1236, 1242 (Fed. Cir. 2007) (concluding that "the reference to DDE [protocol] in the specification is a structure corresponding to the 'output means' clause of claim 60").

Mere "incorporation by reference" of the titles of prior art in the specification cannot disclose corresponding structure if the title itself does not disclose the prior art structure to a person or ordinary skill. *See Atmel*, 198 F.3d at 1382; *see also Pressure Products Med. Supplies, Inc. v. Greatbatch Ltd.*, 599 F.3d 1308, 1317 (Fed. Cir. 2010) ("Trial courts cannot look to the prior art, identified by nothing more than its title and citation in a patent, to provide corresponding structure for a means-plus-function limitation."). In *Pressure Products*, 599 F.3d at 1317, the Federal Circuit reiterated its holding from *Amtel*, stating:

> In *Atmel*, this court held the title of a prior art reference could provide the structure for a mean-plus-function element because 'Atmel's expert, Callahan, testified that this title alone was sufficient to indicate to one skilled in the art the precise structure of the means recited in the specification.' His testimony was essentially unrebutted. If, on the other hand, the title did not disclose the prior art structure, the structures in the prior art reference could not be a corresponding structure to the means-plus-function claim element.

Likewise, in *Default Proof Credit Card Sys., Inc. v. Home Depot U.S.A., Inc.*, 412 F.3d 1291, 1301 (Fed. Cir. 2005), the Federal Circuit refused to treat "kiosk" as corresponding structure for a "means for dispensing" when the only basis for that structure – which was not mentioned in the

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[9]Defendants do not dispute that "SUN SPARC workstation" or "a MOTOROLA or IBM Power PC," or any structure referenced by name alone in the specification, inherently conjures the structure associated with that reference in the mind of a person of ordinary skill.

patent-in-suit's specification – was the patentee's expert opinion that he read another patent incorporated by reference (called the Muehlberger patent) to disclose such kiosks.[10]

Thus, Defendants go too far in suggesting that *Atmel* and *Default Proof* foreclose the Court from considering how a person of ordinary skill would understand the structure disclosed, if any, by industry standards and protocols referenced in the specification. The pertinent "inquiry asks first whether structure ***is*** described in specification, and, if so, whether one skilled in the art would identify the structure from that description." *Atmel*, 198 F.3d at 1381 (emphasis in original).

Therefore, here the Court must examine whether structure is described in the specification and, if so, how a person of ordinary skill understands the disclosure of the specification. In answering these questions, the Court finds that the names of these industry standards or protocols themselves facially recite structure, making the situation here distinguishable from *Default Proof*, where the sole basis for the purported structure was just the name of a prior art reference, within whose separate text the actual structure itself was disclosed. In light of the notice function animating the Federal Circuit's decision in *Atmel* and the long-established case law requiring that at each stage the disclosure is assessed from the perspective of one of ordinary skill in the art, the Court finds that the GSM and IP industry protocols at issue here are pertinent to the inquiry into corresponding structure.

In light of the above, Defendants have not shown (by clear and convincing evidence) that

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[10]There, the term "kiosk" did not even appear in the Muehlberger patent. The Federal Circuit held that "[e]ven if Muehlberger did disclose a 'kiosk,' however, material incorporated by reference cannot provide the corresponding structure necessary to satisfy the definiteness requirement for a means-plus-function clause." *Default Proof*, 412 F.3d at 1301.

these detailed protocols, in tandem with the steps shown in Figure 3 and recited in the specification, fail to disclose an algorithm to a person of ordinary skill for performing each claimed function. Thus, the Court cannot conclude the term is indefinite.

10. "a home location register (HLR) means" ['509 patent, claim 1]

IV's Proposed Construction	**Defendants' Proposed Construction**
Means-plus-function limitation under § 112, ¶ 6 Function: receiving a "routing information request" and generating "a routing response . . . having location information and return code information." Construction: Plain or Ordinary Meaning. No Construction Necessary. Structure: An electronic device having at least the following characteristics, described in '509 patent at 4:15-61, 6:5-9, Figs. 1, 3: (1) a subscriber database that contains information regarding the subscriber account as well as information regarding the subscriber location; and (2) an interface with which the device can (a) receive a routing information request; (b) generate a routing response that includes location information and return code information from the subscriber database; and (c) send the routing response	Not means-plus-function under § 112, ¶ 6 Construction: "a home location register"
Court's Construction: Not means-plus-function. Construction: "A home location register," meaning "a network element comprising interfaces and a subscriber database that can be queried to obtain (1) the last known location of the destination and (2) information indicating whether a message destination is valid and authorized."	

The use of the word "means" here raises a presumption that the term's construction is governed by § 112, ¶ 6, *see CCS Fitness,* 288 F.3d at 1369, but that presumption is plainly rebutted by the claim language. Claim 1 recites no function whatsoever for the term "home location register means." Furthermore, "home location register" itself is not a purely functional phrase. The parties' experts agree "HLR" defines a specific network element – a structure that performs particular functions (storage and retrieval of subscriber data) – that was well understood in the art at the time of invention. (*See* Snyder Decl. at ¶¶ 84-86; Williams Decl. at ¶ 22 ("Any POSITA would know what a home location register (i.e., an 'HLR') is, and would know what functions it can perform.")) Thus, the term is unlike limitations found to be purely functional. *See, e.g.*, *Signtech USA, Ltd. v. Vutek, Inc.*, 174 F.3d 1352, 1356 (Fed. Cir. 1999) (construing "***ink delivery*** means" as equivalent to the phrase "means for ink delivery" because "ink delivery" is purely functional language) (emphasis added); *Baran v. Med. Device Technologies, Inc.*, 616 F.3d 1309, 1317 (Fed. Cir. 2010) (holding "***release*** means for retaining the guide in the charged position" recited not only retaining function but also "vital," "purely functional" release function, because contemplated function of claimed biopsy instrument was not to retain indefinitely but "to retain for the express purpose of producing a spring-loaded release on demand"). In an attempt to supply a function nonetheless, IV unsuccessfully points to functions in other parts of Claim 1 that are distinctly claimed by the "processor means," not the HLR means. Furthermore, any references contained therein are to "the HLR" – the register itself – not the HLR means, and, as such, do not inform the function of the "HLR means" on an antecedent basis. Therefore, the Court construes the disputed term as "a home location register."

Neither party has provided a proposed construction for "home location register (HLR)."

The Court construes "HLR" to mean "a network element comprising interfaces and a subscriber database that can be queried to obtain (1) the last known location of the destination and (2) information indicating whether a message destination is valid and authorized." ('509 patent at 2:31-35, 4:30-34; *see also id.* at 4:20-21 (discussing HLR in relation to GSM 09.02); Snyder Decl. Ex. F (November 1995 GSM 09.02 standard discussing HLR))

11. "external interface means for interfacing with the HLR" ['509 patent, claims 8, 9]

IV's Proposed Construction	**Defendants' Proposed Construction**
Means-plus-function limitation under § 112, ¶ 6 Function: "interfacing with an HLR" Construction: Plain or Ordinary Meaning. No Construction Necessary. Structure: One or more interfaces to a server, network element, personal computer, or work station, including but not limited to an interface compatible with the SS7-GSM-MAP protocol. *See* 3:10-26, 3:39-54, 4:15-20, Fig. 1.	Means-plus-function limitation under § 112, ¶ 6 Function: "interfacing with an HLR" Structure: Indefinite for lack of algorithm
Court's Construction: Means-plus-function limitation under § 112, ¶ 6 Function: "interfacing with an HLR" Structure: One or more interfaces to a server, network element, personal computer, or work station that are compatible with the SS7-GSM-MAP protocol. *See* 3:10-26, 3:39-54, 4:15-20, Fig. 1.	

Having agreed this is a means-plus-function term subject to § 112, ¶ 6, with a claimed function of "interfacing with an HRL," and requiring no further construction, the parties only dispute whether the specification recites sufficient corresponding structure or, instead, the claims

are indefinite. In identifying the extent of the corresponding structure, the Court rejects IV's "including but not limited to" language, which eviscerates the clear structural limitations required by § 112, ¶ 6 and effectively results in pure functional claiming. Striking that language from IV's proposal, the Court concludes that the corresponding structure for "interfacing with the HLR" is "one or more interfaces to a server, network element, personal computer, or work station that are compatible with the SS7-GSM-MAP protocol." ('509 patent at 3:10-26, 3:39-54, 4:15-20, Fig. 1)

In light of this corresponding structure, Defendants have failed to show by clear and convincing evidence that the specification's disclosure of particular protocols – the SS7-GSM-MAP (mobile application part) protocol for communication between the SMS and the HLR (*id.* at 3:52-54, 3:55-67, Fig. 2), with the "TCAP Send_Routing_Info_For_SM" signal "utilizing specifications GSM 03.40 and GSM 09.02" (*id.* at 4:15-20; *see also id.* at Fig. 1) – fails to disclose an algorithm that a person of ordinary skill would understand completes the function of "interfacing with the HLR."[11] *See AllVoice Computing*, 504 F.3d at 1242 ("This court concludes that the reference to DDE [a communication protocol] in the specification is a structure corresponding to the 'output means' clause of claim 60."). Therefore, the claim is not indefinite.

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[11]Once more, Defendants' expert contends the text of the specification does not explicitly describe how to accomplish every aspect of each step of the algorithm. (Snyder Decl. ¶¶ 80-81) ("For example, the specification fails to describe how the mandatory or optional parameter values are populated into the signaling protocol messages that establish an interface between the SMSC and HLR.") However, he does not explain how, even in light of the above-mentioned GSM protocols, a person of ordinary skill would not understand the written description to disclose a structure for "interfacing with the HLR." *See Typhoon*, 659 F.3d at 1385 ("[T]he amount of detail that must be included in the specification depends on the subject matter that is described and its role in the invention as a whole, in view of the existing knowledge in the field of the invention.").

12. "external interface means including a TCP-Short Message Client Interface for receiving a properly formatted request for transmission of a short message from at least one of an E-Mail client and a voicemail client" ['509 patent, claim 8]

IV's Proposed Construction	**Defendants' Proposed Construction**
Means-plus-function limitation under § 112, ¶ 6 Function: "receiving a properly formatted request for transmission of a short message from at least one of an E-Mail client and a voice-mail client" Construction: Plain or Ordinary Meaning. No Construction Necessary. Structure: Interfaces to a server, network element, personal computer, or work station. *See* 3:29-4:3, Fig. 2	Means-plus-function limitation under § 112, ¶ 6 Function: "receiving a properly formatted request for transmission of a short message from at least one of an E-Mail client and a voice-mail client" Structure: Indefinite for lack of algorithm
Court's Construction: Means-plus-function limitation under § 112, ¶ 6 Function: "receiving a properly formatted request for transmission of a short message from at least one of an E-Mail client and a voice-mail client" Structure: Indefinite	

The parties agree this is a means-plus-function element governed by § 112, ¶ 6. The parties further agree upon the recited function. Once more, the dispute is whether the corresponding structure disclosed in the specification is adequate. This time the Court agrees with Defendants.

As an initial matter, IV's proposed corresponding structure – ***any*** interfaces to a server, network element, personal computer, or work station – is overbroad and unsupported by the

specification. In support of its position, IV cites broadly to a description of every component disclosed in the embodiment represented in Fig. 3 ('509 patent at 3:29-54), and a general discussion of the interfaces of Fig. 2, but most of these passages are irrelevant as they fail to clearly link the structures with the claimed function (*id.* at 3:54-4:3). *See Abbott Labs.*, 124 F.3d at 1424 (stating structure disclosed in specification constitutes "corresponding structure" if specification or prosecution history "clearly links or associates that structure to the function recited in the claim"). The agreed function is "receiving a properly formatted request for transmission of a short message from at least one of an E-Mail client and a voice-mail client," and the text of the specification only discloses such interfacing with E-Mail client or voice-mail clients "through an IP-TCP short message client interface."[12] (*See* '509 patent at 3:59-64)

Even if the Court were to accept the various protocols[13] IV contends constitute

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[12]The specification concedes that it does not provide every detail about its external interfaces, instead referring to how information can be obtained for "Part No. D-0071-S0-000-001 from Newnet Incorporated" to acquire "[d]etails of these interfaces as well as additional details regarding the invention." ('509 patent at 3:67-4:3) Unless the title of this part reference number recites structure to a person of ordinary skill, mere incorporation by reference of this part does not provide corresponding structure, a conclusion which follows from the discussion earlier in this Memorandum Opinion. *See also Pressure Products*, 599 F.3d at 1317.

[13]IV cites various other interfaces or protocols disclosed nearby – e.g., RS-232 port and SS7-GSM-MAP protocol – but these disclosures do not constitute corresponding structure for this particular function. The RS-232 port and SS7-GSM-MAP protocol are disclosed in relation to alternative ways (other than E-mail or voice-mail) for accessing SMS: via a controller/ administrator or public land mobile network (PLMN). (*See* '509 patent at 3:64-67, Fig. 2) In addition to the RS-232 port and SS7-GSM-MAP protocol, IV also contends SMTP and X.25 protocols appearing in Figure 2 disclose corresponding structure. In Figure 2, "SMTP" is related to the interface between "EMAIL" and "EMAIL CLIENT," while "X.25" is associated with the interface between "VOICEMAIL" and "VMAIL CLIENT." Aside from these labels in Figure 2, the specification provides no other reference or explanation of SMTP or X.25. Like the specification, the parties' experts are silent on X.25 protocol. As for SMTP, it is undisputed that the SMTP (along with Internet Protocol or IP) was merely the protocol for transporting E-Mail

corresponding structure, the claim element would be indefinite. It is undisputed that in 1996, SMS, E-Mail, and voice-mail protocols were different and, consequently, a short message service center ("SMSC") could not receive a short message from an E-Mail client or voice-mail client without translating between protocols. (*See* Snyder Decl. ¶¶ 65, 66 (SMS uses GSM-MAP protocol, E-Mail uses SMTP and Internet Protocol (IP), and voice-mail uses distinct, widely varying protocols); Williams Decl. ¶¶ 18-19) The specification, and the protocols it references, are silent as to what structure accomplishes this translation. *See generally Aristocrat*, 521 F.3d 1328, 1337 (Fed. Cir. 2008) ("The question thus is not whether the algorithm that was disclosed was described with sufficient specificity, but whether an algorithm was disclosed at all."); *Med. Instrumentation & Diagnostics Corp. v. Elekta AB*, 344 F.3d 1205, 1212 (Fed. Cir. 2003) ("The correct inquiry is to look at the ***disclosure*** of the patent and determine if one of skill in the art would have understood that ***disclosure*** to encompass software for digital-to-digital conversion and been able to implement such a program, not simply whether one of skill in the art would have been able to write such a software program.") (emphasis in original). The expert testimony only reinforces the conclusion that a person of ordinary skill would find the specification does not disclose sufficient structure for translating between protocols as is necessary to perform the claimed "receiving" function. As Defendants' expert opines, "e-mail and voice-mail data would need to be routed through a specially programmed interworking interface that could convert and

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messages. (*See* Snyder Decl. at ¶ 67) Thus, Plaintiffs have provided no evidence – either in the specification, the protocols they reference, or through their expert – that clearly links these SMTP or X.25 protocols in Figure 2 to the claimed function of "receiving a properly formatted request for transmission of a short message from at least one of an E-Mail client and a voice-mail client."

translate the various protocols into short messages."[14] (*See* Snyder Decl. ¶ 69)

Thus, unlike the previous terms that also incorporate certain protocols by reference as corresponding structure, Defendants here have shown how these particular protocols fail to disclose an algorithm. In particular, the TCP/IP, SMTP, and RS-232 protocols do not disclose sufficient structure "for a person of skill in the field to provide an operative software program for the specified function." Plaintiffs' expert opines that by "reference to their names alone" (TCP/IP, SMTP, and RS-232), these particular protocols "implicitly disclose an algorithm that a POSITA could use to complete the functions recited in the 'interface means' terms." (Williams Decl. ¶ 18) Beyond this single statement, however, IV provides no explanation as to how such protocols – which are not interoperable – disclose an algorithm for translating between themselves, a necessary part of the function of "receiving a properly formatted request for transmission of a short message from at least one of an E-Mail client and a voice-mail client." *Tech. Licensing Corp. v. Videotek, Inc.*, 545 F.3d 1316, 1338 (Fed. Cir. 2008) ("The question is not whether one of skill in the art would be ***capable of*** implementing a structure to perform the function, but whether that person would ***understand the written description itself to disclose*** such a structure.") (emphasis added). Accordingly, the Court finds Claim 8 indefinite.

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[14]While Defendants' expert opines that "[s]pecial, custom, and non-standard protocol translation software residing at a network gateway function would need to be developed to provide such compatibility" (Snyder Decl. ¶ 67), the Court's conclusion that no sufficient corresponding structure is disclosed in the specification is ***not*** based on the lack of disclosure of sourcecode or other software, as the requisite algorithm need not necessarily take one of those forms. *See Noah*, 675 F.3d at 1312; *Aristocrat Techs.*, 521 F.3d at 1338 (stating patentee not required to produce source code to satisfy § 112 ¶ 6).

13. "authorization codes" ['677 patent, claim 6]

IV's Proposed Construction	Defendants' Proposed Construction
"codes that help protect against unauthorized usage, misuse, or undesirable dissemination of the information; or allows access to a host computer"	"two or more codes provided by a user to obtain access to a computer system"
Court's Construction: "codes that help protect against unauthorized usage, misuse, or undesirable dissemination of the information; or allows access to a host computer"	

The parties dispute whether "authorization codes" (1) must be provided by a user, and (2) can be used – independently from the function of obtaining access to a computer system – for the broader function of protecting against unauthorized usage, misuse, or undesirable dissemination of information. In the three preferred embodiments of the '677 patent, the "authorization code" may comprise (1) a user-memorized code, (2) a machine code that is stored on a security module, or (3) both the user-memorized code and the machine code. ('677 patent at 12:64-13:9; *see also* Def. Open. Br. at 88) When the machine code is on a smart card – a physically distinct security module – it is provided by the user (*see* IV Resp. Br. at 125); but the user might not provide the machine code when the authorization code is stored on a security module that is physically integrated into the terminal (*see* '677 patent at 12:43-46) ("Thus, this section of the terminal station, which represents the aforementioned identity, is referred to in the following as the security module and may take the physical form of a module integrated in a terminal or of a separate smart card."). To find otherwise would confine the claim term to a preferred embodiment.

With equal clarity, the specification discloses the use of authorization codes to prevent misuse and undesired dissemination of information as well. (*Id.* at 6:62-7:1 ("D. Security and

distribution module 29 to protect against misuse or undesirable dissemination of the information, whether transmitted from the terminals or from the central station. This is achieved, firstly, by encrypting the actual information carrying signal and, secondly, by applying an authorisation code to at least some of the commands and orders."); 12:65-13:1; 15:14-23; *see also id.* at 2:33-36 ("The transmission of information over long distances carries the risk of unauthorised usage. The use of authorisation and distribution codes, as well as encryption of the information, are known methods of preventing this type of abuse."))

Therefore, the Court construes "authorization codes" to mean "codes that help protect against unauthorized usage, misuse, or undesirable dissemination of the information; or allows access to a host computer."

14. "a chart which is variable with time and/or with the utilization sequence such that different encryption is applied on different occasions of communication [between said transmitter and receiver]" ['677 patent, claim 6]

IV's Proposed Construction	**Defendants' Proposed Construction**
Plain or Ordinary Meaning. No Construction Necessary.	"a data structure including two or more indexed entries, in which each entry is used to apply different encryption to information on different occasions of communication based on time or sequence of use"
Court's Construction: Plain or Ordinary Meaning. No Construction Necessary.	

The Court adopts the plain and ordinary meaning of the claim. Defendants' construction deletes and adds words to the original limitation with a net result of changing the meaning of the original claim limitation. In accordance with the claim language, there is no requirement that different encryption be applied for each entry (rather than on the basis of the chart as a whole being varied). Likewise, the specification makes clear that the other limitations imposed by

Defendants' construction are associated with particular embodiments of the invention, rather than being part of what a person of ordinary skill in the art would understand to be the plain and ordinary meaning of this term. (*See* '667 patent at 10:39-46, 13:10-19, 15:55-62)

15. The sequence of steps ['677 patent, claim 6]

IV's Proposed Construction	**Defendants' Proposed Construction**
Sequence is not limiting.	The "providing" step must be performed before the "applying" step.
Court's Construction: Sequence is not limiting, except that "providing" a chart to said transmitter must occur before "applying address codes and/or authorization codes and/or encryption procedures during transmission from said transmitter to said receiver"	

Due to the presumption that the steps are not limiting, Defendants have the burden of showing that (1) as a matter of logic or grammar, the steps must be performed in the order written in the claim language, or (2) the specification directly or implicitly requires such a narrow construction. *See Altiris Inc. v. Symantec Corp.*, 318 F.3d 1363, 1369-70 (Fed. Cir. 2003). As a matter of logic, the chart comprising "encrypted address codes and/or authorization codes and/or encryption procedures" must first be provided to the transmitter before they can be applied "during transmission from said transmitter to said receiver." (*See* '667 patent at 17:55-66) However, there is nothing in the claims, nor in the specification, that requires the chart be provided to the receiver before the "applying" step. Thus, the claim does not require the entirety of the "providing" step to be performed before the "applying" step. The Court construes the term accordingly.

16. "chart comprising encrypted address codes and/or authorization codes and/or encryption procedures" ['677 patent, claim 6]

IV's Proposed Construction	Defendants' Proposed Construction
"a data structure including two or more indexed entries, each entry including, an encrypted address code, an authorization code, or an encryption procedure"	"a data structure including two or more indexed entries, each entry including, in encrypted form, an address code, authorization code, or encryption procedure"
Court's Construction: "a data structure including two or more indexed entries, each entry including, an encrypted address code, an authorization code, or an encryption procedure"	

The parties' only dispute is whether the claim term "encrypted" modifies all three claim elements – (1) address codes, (2) authorization codes, and (3) encryption procedures – as Defendants contend, or whether the claim term "encrypted" modifies only the first claim element ("address code"), as IV contends. The structure of the claim language itself indicates that "encrypted" modifies the phrase it proceeds – "address codes" – rather than all three separate phrases (i.e., "and/or [encrypted] authorization codes and/or [encrypted] encryption procedures"). This conclusion is reinforced by the specification. In the preferred embodiment, the authorization code is applied after all the information has been encrypted. (*Id.* at 6:67-7:1) Thus, reading the claim to require encryption of the authorization code as well would exclude this preferred embodiment. *See SynQor, Inc. v. Artesyn Technologies, Inc.*, 709 F.3d 1365, 1378-79 (Fed. Cir. 2013) (quoting *Adams Respiratory Therapeutics, Inc. v. Perrigo Co.*, 616 F.3d 1283, 1290 (Fed. Cir. 2010)) ("A claim construction that 'excludes the preferred embodiment is rarely, if ever, correct and would require highly persuasive evidentiary support.'"). Finally, the prosecution history does not evidence a clear disavowal of claim scope; while the claim may have begun in an alternative version (then Claim 5) that included encryption of all three

elements, the Claim's language was redrafted during prosecution and there is no evidence of applicant disclaiming scope to overcome a prior art reference or other rejection. (*See* JCCC Ex. EE (U.S. Patent Application No. 08/318,865) at 39; *id.* Ex. GG (Office Action Response dated March 20, 1996) at 1)

17. (a) "first signal" / "second signal" ['944 patent, claims 7, 19]

(b) "third signal" ['944 patent, claim 19][15]

IV's Proposed Construction	**Defendants' Proposed Construction**
Plain or Ordinary Meaning. No Construction Necessary	Indefinite
Court's Construction: Not indefinite. No construction necessary.	

Defendants contend Claims 7 and 19 are indefinite because one of ordinary skill in the art cannot reasonably determine the scope of the claims as it is neither possible to (i) distinguish among the recited first, second, and third signals,[16] nor possible to (ii) determine whether all portions of a signal have been transmitted. Section 112, ¶ 2 requires "that a patent's claims, viewed in light of the specification and prosecution history, inform those skilled in the art about the scope of the invention with reasonable certainty." *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2129, 189 L. Ed. 2d 37 (2014). "Although absolute or mathematical precision is

[15]The Court is aware of the claim construction order that recently issued in the case *Intellectual Ventures I LLC et al v. Canon Inc. et al.*, C.A. No. 13-00473-SLR, regarding certain terms of the '944 patent. (*See* D.I. 397 Ex. A (Claim Construction Order) at 16-18; *see also* C.A. No. 13-00473-SLR D.I. 264) Though the Court has reached its own conclusions on the three overlapping terms of the '944 patent presently at issue here, it finds Judge Robinson's well-reasoned order further supports the Court's conclusions.

[16]The parties agree "signal" would be understood by a person of ordinary skill to mean "carrier signal." (*See* Defs. Resp. Br. at 89; *see also* '944 patent at 2:24-29)

not required . . . a patent does not satisfy the definiteness requirement of § 112 merely because 'a court can ascribe some meaning to a patent's claims.'" *Interval Licensing LLC v. AOL, Inc.*, 766 F.3d 1364, 1370-71 (Fed. Cir. 2014) (quoting *Nautilus*, 134 S. Ct. at 2130). Rather, "[t]he claims, when read in light of the specification and the prosecution history, must provide objective boundaries for those of skill in the art." *Id.* at 1371. The Court concludes that Defendants here have not shown that the claims are indefinite.

With regard to Claim 7, the "first signal" and "second signal" can be differentiated based upon the distinct requirements imposed on each signal by the claim language. Claim 7 recites that the "second signal" (i) is actually the ***first to be transmitted***, (ii) must convey "a frame ***indicating clear to send*** that is addressed to the sender," and that frame (iii) must also include "a duration field that has a value based on the expected ***length of time required to transmit at least one data frame***." ('944 patent at 13:53-63) (emphasis added) By contrast, the "first signal" must (i) transmit "after the second signal" and convey (ii) "***said at least one data frame***" (i.e., whose length of time defined the value of the "duration field" in the "second signal" above). (*See id.* at 13:60-63) (emphasis added) Separately, the "second signal" and "third signal" are also distinguishable because the second signal's "clear to send frame" must be addressed to a different station than the first signal's "at least one data frame." (*See id.* at 14:64-65)

As a separate point of distinction, the signals also require different modulations. Claim 7 requires that a "first modulation technique" is used for transmitting the "first signal," while requiring a "second modulation technique" for transmitting the "second signal." Though dependent Claims 2 and 20 give rise to the presumption that the "first modulation technique" and "second modulation technique" need not be different, the Court finds this presumption is

rebutted. The Abstract of the patent describes the invention as "a technique to allow enhanced stations and legacy stations to work with each other without the inefficiencies of signaling overhead in the prior art," premised on the solution that an "enhanced station" transmits an initial, short frame "using a modulation compatible with legacy stations," indicating the duration for an exchange between enhanced stations that is transmitted "using an enhanced modulation format."[17] Reinforcing this evidence, every embodiment disclosed in the patent uses two different modulation schemes – an enhanced modulation format and a legacy-compatible modulation format. (*See id.* at 5:53-64, 6:38-49, 7:28-45, 8:36-51, 9:43-58, 11:4-14, 11:45-62)

For similar reasons, the three signals in Claim 19 are distinguishable to a person of ordinary skill in the art. The "second signal" can be differentiated from the other signals ("first signal" and "third signal") because, once again, it (i) must be the ***first*** to be transmitted (*see id.* at 15:6-8 ("transmitting said first signal . . . after said second signal"); *id.* at 15:10-12 ("transmitting said third signal . . . after said first signal")), (ii) must convey "a frame indicating clear to send addressed to the sender" (*id.* at 14:65-66), and that frame (iii) must also include a frame comprised of "***a duration field*** that has a value based on the expected length of time required to transmit the subsequent data frames conveyed by said first signal and said third signal" (*id.* at 15:1-5) (emphasis added). The "second signal" and "first signal" are also distinguishable from one another because the second signal's clear to send frame must be addressed to different station

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[17]Fundamentally, the invention relates to the root problem of stations in a shared-network using ***different*** modulation formats. "Legacy stations" in the network using one type of modulation could not physically sense newer modulation schemes used by "enhanced stations." The prior art addressed the problem, but did so in such a way that created overhead. (*Id.* at 3:12-14) ("The need exists for a technique to allow enhanced stations and legacy stations to work with each other without the inefficiencies of signaling overhead in the prior art.")

than the first signal's "at least one data frame." (*Id.* at 15:14-15) Finally, the "first signal" and "third signal" are distinguishable because, for the reasons stated above, they are transmitted via different modulations ("first modulation" and "second modulation" respectively). (*Id.* at 15:6-11)

Hence, Defendants have not shown that the claims, viewed in light of the specification and prosecution history, fail to inform those skilled in the art about the scope of the invention with reasonable certainty. The terms will be given their plan and ordinary meaning.

18. "data frame" ['944 patent, claims 7, 9]

IV's Proposed Construction	**Defendants' Proposed Construction**
"data encapsulated into a discrete structure for communication over a network as an independent unit"	Indefinite
Court's Construction: "data encapsulated into a discrete structure for communication over a network as an independent unit"	

Defendants contend that Claims 7 and 19 are indefinite because one of ordinary skill in the art cannot reasonably determine whether a claimed "data frame" includes or excludes a "null frame." The specification plainly discloses a "null frame" that is "interposed in the series of data frame transmissions," thereby differentiating between these two types of frames. (*See id.* at 9:65-10:9, Fig. 9 (separately illustrating "NULL" and "DATA" frames)) The specification further indicates that a "data frame" can replace a "null frame." (*Id.* at 10:57-60; *see also id.* at 10:44-48)

Defendants' contention is based on a provisional application in the prosecution history that Defendants believe describes a data frame as a null frame (JCCC Ex. HH (U.S. Provisional

Patent Application No. 60/347,412 filed January 12, 2002) at 10) ("CCK protection frame" could be "the Null frame (a data frame with an empty payload")), but any ambiguity this creates is eliminated by the specification, which is the "best source" for interpreting the claim language. *Phillips*, 415 F.3d at 1315, 1317. Accordingly, Defendants have not shown that Claims 7 and 19 here, viewed in light of the specification and prosecution history, fail to inform those skilled in the art of the scope of the invention with reasonable certainty.

Defendants provide no alternative construction. The Court adopts Plaintiffs' proposed construction, finding it to be consistent with the understanding of a person of ordinary skill in the art of the term's plain and ordinary meaning. (*See* '944 patent at 4:39-50)

19. "respective random variable window" ['392 patent, claim 15]

IV's Proposed Construction	**Defendants' Proposed Construction**
"a range having a minimum and maximum value where the interval randomly falls between these values"	"window having a random duration between a minimum and a maximum duration corresponding to each traffic classification"
Court's Construction: "a range in which the interval randomly falls, with the range itself varying between a minimum and maximum value"	

The parties primarily dispute (i) whether the term requires a random "variable window" or a random "interval," and (ii) whether the window has a minimum and maximum "duration" or "value."[18] Claim 15 recites the system of Claim 14 "wherein the interval is within a respective

[18]The parties also raised a possible third dispute regarding whether or not the minimum and maximum must correspond to each traffic classification. Defendants concede the surrounding claim language limits this instance of the term in Claim 15 to corresponding to the traffic classification of the second queue. (*See* Defs. Resp. Br. at 114) ("Defendants do not dispute that the particular traffic classification (and contention window) at issue in claim 15 is that of the second queue.") Claim 14, from which Claim 15 depends, recites that the "interval" is "specified by the set of rules corresponding to the traffic classification of ***the second queue***," while Claim 15 further specifies that the "interval" must be "within a respective random variable

random variable window having a corresponding minimum and maximum duration." ('392 patent at 13:39-41) Because the Court concludes the phrase "random variable window" was not known in the prior art but was instead coined by the inventor, "its meaning, then, must be found elsewhere in the patent." *Irdeto Access, Inc. v. Echostar Satellite Corp.*, 383 F.3d 1295, 1300 (Fed. Cir. 2004). The specification usually supplies the best context for deciphering claim meaning. *See Honeywell Int'l Inc. v. Universal Avionics Sys. Corp.*, 488 F.3d 982, 991 (Fed. Cir. 2007).

In the context of the entire specification, the Court concludes that to the extent the invention concerns "randomness," the invention contemplates the broader notion of picking a random variable from a range in order to more evenly allocate transmission opportunities:

> According to the present invention, however, an effort is made to fairly allocate transmission opportunities among every queue having data message units of the same traffic classification to transmit-regardless of where each queue happens to be among the stations of the network. Specifically, each station is configured so that a queue containing higher priority data message units has no more impact on the scheduling order of a local queue (i.e., a queue in the same station) than it does on the scheduling order of any external queue (a queue at any other station) that contains data message units of the same, lower priority level.

(*Id.* at 2:59-3:2) From the remainder of the written description, a person of ordinary skill would understand that the invention requires that ***an interval*** is picked at random from a range (i.e., from within the "variable window").

Defendants insist that the "variable window" itself must somehow be random. However,

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window having a minimum and maximum corresponding duration." To the extent that Plaintiffs ask the Court to read in a limitation from the surrounding claim language when it is not inherently encompassed by the term, the Court declines to do so.

as the algorithms of the disclosed embodiments demonstrate, the "variable window" – though made "variable" via its selected parameters – is itself not understood to be "random." (*See, e.g., id.* at 7:50 (describing "Back off Time[i]=Random(i) x aSlotTime"); *id.* at 7:53-54 (describing "Back Off Time" rather than "window" itself as "Random(i)=Pseudo ***random integer*** drawn from a uniform distribution over the interval [1, CW[i]+1]") (emphasis added); *id.* at 7:54-56 (describing window as being variable but deterministically "drawn from" a range of values between "1 and CW[i]+1," where "CW[i] is an integer within the range of values CWmin[i] and CWmax" which are also determined by fixed rules, not randomly), 8:10-22, 9:24-28 (explaining that to increase CW[i] when collisions take place the "set of CW[i] values are sequentially ascending integer powers of 2, minus 1, beginning with a specified CWmin[i] value, and continuing up to and including a specified CWmax value")) While the invention is not limited to the specific ways in which these embodiments select the variable, they support the notion that the interval itself is what is being selected randomly, not the parameters of the "variable window," a conclusion further strengthened by the complete absence of any disclosure of a randomly-generated "variable window" anywhere in the specification.

As for the second dispute, Claim 15 expressly states that the "minimum and the maximum duration" relates to the duration of the window. (*Id.* at 13:39-41) ("The system of claim 14, wherein the interval is within a respective random variable window ***having a corresponding minimum and maximum duration***.") (emphasis added) The specification reinforces this construction, describing the window as varying under certain conditions but having a minimum and maximum duration. (*See, e.g.*, '392 patent at 7:55-56 ("CW[i] is an integer within the range of values CWmin[i] and CWmax (or optionally aCWmax[i] if available"); 8:44-47 ("The

CWmin[TC] values field contains 8 octets which specify, in the illustrative embodiment, eight contention window values, for the eight traffic categories 0 through 7, respectively")) The Court construes the term accordingly.

20. "the message data units from each of the first and second output queues" ['392 patent, claim 9]

IV's Proposed Construction	**Defendants' Proposed Construction**
Not indefinite. No construction necessary.	Indefinite.
Court's Construction: Not indefinite. No construction necessary.	

Defendants assert that Claim 9 and all of its dependent claims are indefinite because a person of ordinary skill in the art cannot determine whether the transceiver operates on what Defendants characterize as the set of received message data units from the two queues or the set of released message data units from the two queues. However, Defendants' reading of Claim 9 as reciting a category of "received message data units" and a category of "released message data units" rewrites the claims and ignores the structure of the claim language.

As written, Claim 9 only recites a single category of units: "message data units." The claim requires "a first output queue ***adapted to receive*** message data units having a first traffic classification, said first output queue ***being operable to release*** message data units for transmission over a communication medium in accordance with a first set of rules corresponding to the first traffic classification." (*Id.* at 12:56-61) (emphasis added) These impose limitations on the "output queue," not on the "message data units" in the claim. The "receive" and "release" functionalities of the "first output queue" convey to a person of ordinary skill that "message data units" can be received into the queue and, once received, are held in the queue until released for

transmission. The "second output queue" presents the same limitations (for a "second traffic classification" / "second set of rules"). (*Id.* at 12:62-67) These inherent requirements are further confirmed by Claim 9's final limitation concerning the "transceiver":

> a transceiver operative to sense the communication medium for an opportunity to transmit the message data units from each of the first and second output queues, without interference from message data units transmitted by a second station, and to transmit the message data units from each of said first and second output queues according to said first and second sets of rules.

(*Id.* at 13:1-7) The transceiver must be "operative to . . . transmit" the message data units from the output queues. Hence, at the transmission stage (as explained above), any message data units from either queue must first be released from the queue for transmission before they can actually be transmitted – otherwise the preceding claim limitations requiring the queue to have a "release" functionality would be rendered meaningless. (*Id.* at 12:57-65) (queues are "operable to release message data units ***for transmission***") (emphasis added) The reference to "the message data units from each of the first and second output queues" above encompasses all "message data units ***from*** each of the first and second ***output queues***" – that is, those message data units being held in the queues waiting for release. In this way, the scope of "the message data units" term is well defined by the surrounding claim language.

Consequently, Defendants have not shown that, when viewed in light of the specification and prosecution history, the term "message data units" in Claim 9 fails to inform those skilled in the art of the scope of the invention with reasonable certainty. The term will be construed to have its plain and ordinary meaning.

21. "means for directing to a [first / second] output queue at a first station of a communication network, message data units to be transmitted over a communication medium and having a [first / second] traffic classification" ['392 patent, claim 16]

IV's Proposed Construction	**Defendants' Proposed Construction**
Means-plus-function under § 112, ¶ 6 Function: directing to a first output queue at a first station of a communication network, message data units to be transmitted over a communication medium and having a first traffic classification Structure: Memory and a Control Processor Unit programmed such that it executes the algorithm. Algorithm: A number *n* of discrete traffic classifications are established for the message data units. The message data units are mapped to one of these *n* traffic classifications and placed in a corresponding one of *n* queues within data buffers which are located in Memory.	Means-plus-function under § 112, ¶ 6 Function: directing to a first output queue at a first station of a communication network, message data units to be transmitted over a communication medium and having a first traffic classification Structure: Indefinite for lack of corresponding structure
Court's Construction: Means-plus-function under § 112, ¶ 6 Function: "directing to a first output queue at a first station of a communication network, message data units to be transmitted over a communication medium and having a first traffic classification" Structure: Indefinite for lack of corresponding structure	

The parties agree that this a means-plus-function term subject to § 112, ¶ 6 and agree on the function. The dispute is whether the specification recites sufficient corresponding structure or whether it fails to do so such that Claim 16 is indefinite.

IV's identified corresponding structure consists of two physical components ("Memory"

and "a Control Processor Unit programmed such that it executes the algorithm") as well as an algorithm. The parties now agree the first two steps of IV's algorithm – establishing traffic classifications and mapping message data units to traffic classifications – are merely precursors to/antecedent to the claimed function and, thus, are not disclosed by the specification to perform the claimed function. (*See* Defs. Open. Br. at 173) In IV's identified algorithm, message data units (that have been mapped to one of *n* discrete traffic classifications in a precursor step) are "placed in a corresponding one of *n* queues within data buffers." The specification's actual disclosure is limited to the following passage: "data message units from a given session are mapped to one of these *n* traffic classifications and placed in a corresponding one of queues 50_0 through 50_n within data buffers 34." ('392 patent at 6:11-14) According to IV, the corresponding structure that accomplishes the claimed "directing" function is a single algorithmic step involving something that is "placing" the data message units – but the specification is silent on what is doing the "placing." The memory and a control processor unit are what "executes ***the algorithm***," but the purported algorithm itself provides no instruction (i.e., no algorithmic step) specifying how the data message units are placed, or what is placing them. Rather, the specification states they ***are*** placed.

IV contends that this placing is "a simple step" well known in the field – and, because a person of ordinary skill knows how to place message data units in different queues, the amount of corresponding structure required to perform the function may not be as great as in other fields. It is possible for prose alone to suffice to recite an algorithm that constitutes sufficient structure. *See Noah*, 675 F.3d at 1312; *Typhoon*, 659 F.3d at 1385-86 (finding source code not required). However, in this case, IV cites no intrinsic evidence on this point, nor does it provide an

explanation[19] as to how disclosing merely that the data message unit is being "placed" somehow discloses sufficient structure for a person of skill in the art "to provide an operative software program for the specified function," *Typhoon*, 659 F.3d at 1385. IV's expert's single conclusory statement that a person of ordinary skill would read the phrase at issue – "***placed*** in a corresponding one of queues 50_0 through 50_n within data buffers" (emphasis added) – and understand the structure used to perform the directing function without providing any evidence on ***what structure*** that phrase conjures in the mind of the person of ordinary skill. There is no evidence that the phrase – including the fact that the placement occurs "within data buffers" – provides any indication of the structure actually performing the placing.

Therefore, the Court finds Defendants have shown, by clear and convincing evidence, that the specification lacks disclosure of structure sufficient to be understood by one skilled in the art as being adequate to perform the recited function. *See Chicago Bd. Options Exch., Inc. v. Int'l Sec. Exch.*, LLC, 748 F.3d 1134, 1141 (Fed. Cir. 2014) (indefiniteness under § 112, ¶ 6 requires clear and convincing evidence). Accordingly, the claim is indefinite.[20]

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[19]IV's expert provides a single conclusory line stating, "One of ordinary skill in the art knows how to place message data units in a queue." (D.I. 273 Ex. 55 (Declaration of James T. Geier) ("Geier Decl.") ¶ 73)

[20]Because Claim 16 is indefinite, the Court does not construe the other disputed means-plus-function limitation in the claim ("means for sensing the communication medium for an opportunity to transmit without interference from message data units transmitted by a second station, according to sets of rules that vary by traffic classification yet are common to the first station and the second station"). Claim 18 depends from Claim 16 and only adds a separate limitation. ('392 patent at 14:19-25) ("means for attempting to retransmit, after a respective interval defined differently by each said set of rules, any message data unit transmitted over the communication medium by a station that collides with a message data unit transmitted by another station") Claim 18 presents the same claimed function and adds no further pertinent structure. Therefore, Claim 18 is also indefinite. *See Competitive Technologies, Inc. v. Fujitsu Ltd.*, 185 F. App'x 958, 965 (Fed. Cir. 2006) (finding district court did not err in concluding dependent

22. "a ciphertext message based on the first and second message integrity codewords and the message words" ['011 patent, claims 1, 15]

IV's Proposed Construction	Defendants' Proposed Construction
"message data which has been encrypted based on the first and second message integrity codewords and the message words"	"the result of encrypting the first and second message integrity codewords and the message words"
Court's Construction: "message data which has been encrypted using at least the first and second message integrity codewords and the message words as direct inputs"	

The parties dispute whether the message integrity codewords and message words themselves must be encrypted to form the ciphertext. Claims 1 and 15 require "a cyphertext [sic] message based on the first and second message integrity codewords and the message words over a communications medium to a receiver." It is undisputed that the "message integrity codewords" and "message words" are direct inputs to the encryption that results in "a ciphertext message." (Tr. at 306) (Plaintiffs: "They're inputs for consideration into generating the ciphertext. We would agree with that.") However, neither the claims nor the specification require that these elements must be preserved in their entirety once encrypted in the final "ciphertext message." Claims 1 and 15 only concern the claimed process as it relates to ***encryption "based on"*** the message words, rather than ***decoding*** the actual "message words" themselves – a process recited in Claims 8, 10, and 19, where the entirety of the message words would need to be encoded so that they could later be recovered. Hence, limiting Claims 1 and 15 to the preferred embodiments of Figures 3 and 7 – which disclose narrower versions of a ciphertext message from which the message words are recovered – or to the dependent Claims 8,

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claims were indefinite where independent claim reciting means-plus-function element was found indefinite).

10 and 19 – which similarly claim the decoding process for recovery of the actual "message words" – would improperly read a limitation from the specification into Claims 1 and 15 and conflict with the plain language of the claims.

23. (a) "register"

(b) "monitoring location register" ['1032 patent, claims 1, 14, 17]

IV's Proposed Construction	**Defendants' Proposed Construction**
(a) Plain or Ordinary Meaning. No Construction Necessary. (b) "a register that centralizes the management and administration of intercept lists"	"apparatus that centralizes the management and administration of intercept lists for use on communications systems of multiple providers by providing a consistent user interface to multiple law enforcement agencies"
Court's Construction: (a) Plain or Ordinary Meaning. No Construction Necessary. (b) "a register that centralizes the management and administration of intercept lists"	

The Court agrees with Plaintiffs that "register" in Claim 1 and "monitoring location register" ("MLR") in Claims 14 and 17 are presumptively distinct, *see e.g., CAE Screenplates Inc. v. Heinrich Fiedler GmbH*, 224 F.3d 1308, 1317 (Fed. Cir. 2000) (applying presumption that use of "different terms in the claims connotes different meanings"), and finds that the surrounding claim language and specification reinforce that presumption (*see, e.g.*, '1032 patent at 9:30-42 (Claim 1: reciting method of switch operation comprising the step of sending calling party information via switch to "a register," said register including information generally "***relating to monitoring criteria based upon physical location of a party to a call*** . . .") (emphasis added); *id.* at 10:14-20 (Claim 14: reciting method of operating a "monitoring location

register" comprising the step of receiving call request information associated with a call that specifically "***includes a calling party location or a called party location*** . . .") (emphasis added); *id.* at 10:27-34 (Claim 17: reciting "master intercept list" is maintained "within" MLR); *id.* at 3:65-4:1 (expressly defining MLR as "a method and apparatus for ***centralizing the management and administration of intercept lists***") (emphasis added))

In turn, the Court concludes "register" should be given its plain and ordinary meaning. While Defendants contend "register" is coextensive with the MLR on the theory that "register" is confined to the single embodiment requiring the register to be separate from the switch, the specification makes clear "register" is not so limited. (*Id.* at 4:24-25 ("Of course, a mixture of the first embodiment and the second embodiment can exist."); *id.* at 6:12-17 ("[I]ntercept lists can be maintained in terminals, in gateways, in the MLR, or in any combination"))

As for the coined term "monitoring location register," the specification expressly supports Plaintiffs' proposed construction of "a register that centralizes the management and administration of intercept lists." (*Id.* at 3:65-4:1) While the MLR can be "for use on communications systems of multiple providers by providing a consistent user interface to multiple law enforcement agencies" as described in a preferred embodiment, the intrinsic record expressly contemplates embodiments that exclude such limitations. (*See id.* at 6:65-7:6)

24. "information relating to monitoring criteria based upon physical location of a party to a call" ['1032 patent, claim 1]

IV's Proposed Construction	Defendants' Proposed Construction
Plain or Ordinary Meaning. No Construction Necessary. In the alternative: "information concerning requirements for monitoring a call based on a physical location of a party to a call"	"information specifying the actual physical location, as opposed to the boundaries of a particular communications system, where a party to a call must be located for intercept of the call to be authorized"
Court's Construction: "information concerning requirements for monitoring a call based on a physical location of a party to a call"	

The parties dispute whether the recited "information" in Claim 1 can include information indicating that the user is communicating with a specific communications network, as encompassed by IV's construction, or whether it is limited to information specifying the user's actual physical location, as required by Defendants' construction.

Claim 1 imposes a clear limitation on what the "monitoring criteria" must be based on: the "physical location of a party to a call." However, the claim language does not recite any specific constraints on how that physical location is to be determined (i.e., what information can and cannot be used). (*See id.* at 9:34-37) (". . . sending by the switch calling party information to a register, said register including information relating to monitoring criteria based upon physical location of a party to a call") The specification is consistent with the broad language for "physical location" recited in Claim 1. The parties agree that throughout the disclosure, the specification makes clear that the boundaries of a particular communications system are not alone sufficient to form the basis for the monitoring criteria. (*Id.* at 1:47-65; 5:48-56 ("The combined movement of the communications system and the user relative to LEA juridical

boundaries has created a need for location based intercept. Location based intercept does not rely on the fact that the user is within the boundaries of a particular communications system, it instead ***relies on the actual physical location of the user.***") (emphasis added)) However, there is nothing in the specification suggesting that the user's actual "physical location" itself cannot be ***determined***, in part, using the knowledge that the user is located within the boundaries of a particular communications system, for instance. Therefore, the Court adopts IV's construction.

25. "a method of operating a monitoring location register" ['1032 patent, claim 14]

IV's Proposed Construction	**Defendants' Proposed Construction**
The preamble of claim 14 is not limiting.	The preamble limits the claim such that each step is performed by the monitoring location register.
Court's Construction: The preamble limits the claim such that each step is performed by the monitoring location register.	

The parties dispute whether the preamble of Claim 14, which recites a "method of operating a monitoring location register," is limiting such that the steps of claim must be performed by a monitoring location register. Here, the preamble is limiting, as it is essential to understanding the limitations in the claim. *See Catalina Mktg. Int'l, Inc. v. Coolsavings.com, Inc.*, 289 F.3d 801, 808 (Fed. Cir. 2002) (preamble limits claim "if it recites essential structure or steps, or if it is necessary to give life, meaning, and vitality to the claim") (internal quotations omitted). The preamble's "monitoring location register" is the only part of Claim 14 that specifies what element performs the recited method ('1032 patent at 10:14-20). *See Microprocessor Enhancement Corp. v. Texas Instruments Inc.*, 520 F.3d 1367, 1374 (Fed. Cir. 2008) ("Method claim preambles often recite the physical structures of a system in which the

claimed method is practiced . . . ."). Moreover, the specification repeatedly references the "monitoring location register" as a critical point of distinction over the prior art. (*See, e.g.*, *id.* at 1:66-2:1 (defining problem to be solved); 3:66-4:1 (stating that monitoring location register solves problem)) As *Catalina*, 289 F.3d at 808, states, "when reciting additional structure or steps underscored as important by the specification, the preamble may operate as a claim limitation."

Furthermore, the patentee relied on the preamble during prosecution to distinguish the claimed invention from the prior art. (*See* JCCC Ex. S (Office Action Response dated September 21, 1999) at 8 ("However, the Applicant's amended independent claim 13 [now claim 14] is not referring to routing of a call but instead recites a 'method of operating a monitoring location register' which culminates in 'sending call intercept information.' The Applicant respectfully submits that routing a call and sending call intercept information are two entirely distinct activities.") This "transforms the preamble into a claim limitation because such reliance indicates use of the preamble to define, in part, the claimed invention," *Catalina*, 289 F.3d at 808.

26. "local intercept list" ['1032 patent, claim 17]

IV's Proposed Construction	**Defendants' Proposed Construction**
Plain or Ordinary Meaning. No Construction Necessary. In the alternative: "an intercept list maintained at a switch or a terminal"	"a copy of the master intercept list resident on a switch"
Court's Construction: "a copy of the master intercept list resident on a switch"	

The parties dispute (i) whether a "local intercept list" is a copy of the recited "master intercept list" and, relatedly, (ii) whether the local intercept list must be "resident" on a switch. The antecedent basis for the information involved in this second step of Claim 17 requires disbursing a copy of the master intercept list to the switches in the system. Specifically, the first step of Claim 17 requires "receiving ***intercept information into a master intercept list***" stored at the monitoring location register. ('1032 patent at 10:29-31) (emphasis added) The second claimed step then requires disbursing "***said intercept information*** to a plurality of switches." (*Id.* at 10:32-34) (emphasis added) With equal clarity, Claim 17 sets out the requirement that the "each of said plurality of switches includes a local intercept list." (*Id.* at 10:32-34) The intrinsic evidence does not indicate that this limitation would be satisfied by placing the intercept list at a "terminal" as well. IV's argument that such a construction reads out a preferred embodiment is undermined by the fact that at least one other claim – independent Claim 18, which is not being asserted in this action – covers that embodiment. (*Id.* at 10:35-43) Accordingly, the Court adopts Defendants' construction.

27. "receiving a request for completion of a communication link between the wireless communication terminal and a station identified by the destination number" ['352 patent, claim 1]

IV's Proposed Construction	Defendants' Proposed Construction
"either (a) receiving a signal from the subscriber or (b) monitoring the line and if the caller does not hang up, concluding that the caller has requested call completion"	"either (a) receiving a signal from the subscriber or (b) if either the subscriber or the owner of the identified station has signed up in advance for an enhancement to directory assistance call completion, monitoring the line for a set time period, and, if the caller does not hang up during the set period, concluding that the caller has requested call completion"

Court's Construction: "either (a) receiving a signal from the subscriber or (b) monitoring the line for a set period of time and if the caller does not hang up, concluding that the caller has requested call completion"

The parties dispute whether a passive request (due to a caller's inactivity) requires that (i) either the caller or recipient of a call must have subscribed in advance to an enhancement to directory assistance call completion services, and (ii) the system must monitor the line for a set period and conclude that the caller has not hung up the phone during that time. It is undisputed that generally an ***affirmative*** request by the caller is required by the claims, such as the caller dialing the number "1," but there is an exception whereby, under certain circumstances, ***inaction*** – such as the caller remaining on the line – results in a "passive request." (*See* '352 patent at 11:13-15, 11:34-42) The parties further agree that such passive requests require a set time period of inactivity,[21] and the Court finds this requirement consistent with the Claim language and specification. (*See id.* at 14:48-62 (Claim 9: "determining whether or not the subscriber has terminated communications at the wireless communication terminal within a set time period"); *id.* at 5:14-18) Otherwise, the "passive request" exception is so expansive it swallows the requirement "a request" is made at all. *See Bicon, Inc. v. Straumann Co.*, 441 F.3d 945, 951 (Fed. Cir. 2006) ("[C]laim language should not [be] treated as meaningless."). Further limiting the "passive request" to only those two "enhancements to DACC" – i.e., "call completion subscription service" and "auto-collect Feature" – that a caller signs up for in advance (as taught in Fig. 3 and related sections of the specification) would impermissibly read a limitation from the specification into the claims. ('352 patent at Fig. 3, 11:54-12:3, 12:4-24) Therefore, the Court

[21](Tr. at 411) (Plaintiffs agreeing to amend proposed construction to require "monitoring the line for a period of time")

construes the disputed term as "either (a) receiving a signal from the subscriber or (b) monitoring the line for a set period of time and if the caller does not hang up, concluding that the caller has requested call completion."

28. "receiving information from the wireless communication terminal identifying a particular listing from a directory of listings" ['352 patent, claim 1]

IV's Proposed Construction	**Defendants' Proposed Construction**
Plain or Ordinary Meaning. No Construction Necessary. In the alternative: "receiving information from the wireless communication terminal identifying a particular directory listing"	"a live operator speaks to the wireless subscriber to obtain information identifying a particular directory listing"
Court's Construction: "receiving information from the wireless communication terminal identifying a particular directory listing"	

The parties dispute whether or not the "receiving" step of Claim 1 requires a live operator to speak to the subscriber to obtain information identifying a directory listing.

Nothing in the broad language of Claim 1 specifies what must perform the "receiving" step. (*Id.* at 13:42-14:2) Defendants' proposed requirement that a "live operator" perform that step is merely an example from an embodiment in the specification, which is not proper to import into the claim given the otherwise broad claims and disclosure in the specification. (*See, e.g.*, *id.* at 3:67-4:3) ("The subscriber then provides information identifying a particular listing from a directory of listings, ***for example*** by conversing with an operator at a terminal of the operator service system.") (emphasis added) Therefore, the Court adopts IV's construction.

29. "operator service system" ['352 patent, claim 1]

IV's Proposed Construction	**Defendants' Proposed Construction**
Plain or Ordinary Meaning. No Construction Necessary. In the alternative: "a directory assistance service system"	"a system including an operator service system switch, at least one live operator terminal connected to a data base of directory listings, and an audio subsystem that provides prompts and announcements to the subscriber"
Court's Construction: "a directory assistance service system"	

The parties dispute whether the term "operator service system" requires an operator terminal at which a live operator works or not.

Defendants' proposed limitation of "at least one live operator terminal" is not recited anywhere in the claims, specification, or prosecution history, and nothing in the intrinsic record suggests a person of ordinary skill would understand "operator service system" to be limited to a live operator and not also include an automated system. As discussed earlier, while Defendants cite to embodiments in which a voice conversation occurs between a subscriber and an operator, these "examples" do not evidence a clear intent by the patentee to restrict the claims to systems with a live operator. (*See, e.g.*, *id.* at 3:67-4:3; 5:8-10 ("The driver can use the service simply by dialing the directory assistance number, e.g. 411, conversing with the operator to obtain the listing . . .")) The Court adopts IV's construction.

30. "a customer contact service node Internet gateway (CCSN/IG)" ['737 patent, claim 7]

IV's Proposed Construction	Defendants' Proposed Construction
"a network component comprising a Web server and a gateway that performs application functions, the network component providing a Web interface between a customer and a service provider's customer-specific information and services"	"a web server and a gateway that is specifically designed to interface with at least an integrated service control point that is part of a telephone network switch"
Court's Construction: "a web server and a gateway that is specifically designed to interface with at least an integrated service control point that is part of a telephone network switch"	

The parties agree that the "customer contact services node Internet gateway (CCSN/IG)" of Claim 7 must include both a web server and some type of gateway. (*See* IV Open. Br. at 178; Def. Open. Br. at 196) The issue is whether any type of generic gateway will suffice, as IV suggests, or whether the gateway must be (i) specifically designed to interface with an integrated service control point (ISCP) that is (ii) part of a telephone network switch, as urged by Defendants. The Court adopts Defendants' construction.

As it is undisputed "CCSN/IG" in Claim 7 was a term coined by the inventor, its meaning must be found elsewhere in the patent and so the Court looks to the specification to discern the term's meaning. *See Irdeto Access*, 383 F.3d at 1300; *Honeywell*, 488 F.3d at 991. The only description of a "CCSN/IG" provided in the specification is "a web server 201 and an integrated service control point (ISCP) gateway 202." ('737 patent at 7:19-21; Fig. 2 (element 104)) To define the "ISCP" element – another coined term – patentees expressly incorporated by reference its definition from U.S. Patent No. 5,751,961 ("Smyk" or "the '961 patent"). ('737 patent at 1:7-12) Smyk expressly states: "An ISCP gateway connects an ISCP to the Internet." ('961 patent at

Abstract; Figure 1 (showing interface between ISCP gateway and ISCP)) Furthermore, during prosecution of Smyk, the Smyk applicants defined "the ISCP" as "part of a telecommunication switch." (JCCC Ex. LL (Office Action Response dated June 24, 1997, from '961 patent prosecution history) at 3-4) This was reiterated during prosecution of the '737 patent. (*See id.* Ex. II (Office Action Response dated September 30, 1997, from '737 patent file history) at 6) (explaining that "the ISCP of the present invention is part of a telecommunications network element and preferably includes applications to control telephone service") Finally, IV's claim differentiation argument, which relies on Claim 5 of the '737 patent (which depends from Claim 1), carries little force as Claim 5 includes several other limiting elements not present in Claim 1 (even under Defendants' proposed construction). (*See* '737 patent at 12:1-8) (describing particular actions specified "web server" and "ISCP gateway" must perform and also that two elements are "coupled")

31. "security protocol" ['674 patent, claims 1, 2, 4, 5]

IV's Proposed Construction	**Defendants' Proposed Construction**
Plain or Ordinary Meaning. No Construction Necessary. In the alternative: "a protocol that provides security measures"	"an encryption or authentication protocol"
Court's Construction: "a protocol that provides security measures"	

The parties dispute whether "security protocol" is limited to encryption and authentication techniques. In the absence of evidence to the contrary, the Court concludes that the patentee is entitled to the full breadth of its claims and adopts Plaintiffs' broader construction. The claims confirm that "security protocol" encompasses at least encryption, authentication, and both

together, and do not suggest the term is limited only to those protocols. (*See* '674 patent at 82:6-8 (Claim 2: "wherein the first security protocol comprises encryption"); 82:15-18 (Claim 4: "the first security protocol further comprises authentication"); *see also id.* at 83:1-20 (Claims 14, 15, 16, 17)) Similarly, the specification confirms encryption and authentication are examples of such protocols (*see, e.g.*, *id.* at 46:18-20 ("IP flows using the security encryption features of IPsec 422 are supported by the present invention.")) – without suggesting that a person of ordinary skill's understanding of the term "security" would be limited to just those two examples. (*See also id.* at 43:34) (incorporating by reference "RFC 2205," which briefly discusses separate security issue of "message integrity")[22]

32. "the first packet comprises a header coded with address information identifying the target device" ['674 patent, claim 1]

IV's Proposed Construction	**Defendants' Proposed Construction**
Plain or Ordinary Meaning. No Construction Necessary. In the alternative: "the first packet includes header coded address information identifying a target device"	"the first packet comprises a header coded with the final destination address of the target device"
Court's Construction: "the first packet comprises a header coded with the destination address of the target device"	

Initially, the parties disputed whether the "address information" contained in the packet header must point to the target device, or to the exact location within the target device where the data must be sent. However, during the hearing, Defendants offered an amended construction –

[22]The Court takes judicial notice of the publically available version of "RCF 2205" at WWW.RFC-EDITOR.ORG_RFT_RFC2205, which discusses "message integrity" as one of the "security issues" raised by Resource Reservation Protocol ("RSVP")). (*See also* Tr. at 189)

"the first packet comprises a header coded with the destination address of the target device" – removing the word "final." (Tr. at 188) In doing so, Defendants clarified that IV believes "our construction would allow us to argue later that the address has to be the particular folder, particularly [the] memory address in the device. That is not what we're seeking." (*Id.*) Rather, Defendants explained that, through their amended proposed construction, they are "trying to avoid . . . the situation where this claim language is used to cover addresses that are merely correlated with [or] merely associated with a target device." (*Id.*) IV does not dispute that, pursuant to the clear language of Claim 1, the first packet requires "a header coded with address information ***identifying*** the target device" ('674 patent at 81:65-67). (*See* Tr. at 192 ("The point here is the information in the address needs to identify the target device")) Given the parties' narrow dispute, the Court adopts Defendants' amended construction as it best represents the plain and ordinary meaning the term would have to a person of ordinary skill in light of the claim language and specification.

33. **(a) "classifying the digital signals . . . according to their influence on data quality"**

(b) "classified in accordance with their importance to speech quality"

(c) "classified . . . corresponding to the importance of said digital signals" ['073 patent, claims 35, 40, 43]

IV's Proposed Construction	**Defendants' Proposed Construction**
Plain or Ordinary Meaning. No Construction Necessary. In the alternative: (a) "classifying the digital signals according to their effect on data quality" (b) "classified according to the effect the digital signals have on voice quality" (c) "the digital signals are classified according to their effect on quality"	(a) "ordering the [digital signals/data bits, e.g., speech parameter bits] according to their importance to subjective speech quality and placing them into classes according to that ordering" (b) "the [digital signals/data bits, e.g., speech parameter bits] have been ordered according to their importance to subjective speech quality and placed into classes according to that ordering" (c) "the [digital signals/data bits, e.g., speech parameter bits] have been ordered according to their importance to subjective speech quality and placed into classes according to that ordering"
Court's Construction: (a) "classifying the digital signals according to their effect on data quality" (b) "classified according to the effect the digital signals have on voice quality" (c) "the digital signals are classified according to their effect on quality"	

The parties dispute whether the "digital signals" (under Defendants' construction, the actual "data bits," e.g., speech parameter bits) must be ordered and placed into classes according to that ordering. The claim language does not suggest that the claimed step of "classifying" must involve ordering the digital signals/data bits according to their importance to subjective speech quality and placing them into classes according to that ordering. (*See* '073 patent at 17:37-43 (Claim 35: "classifying the digital signals into first and second classes ***according to their influence on data quality***") (emphasis added); 18:9-21 (Claim 43: "classified into first and

second digital signal classes ***corresponding to the importance of said digital signals***") (emphasis added)) Furthermore, patentee's statements during prosecution do not evidence a clear and unambiguous disavowal of claim scope, especially as they may have been made in reference to the preferred embodiment:

> The invention involves a method and apparatus for digital communications, for example, to be used in digital speech communications using sets of data frames, wherein an encoder encodes data into digital signals by first dividing the signals into classes (e.g., Class la, Class 1b, Class 2, in Figs. 3 and 10) indicative of their importance to and influence on data quality and then carrying out error detection encoding for each class . . . . More particularly . . . the speech parameter bits in each data frame are ordered in accordance with their importance to subjective speech quality, such as described with reference to Figure 6 (Page 17), and are then grouped together in groups of similar or equal importance. . . .

(JCCC Ex. V at 2-3) (Brief for Appellant to BPAI dated February 16, 2000) Hence, the Court adopts Plaintiffs' proposed construction, which is consistent with the broad language of the claims supported by the rest of the intrinsic record.

34. (a) "two error detection codes respectively corresponding to the first and second classes" ['073 patent, claim 35]

(b) "encoded digital signals for detecting errors corresponding respectively to said first and second digital signal classes" ['073 patent, claim 43]

IV's Proposed Construction	**Defendants' Proposed Construction**
Plain or Ordinary Meaning. No Construction Necessary. In the alternative: "one or more [code/encoded digital signal] for detecting errors in the first class and one or more [code/encoded digital signal] for detecting errors in the second class"	"a [code / encoded digital signal] for detecting errors in only the first class and a separate [code / encoded digital signal] for detecting errors in only the second class"

Court's Construction: "one or more [code/encoded digital signal] for detecting errors in the first class and one or more [code/encoded digital signal] for detecting errors in the second class"

The parties dispute (i) whether these "error detection code" claim terms require two separate error detection codes (one for the first digital signal class and a separate one for the second class), and (ii) whether each separate error detection code detects errors only in its respective class. There is nothing in the claim language that suggests two error codes cannot be the same so long as the first error code and second error code are "respectively corresponding to the first and second classes" – i.e. so long as there is one code for each class. Put another way, the claims impose the limitation that when the two codes are generated (in Claim 35) or decoded (in Claim 43), they cannot both "correspond" to the same single class. (*See* '073 patent at 17:41-43, 18:15-17) Figure 5 shows two different codes and further requires that those codes are designed only to be capable of detecting errors in one class (*see id.* at 7:48-8:26), but these parameters arise because the embodiment disclosed in Figure 5 specifically involves bit importance classes that do not overlap (i.e., are not nested). Limiting the claims to this single embodiment would be inconsistent with the broad claim language and disclosure of the broader invention through the remainder of the specification. (*See, e.g., id.* at 3:14-16) Hence, the Court adopts IV's construction.

35. Sequence of method steps ['073 patent, claim 35, 39, 41, 43, 44]

IV's Proposed Construction	**Defendants' Proposed Construction**
Sequence is not limiting	The steps of the claim must be performed in the order recited
Court's Construction: The steps of the claim must be performed in the order recited	

The Federal Circuit has established a two-part test for "determining if the steps of a method claim that do not otherwise recite an order, must nonetheless be performed in the order in which they are written." *Altiris, Inc. v. Symantec Corp.*, 318 F.3d 1363, 1369 (Fed. Cir. 2003) First, the court must (i) "look to the claim language to determine if, as a matter of logic or grammar, they must be performed in the order written" and, if not, (ii) "next look to the rest of the specification to determine whether it directly or implicitly requires such a narrow construction." *Id.* at 1369-70 (internal quotation marks omitted). Here, the antecedent references in independent Claim 35, as a matter of both logic and grammar, require that the steps performed in the order recited:

> A method for digital communication encoding, comprising
>
> [1] encoding data into ***digital signals*** representative of said data,
>
> [2] classifying ***the digital signals*** into ***first and second classes*** according to their influence on data quality wherein said first and second classes are overlapping, and
>
> [3] generating at least two error detection codes respectively corresponding to ***the first and second classes***.

('073 patent at 17:38-44) (emphasis added) Likewise, the language of independent Claim 43 clearly implies the steps are performed in order. (*Id.* at 18:11-20) ("receiving ***encoded digital signals*** . . . decoding ***the received encoded digital signals*** . . . estimating the quality for received digital signals ***based on the result of the decoding*** of received encoded digital signals") (emphasis added) Because the antecedent references in each successive step make clear the prior step serves as its precursor, the claim requires the method steps be performed in their sequence as listed in the claim.

36. (a) "sequence period"

(b) "chip duration" ['0032 patent, claim 1]

IV's Proposed Construction	**Defendants' Proposed Construction**
Plain and Ordinary Meaning. No Construction Necessary.	(a) "the time duration of the modulating sequence, which remains fixed as N varies" (b) "the time duration of a chip of the modulating sequence, which varies inversely to N"
Court's Construction: (a) "the time duration of the modulating sequence, which remains fixed as N varies" (b) "the time duration of a chip of the modulating sequence, which varies inversely to N"	

As a result of the patentee's prosecution history disclaimer, the Court construes "sequence period" as "the time duration of the modulating sequence, which remains fixed as N varies." In order to distinguish the Filipowsky reference, the patentee made a clear and unambiguous disavowal of claim scope to overcome the examiner's rejection:

> The rejection of the claims states that the teachings of the Filipowsky patent include the case where N is greater than K. Alternatively, the Office Action suggests that it would be an obvious design choice to set N greater than K, to provide improved immunity to noise. Even in such a case, however, the patent still fails to teach the present invention. Simply because increased N implies increased sequence length duration, it does not result in bandwidth expansion. In the system of the present invention, the ***sequence duration T is fixed***, so that $T = KT_b = NT_c$. Hence, in the system of the present invention, an increase of N is accompanied by a decrease in T_c, which produces bandwidth expansion. In the system of the Filipowsky patent, an increase in N results in an increase in the sequence length T, and does not effect [sic] the chip duration T_c.

(JCCC Ex. AA (Office Action Response dated February 22, 1999) at 3) (emphasis added) The

patentee made clear that to the extent N or T vary, they must do so inversely to one another. As for "chip duration," it is undisputed that the term means "the time duration of a chip of the modulating sequence," and in light of the disclaimer above, such a time duration – again, to the extent it varies – must do so inversely to N. Hence, the Court adopts Defendants' construction.

III. CONCLUSION

An appropriate Order follows.