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

MOBILE TELECOMMUNICATIONS TECHNOLOGIES, LLC,	§	
	§	
v.	§	CASE NO. 2:13-CV-886-JRG-RSP
	§	
T-MOBILE USA, INC., et al.	§	

CLAIM CONSTRUCTION
MEMORANDUM AND ORDER

On October 21, 2014, the Court held a hearing to determine the proper construction of the disputed claim terms in United States Patents No. 5,590,403, 5,659,891, and 5,915,210. After considering the arguments made by the parties at the hearing and in the parties' claim construction briefing (Dkt. Nos. 58, 62, and 64),[1] the Court issues this Claim Construction Memorandum and Order.

[1] Citations to documents (such as the parties' briefs and exhibits) in this Claim Construction Memorandum and Order shall refer to the page numbers of the original documents rather than the page numbers assigned by the Court's electronic docket.

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BACKGROUND

Plaintiff brings suit alleging infringement of United States Patents No. 5,590,403 ("the '403 Patent"), 5,659,891 ("the '891 Patent"), and 5,915,210 ("the '210 Patent") (collectively, the "patents-in-suit"). In general, the patents-in-suit relate to wireless messaging systems. Below, the Court addresses the '403 Patent and the '210 Patent together and addresses the '891 Patent separately, as the parties have done.

LEGAL PRINCIPLES

"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) (en banc) (quoting *Innova/Pure Water Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1115 (Fed. Cir. 2004)). To determine the meaning of the claims, courts start by considering the intrinsic evidence. *See id.* at 1313; *see also C.R. Bard, Inc. v. U.S. Surgical Corp.*, 388 F.3d 858, 861 (Fed. Cir. 2004); *Bell Atl. Network Servs., Inc. v. Covad Commc'ns Group, Inc.*, 262 F.3d 1258, 1267 (Fed. Cir. 2001). The intrinsic evidence includes the claims themselves, the specification, and the prosecution history. *See Phillips*, 415 F.3d at 1314; *C.R. Bard*, 388 F.3d at 861. Courts give claim terms their ordinary and accustomed meaning as understood by one of ordinary skill in the art at the time of the invention in the context of the entire patent. *Phillips*, 415 F.3d at 1312-13; *accord Alloc, Inc. v. Int'l Trade Comm'n*, 342 F.3d 1361, 1368 (Fed. Cir. 2003).

The claims themselves provide substantial guidance in determining the meaning of particular claim terms. *Phillips*, 415 F.3d at 1314. First, a term's context in the asserted claim can be very instructive. *Id.* Other asserted or unasserted claims can aid in determining the claim's meaning because claim terms are typically used consistently throughout the patent. *Id.*

Differences among the claim terms can also assist in understanding a term's meaning. *Id.* For example, when a dependent claim adds a limitation to an independent claim, it is presumed that the independent claim does not include the limitation. *Id.* at 1314-15.

"[C]laims 'must be read in view of the specification, of which they are a part.'" *Id.* at 1315 (quoting *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979 (Fed. Cir. 1995) (en banc)). "[T]he 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.'" *Phillips*, 415 F.3d at 1315 (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)); *accord Teleflex, Inc. v. Ficosa N. Am. Corp.*, 299 F.3d 1313, 1325 (Fed. Cir. 2002). This is true because a patentee may define his own terms, give a claim term a different meaning than the term would otherwise possess, or disclaim or disavow the claim scope. *Phillips*, 415 F.3d at 1316. In these situations, the inventor's lexicography governs. *Id.* The specification may also resolve the meaning of ambiguous claim terms "where the ordinary and accustomed meaning of the words used in the claims lack sufficient clarity to permit the scope of the claim to be ascertained from the words alone." *Teleflex*, 299 F.3d at 1325. But, "[a]lthough the specification may aid the court in interpreting the meaning of disputed claim language, particular embodiments and examples appearing in the specification will not generally be read into the claims." *Comark Commc'ns, Inc. v. Harris Corp.*, 156 F.3d 1182, 1187 (Fed. Cir. 1998) (quoting *Constant v. Advanced Micro-Devices, Inc.*, 848 F.2d 1560, 1571 (Fed. Cir. 1988)); *accord Phillips*, 415 F.3d at 1323.

The prosecution history is another tool to supply the proper context for claim construction because a patent applicant may also define a term in prosecuting the patent. *Home Diagnostics, Inc., v. Lifescan, Inc.*, 381 F.3d 1352, 1356 (Fed. Cir. 2004) ("As in the case of the

specification, a patent applicant may define a term in prosecuting a patent."). "[T]he prosecution history (or file wrapper) limits the interpretation of claims so as to exclude any interpretation that may have been disclaimed or disavowed during prosecution in order to obtain claim allowance." *Standard Oil Co. v. Am. Cyanamid Co.*, 774 F.2d 448, 452 (Fed. Cir. 1985).

Although extrinsic evidence can be useful, it is "less significant than the intrinsic record in determining the legally operative meaning of claim language." *Phillips*, 415 F.3d at 1317 (citations and internal quotation marks omitted). Technical dictionaries and treatises may help a court understand the underlying technology and the manner in which one skilled in the art might use claim terms, but technical dictionaries and treatises may provide definitions that are too broad or may not be indicative of how the term is used in the patent. *Id.* at 1318. Similarly, expert testimony may aid a court in understanding the underlying technology and determining the particular meaning of a term in the pertinent field, but an expert's conclusory, unsupported assertions as to a term's definition are entirely unhelpful to a court. *Id.* Generally, extrinsic evidence is "less reliable than the patent and its prosecution history in determining how to read claim terms." *Id.*

The Supreme Court of the United States has recently "read [35 U.S.C.] § 112, ¶ 2 to require 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 (2014). "A determination of claim indefiniteness is a legal conclusion that is drawn from the court's performance of its duty as the construer of patent claims." *Datamize, LLC v. Plumtree Software, Inc.*, 417 F.3d 1342, 1347 (Fed. Cir. 2005) (citations and internal quotation marks omitted), *abrogated on other grounds by Nautilus*, 134 S. Ct. 2120.

THE PARTIES' STIPULATED TERMS

The parties have reached agreement on constructions for certain terms, as stated in their Joint Claim Construction and Prehearing Statement (Dkt. No. 54 at Ex. A) and their briefing (*see, e.g.*, Dkt. No. 58 at 5). The parties' agreements are set forth in Appendix A to this Claim Construction Memorandum and Order.

CONSTRUCTION OF DISPUTED TERMS IN U.S. PATENTS NO. 5,590,403 AND 5,915,210

The '403 Patent is titled "Method and System for Efficiently Providing Two Way Communication Between a Central Network and a Mobile Unit." The '403 Patent issued on December 31, 1996, and bears a filing date of November 12, 1992. In general, the '403 Patent relates to dynamic reassignment of transmitters from one zone to another. The Abstract of the '403 Patent states:

> A two-way communication system for communication between a system network and a mobile unit. The system network includes a plurality of base transmitters and base receivers included in the network. The base transmitters are divided into zonal assignments and broadcast in simulcast using multi-carrier modulation techniques. The system network controls the base transmitters to broadcast in simulcast during both systemwide and zonal time intervals. The system network dynamically alters zone boundaries to maximize information throughput. The preferred mobile unit includes a noise detector circuit to prevent unwanted transmissions. The system network further provides an adaptive registration feature for mobile units which controls the registration operations by the mobile units to maximize information throughput.

The '210 Patent is titled "Method and System for Providing Multicarrier Simulcast Transmission." The '210 Patent issued on June 22, 1999, and bears a filing date of July 24, 1997. The '210 Patent is a continuation of a continuation of the '403 Patent. Because the '403 Patent and the '210 Patent therefore share a common written description and figures, the Court herein cites the specification of only the '403 Patent. The Abstract of the '210 Patent states:

> A two-way communication system for communication betw[]een a system network and a mobile unit. The system network includes a plurality of base transmitters and base receivers include[d] in the network. The base transmitters are divided into zonal assignments and broadcast in simulcast using multi-carrier modulation techniques. The system network controls the base transmitters to broadcast in s[]imulcast during both systemwide and zone boundaries to maximize information throughout [*sic*, throughput]. The preferred mobile unit in[cl]udes a noise detector circuit to prevent unwanted transmissions. The system network further provides an adaptive registration feature for mobile units which controls the registration operation by the mobile units to maximize information throughout [*sic*, throughput].

The Court previously addressed the '403 Patent in *Mobile Telecommunications Technologies, LLC v. Clearwire Corp., et al.*, No. 2:12-CV-308-JRG-RSP, Dkt. No. 72, 2013 WL 3339050 (E.D. Tex. July 1, 2013) (referred to as the "*Clearwire Order*" or simply "*Clearwire*").

The Court also addressed the '403 Patent, the '210 Patent, and the '891 Patent in *Mobile Telecommunications Technologies, LLC v. Sprint Nextel Corp., et al.*, Nos. 2:12-CV-832-JRG-RSP, Dkt. No. 162 (E.D. Tex. May 2, 2014) ("*Sprint Order*" or simply "*Sprint*"); *see* Civil Action Nos. 2:13-CV-258-JRG-RSP, 2:13-CV-259-JRG-RSP (consolidated with *Sprint*).

A. "transmitter[s]" and "base transmitter[s]"

Plaintiff's Proposed Construction	**Defendants' Proposed Construction**
No construction necessary; plain and ordinary meaning	plain and ordinary meaning, with the understanding that the Court has rejected [Plaintiff's] implication that transmitting multiple signals or outputs from a single structural unit can suffice as multiple transmitters[2]

[2] Defendants previously proposed: "plain and ordinary meaning, with the understanding that transmitting multiple signals or outputs from a single structural unit cannot suffice as multiple transmitters." Dkt. No. 54, Ex. B at 1.

Dkt. No. 58 at 7; Dkt. No. 62 at 5. The parties submit that these disputed terms appear in Claims 1, 10, and 11 of the '403 Patent and Claims 1 and 10 of the '210 Patent. Dkt. No. 54, Ex. B at 1.

In *Clearwire*, the Court construed the terms "transmitter" and "base transmitter" in the '403 Patent to have their plain and ordinary meaning. *Clearwire*, 2013 WL 3339050, at *2. The Court also found:

> Although the Court recognizes that claims 1 and 10 are method claims, a person of ordinary skill in the art would understand the terms "transmitter" and "base transmitter" to refer to a structural unit, and thus, the number of transmitters in a given system or method is dependent on structure, not function. . . . [T]he Court rejects [Plaintiff's] implication that transmitting multiple signals or outputs from a single structural unit can suffice as multiple transmitters.

Id. (citing '403 Patent at 15:42-44). Nonetheless, the Court also "reject[ed] Clearwire's proposition that a 'transmitter' must be spatially separated or geographically dispersed from other transmitters, because Clearwire has provided no evidence to support reading such a limitation into the claims." *Id.*, at *3.

In *Sprint*, shortly before the March 7, 2014 claim construction hearing, the Court provided the parties with the following preliminary construction for these disputed terms: "Plain [meaning] ([e]xpressly adopt the *Clearwire* findings but do not provide them to the jury as part of a constr[uction]." *Sprint* at 10. During the March 7, 2014 hearing, all parties in *Sprint* agreed to the Court adopting its preliminary construction. *Id.*

Shortly before the start of the October 21, 2014 hearing, the Court provided the parties with the following preliminary construction: "Plain meaning (Expressly adopt the *Clearwire* findings but do not provide them to the jury as part of a construction)."

(1) The Parties' Positions

Plaintiff argues that "[Defendants'] additional limitation imports out-of-context dicta from the *Clearwire* Order that is not applicable in this case. Here, neither party has proposed that transmitting multiple signals or outputs from a single transmitter can suffice as multiple transmitters." Dkt. No. 58 at 7 (footnote omitted). Plaintiff nonetheless cites Claim 2 of the '210 Patent, as well as disclosure in the '891 Patent regarding "co-located transmitter" systems, to argue against any suggestion that "an entire accused device" must be deemed "a single structural unit." *Id.* at 7-8.

Defendants respond that the Court should reach the same conclusion that it reached in *Clearwire* and that the Court preliminarily proposed—and that the parties, including Plaintiff, agreed to accept—in *Sprint*.[3] Dkt. No. 62 at 5-6. Defendants urge that "it is imperative that the Court integrate its finding into its formal construction for the jury. Failing to do so threatens to degrade the trial process into a sideshow where [Plaintiff] tests the Court's limits on arguing its incorrect implication while [Defendants are] prevented from articulating the correct construction to the jury. The jury will be confused and the Court's interpretation will be lost in the mix." Dkt. No. 62 at 6. Alternatively, Defendants argue that "[a]t a minimum the Court should do as it did in the [*Sprint*] case, namely by '[e]xpressly adopt[ing] the Clearwire findings' so as to prohibit [Plaintiff] from making arguments contrary to the Court's findings." *Id.* at 7 n.7.

Plaintiff replies by reiterating that "[t]he Federal Circuit has held that dictum of a prior case which 'involved a different dispute concerning the claim terms' has no bearing on

[3] Defendants also argue that because the Court rejected Plaintiff's arguments in *Clearwire* and *Sprint*, the Court should reject Plaintiff's arguments here "[u]nder principles of *res judicata*." Dkt. No. 62 at 6 n.5. Defendants have not submitted any authority demonstrating that any doctrine of *res judicata* or estoppel is applicable, and the Court hereby expressly rejects any such argument by Defendants.

construction of the term absent that dispute." Dkt. No. 64 at 1 (quoting *Sandisk Corp. v. Memorex Prods., Inc.*, 415 F.3d 1278, 1290-1291 (Fed. Cir. 2005)). Plaintiff also argues that "[i]nsertion of the phrase 'the Court has rejected [Plaintiff's] implication'" would "inject explicit bias against [Plaintiff]." *Id.* at 2.

At the October 21, 2014 hearing, Defendants presented an alternative proposed construction: "separate structural units each transmitting at least one signal."

(2) Analysis

Claim 1 of the '210 Patent, which is representative for purposes of the present disputed terms, recites (emphasis added):

> 1. A multi-carrier simulcast transmission system for transmitting in a desired frequency band at least one message contained in an information signal, the system comprising:
>
> a first *transmitter* configured to transmit a first plurality of carrier signals within the desired frequency band, each of the first plurality of carrier signals representing a portion of the information signal substantially not represented by others of the first plurality of carrier signals; and
>
> a second *transmitter*, spatially separated from the first *transmitter*, configured to transmit a second plurality of carrier signals in simulcast with the first plurality of carrier signals, each of the second plurality of carrier signals corresponding to and representing substantially the same information as a respective carrier signal of the first plurality of carrier signals.

As Plaintiff has noted, Claim 2 of the '210 Patent recites a "first transmitter" and a "second transmitter," each of which comprises multiple transmitters:

> 2. The multi-carrier simulcast transmission system of claim 1, wherein the first transmitter comprises a plurality of transmitters located in a first area, and the second transmitter comprises a plurality of transmitters located in a second area.

Plaintiff has also cited the '891 Patent, which discloses:

> Alternative embodiments of co-located transmitter systems are also possible. For example, the co-located transmitter configurations discussed above can be expanded to support more than two data sources and transmit more than two carriers in the bandlimited channel.

'891 Patent at 4:7-11. Defendants properly point out, however, that the '891 Patent is not related to the '210 Patent. Dkt. No. 62 at 6 n.5. Moreover, as Defendants have argued, "that the reference needs to specify 'co-located' transmitters again only reinforces the Court's prior ruling that transmitting multiple signals from a single structural unit does not constitute multiple transmitters." *Id.*

At the October 21, 2014 hearing, Defendants argued that these disputed terms require that transmitters are geographically separated from one another. As noted above, *Clearwire* rejected such an argument. Moreover, Defendants in the present case did not present this argument in their brief. *See* Dkt. No. 62 at 5-7; *see, e.g.*, *CardSoft, LLC v. VeriFone, Inc.*, --- F.3d ----, 2014 WL 5303000 (Fed. Cir. Oct. 17, 2014) ("Arguments that are not appropriately developed in a party's briefing may be deemed waived."). Defendants' proposal of requiring geographic separation is therefore rejected.

On balance, the Court reaches the same conclusions here as in *Clearwire*. Those conclusions, however, need not be set forth in an explicit claim construction. Defendants' proposal in that regard would tend to confuse rather than clarify the scope of the claims and is therefore hereby expressly rejected. Instead, the Court directs that at trial the parties cannot present any arguments inconsistent with the above-quoted conclusions reached in *Clearwire*.

The Court therefore hereby construes **"transmitter[s]"** and **"base transmitter[s]"** to have their **plain meaning**. The Court further hereby adopts the above-quoted conclusions reached in *Clearwire* and orders that at trial the parties shall not present any arguments inconsistent with those conclusions.

B. "set of transmitters" and "set of base transmitter[s]"

Plaintiff's Proposed Construction	**Defendants' Proposed Construction**
"one or more [base] transmitters"	"set of at least two [base] transmitters"

Dkt. No. 58 at 8; Dkt. No. 62 at 7. The parties submit that these disputed terms appear in Claims 1 and 10 of the '403 Patent. Dkt. No. 54, Ex. B at 1.

Clearwire construed "set of transmitters" to mean "a set of at least two transmitters" and "set of base transmitters" to mean "a set of at least two base transmitters." 2013 WL 3339050, at *3.

In *Sprint*, the Court found that "the use of the plural form of 'transmitters' demonstrates that a 'set of transmitters' requires two or more transmitters." *Sprint* at 14 (citing *Leggett & Platt, Inc. v. Hickory Springs Mfg. Co.*, 285 F.3d 1353, 1357 (Fed. Cir. 2002)). The Court "thus reache[d] the same conclusion [in *Sprint*] as in *Clearwire*." *Sprint* at 14.

Shortly before the start of the October 21, 2014 hearing, the Court provided the parties with the following preliminary constructions: "set of transmitters" means "set[] of at least two transmitters" and "set of base transmitters" means "set of at least two base transmitters."

(1) The Parties' Positions

Plaintiff argues that Defendants' proposal should be rejected because "th[e] preferred embodiment of FIGS. 6 & 7 of the '403 Patent describes a simple system using only two transmitters, one in a first set, and one in a second set, where the two sets are transmitting in simulcast during the first time period." Dkt. No. 58 at 8. Further, Plaintiff argues, "Defendants' construction requiring a particular number of transmitters in a set[] is contrary to [the] plain language of Claim 1, which does not require simulcast transmission among transmitters in a single set (hereafter, 'intra-set simulcasting'), but rather only simulcast transmission among a

first and second set (hereafter, 'inter-set simulcasting')." *Id.* at 10. Claim 10, by contrast, Plaintiff submits, expressly requires intra-set simulcasting. *Id.*

Defendants respond that because the Court in *Sprint* rejected the same arguments that Plaintiff presents again here, the Court should adopt its prior constructions. Dkt. No. 62 at 8.[4]

Plaintiff replies that "grammatical formalism should not trump preferred embodiment disclosure in the specification. The plural object of a prepositional phrase does not always indicate two or more; for example, a 'pair of pants' is only one." Dkt. No. 64 at 2.

At the October 21, 2014 hearing, the parties presented no oral argument on these disputed terms and instead rested on their briefing.

(2) Analysis

Claims 1 and 10 of the '403 Patent recite (emphasis added):

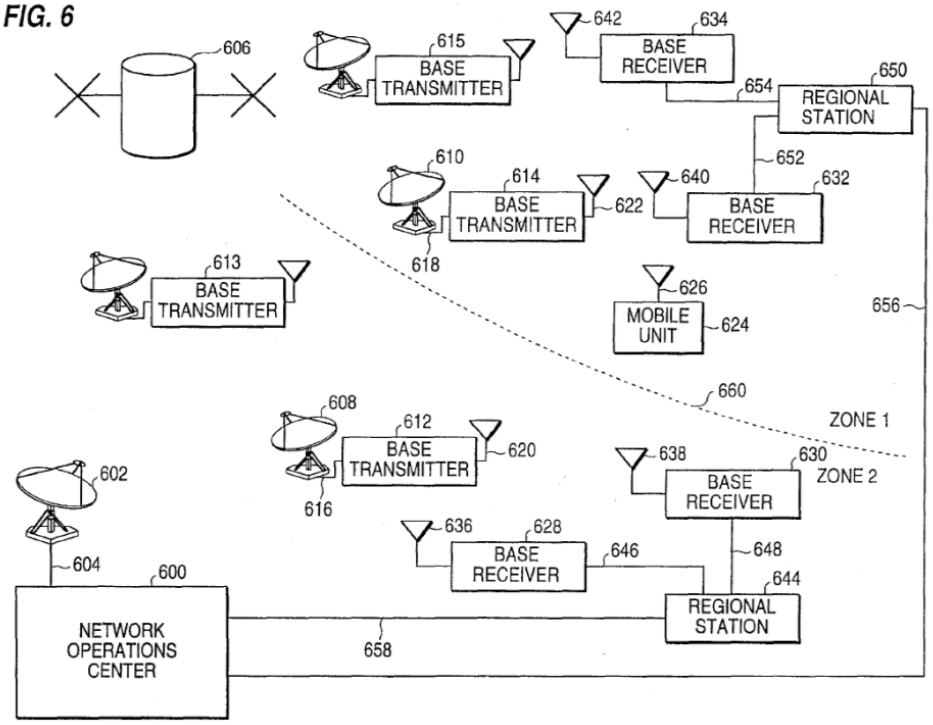
> 1. A method for information transmission by a plurality of transmitters to provide broad communication capability over a region of space, the information transmission occurring during at least both a first time period and a second time period and *the plurality of transmitters being divided into at least a first and second set of transmitters*, the method comprising the steps of:
> (a) generating a system information signal which includes a plurality of blocks of information;
> (b) transmitting the system information signal to the plurality of transmitters;
> (c) *transmitting by the first and second sets of transmitters* a first block of information *in simulcast* during the first time period;
> (d) *transmitting by the first set of transmitters* a second block of information during the second time period; and
> (e) *transmitting by the second set of transmitters* a third block of information during the second time period.
>
> * * *

[4] Defendants also argue that collateral estoppel should bar Plaintiff from re-litigating the construction of these disputed terms. Dkt. No. 62 at 8 (citing *Dynacore Holdings Corp. v. U.S. Philips Corp.*, 243 F. Supp. 2d 31, 35 (S.D.N.Y. 2003), *aff'd*, 363 F.3d 1263 (Fed. Cir. 2004)). Defendants have not shown that collateral estoppel should apply, however, because Defendants have not demonstrated that the prior claim construction was "necessary to support a valid and final judgment on merits." *See, e.g., Dynacore*, 243 F. Supp. 2d at 35.

> 10. A method of communicating messages between a plurality of base transmitters and mobile receivers within a region of space divided into a plurality of zones with each zone having at least one base transmitter assigned thereto, the communication method comprising the steps of:
>
> (a) transmitting substantially simultaneously a first information signal and a second information signal to communicate messages to the mobile receivers, the first information signal being *transmitted in simulcast by a first set of base transmitters assigned to a first zone*, and the second information signal being *transmitted in simulcast by a second set of base transmitters assigned to a second zone*;
>
> (b) dynamically reassigning one or more of the base transmitters in the first *set of base transmitter* [*sic*, transmitters] assigned to the first zone to the second *set of base transmitters* assigned to the second zone as a function of the messages to be communicated in an area, thereby creating an updated first *set of base transmitters* and an updated second *set of base transmitters*; and
>
> (c) transmitting substantially simultaneously a third information signal and a fourth information signal, the third information signal being transmitted in simulcast by the updated first *set of base transmitters*, and the fourth information signal being transmitted in simulcast by the updated second *set of base transmitters* to communicate additional messages to said mobile receivers.

The specification discloses that "FIG. 6 shows an overview of the major elements of a *preferred* communication system according to the present invention." '403 Patent at 8:50-51 (emphasis added). Figure 6 is reproduced here:

FIG. 6



The specification further discloses:

> [T]he exemplary communication system shown in FIG. 6 may transfer the message to the mobile unit during one of two time intervals. In the first time interval, both base transmitter 612 and base transmitter 614 transmit data via antenna 620 and antenna 622, respectively, in simulcast to be received by mobile unit 624, which corresponds to step 706 in FIG. 7. This first alternative may be useful to deliver the message if, for example, the location of mobile unit 624 in zone 1 or zone 2 is unknown and broad coverage is desired.
>
> In the second time interval, base transmitter 614 transmits a block of information including the message data to mobile unit 624 and base transmitter 612 transmits another block of information, which corresponds to steps 708 and 710 of FIG. 7. This second alternative may be useful if, for example, the mobile unit 624 is known to be located in zone 1 and out of range of base transmitter 612. Delivery of the message to mobile unit 624 during the second time interval is advantageous because during message delivery to the mobile unit 624 by base transmitter 614, base transmitter 612 could be delivering a different message to a different mobile unit (not shown). As can be seen, this second alternative would increase information throughput and system efficiency.

'403 Patent at 10:40-62; *see id.* at 6:2-3 ("with each zone having at least one base transmitter assigned thereto"); *see also id.* at 9:42-43 ("Each zone must have one or preferably more transmitters assigned to it.").

As to extrinsic evidence, Plaintiff has cited a dictionary that defines "set" as meaning a "number of things of the same kind that belong or are used together." Dkt. No. 58 at 9 (citing "Webster's Dictionary").

On one hand, "[a]bsent a clear disavowal in the specification or the prosecution history, the patentee is entitled to the full scope of its claim language." *Home Diagnostics*, 381 F.3d at 1358.

On the other hand, in general the plural form of a noun refers to two or more, as found in *Markem-Imaje Corp. v. Zipher Ltd.*, 657 F.3d 1293, 1297 (Fed. Cir. 2011), and *Leggett & Platt*, 285 F.3d at 1357. The Court addressed these and other relevant cases in *Calypso Wireless, Inc., et al. v. T-Mobile USA, Inc.*, No. 2:08-CV-441, Dkt. No. 281 at 27-32 (E.D. Tex. Dec. 3, 2012) (discussing *Flash Seats, LLC v. Paciolon, Inc.*, No. 07-575-JJF, 2010 WL 184080 (D. Del. Jan. 19, 2010), *aff'd*, 469 F. App'x 916 (Fed. Cir. 2012), *Every Penny Counts, Inc. v. Bank of Am. Corp.*, No. 2:07-CV-42-FTM-29SPC, 2008 WL 4491113 (M.D. Fla. Sept. 29, 2008), and *MOAEC, Inc. v. Pandora Media, Inc.*, No. 07-CV-654-BBC, 2008 WL 4500704 (W.D. Wis. Sept. 30, 2008)).

On balance, the use of the plural form of "transmitters" demonstrates that a "set of transmitters" requires two or more transmitters. *See, e.g., Leggett & Platt*, 285 F.3d at 1357

("At the outset, the claim recites 'support wires' in the plural, thus requiring more than one welded 'support wire.'"). The Court thus reaches the same conclusion here as in *Clearwire*.[5]

The Court accordingly hereby construes the disputed terms as set forth in the following chart:

Term	Construction
"set of transmitters"	**"set of at least two transmitters"**
"set of base transmitter[s]"	**"set of at least two base transmitters"**

C. "transmit . . . in simulcast," "transmitted . . . in simulcast," and "transmitting . . . in simulcast"

Plaintiff's Proposed Construction	**Defendants' Proposed Construction**
"transmit / transmitting / transmitted . . . the same information at the same time"	"transmit / transmitting / transmitted . . . the same information at the same time from a plurality of transmitters by modulating a plurality of carrier signals by the same information signal with the understanding that a single transmitter cannot operate in simulcast with itself by using multi-carrier modulation"

Dkt. No. 58 at 12; Dkt. No. 62 at 8. The parties submit that these disputed terms appear in Claims 1 and 10 of the '403 Patent and Claims 1, 10, and 19 of the '210 Patent. Dkt. No. 54, Ex. B at 1.

Clearwire construed these disputed terms in Claims 1 and 10 of the '403 Patent as meaning "transmitting the same information at the same time." 2013 WL 3339050, at *4. The Court also rejected any argument "that a single transmitter can operate in simulcast with itself by using multi-carrier modulation." *Id.*, at *5.

[5] As to Plaintiff's newly-presented analogy that "a 'pair of pants' is only one" (Dkt. No. 64 at 2), it may be *one* pair but it is, in a sense, a pair comprised of *two* "pants," *i.e.*, two pant legs.

In *Sprint*, shortly before the March 7, 2014 claim construction hearing, the Court provided the parties with the following preliminary construction for these disputed terms: "'transmitting the same information at the same time' (expressly adopt the *Clearwire* findings but do not provide them to the jury as part of a construction[])]." *Sprint* at 15 (square brackets omitted). During the March 7, 2014 hearing, all parties in *Sprint* agreed to the Court adopting its preliminary construction. *Id.*

Shortly before the start of the October 21, 2014 hearing, the Court provided the parties with the following preliminary construction: "'[transmit / transmitted / transmitting] . . . the same information at the same time' (Expressly adopt the *Clearwire* findings but do not provide them to the jury as part of a construction)."

(1) The Parties' Positions

Plaintiff argues that Defendants' proposal should be rejected because "the asserted claims of the '403 Patent do not concern a plurality of carrier signals" and, "in light of the remainder of the claim language of the '210 Patent, [Defendants' proposed] construction is incorrect and superfluous because the limitations placed on the plurality of carriers is explicitly defined in the remainder of each asserted claim." Dkt. No. 58 at 13. As to multi-carrier modulation, Plaintiff argues that there is no claim construction dispute because "[Plaintiff] does not contend that a single transmitter simulcasts with itself." *Id.* Instead, Plaintiff argues, "[t]here is an infringement question for the jury as to whether the accused . . . devices and networks include more than one transmitter, and that term is separately being construed by the Court." *Id.* Moreover, Plaintiff argues that "Defendants' proposal should be rejected because it introduces terms from the specification that would require additional explanation to the jury. A reference to

multi-carrier modulation is unlikely to help a juror understand simulcasting, which is already captured by the construction 'transmitting the same information at the same time.'" *Id.* at 13-14.

Defendants respond that the construction should include "a recognition that simulcasting involves modulating the same underlying information signal over multiple carriers" and "clarification that a transmitter cannot operate in simulcast with itself." Dkt. No. 62 at 8-9. Defendants emphasize that "in every case [in the specification], there is one information signal—the same signal—modulated onto multiple carriers." *Id.* at 9. Finally, Defendants submit:

> The Court in *Clearwire* correctly distinguished between transmitting the same *information* and transmitting the same *signals*. *See Clearwire* Order at 9. The Court pointed out that the transmitted signals would, at least in some cases, *not* be identical due, for example, to offsets in carrier frequencies used to prevent interference. *Id.* Consistent with this, [Defendants are] not proposing that the *transmitted* signals must be identical, but rather that the *underlying information signal* (that is modulated onto the carriers to create the transmitted signals) must be the same for simulcasting to occur.

Dkt. No. 62 at 11. Finally, Defendants reiterate that in *Clearwire* the Court "rejected "[Plaintiff's] implication that transmitting multiple signals or outputs from a single structural unit can suffice as multiple transmitters." *Id.* (quoting 2013 WL 3339050, at *3). Defendants argue that this finding "should be part of the formal construction." Dkt. No. 62 at 12.

Plaintiff replies that "[i]ncluding references to both 'the same information' and 'the same information signal' would mislead a jury into requiring that the same information *and* the same signal are being transmitted at the same time, which would effectively undue the Patent's distinction—recognized by this Court—between *information* and *signal*." Dkt. No. 64 at 3. Plaintiff also notes that "Claim 1 refers to the information signal as being transmitted to the transmitters, not from them." *Id.* Further, Plaintiff argues, adding "a plurality of carrier signals" to the construction would be superfluous in the claims of the '210 Patent and would add a "new concept . . . to at least Claim 1 of the '403 Patent." *Id.* at 4.

At the October 21, 2014 hearing, Defendants presented an alternative proposed construction: "transmitting the same information at the same time from a plurality of transmitters modulating with the same information signal." Defendants reiterated that they are not arguing that the signal coming *out of* each transmitters must be the same. For example, Defendants submitted that there may be a frequency offset. *See* '403 Patent at 2:11-19 & 13:38-47. Instead, Defendants argued, the information signal going *into* each transmitter must be the same. Defendants submitted that the specification contains no disclosure of providing different information signals to the transmitters for simulcasting.

(2) Analysis

As a threshold matter, the Court hereby adopts its prior rejection, in *Clearwire*, of any argument "that a single transmitter can operate in simulcast with itself by using multi-carrier modulation." 2013 WL 3339050, at *5. Nonetheless, Defendants' proposed construction in this regard is unnecessary and is rejected as tending to confuse rather than clarify the scope of the claims. Instead, the Court hereby directs that at trial the parties cannot present any arguments inconsistent with the above-quoted conclusion reached in *Clearwire*.

Claims 1 and 10 of the '403 Patent are reproduced in the discussion of the "set of transmitters" terms, above.

Claims 1, 10, and 19 of the '210 Patent recite (emphasis added):

> 1. A multi-carrier *simulcast* transmission system for transmitting in a desired frequency band at least one message contained in an *information signal*, the system comprising:
>
> a first transmitter configured to transmit a first plurality of carrier signals within the desired frequency band, each of the first plurality of carrier signals representing a portion of the *information signal* substantially not represented by others of the first plurality of carrier signals; and
>
> a second transmitter, spatially separated from the first transmitter, configured to *transmit* a second plurality of carrier signals *in simulcast* with the first plurality of carrier signals, each of the second plurality of carrier signals

corresponding to and representing substantially the same *information* as a respective carrier signal of the first plurality of carrier signals.

* * *

10. In a multi-carrier *simulcast* transmission system, a method for transmitting in a desired frequency band at least one message contained in an *information signal*, the method comprising the steps of:

generating a first plurality of carrier signals within the desired frequency band, each of the first plurality of carrier signals representing a portion of the *information signal* substantially not represented by others of the first plu[ra]lity of carrier signals;

generating a second plurality of carrier signals within the desired frequency band, each of the second plurality of carrier signals corresponding to and representing substantially the *same information* as a respective carrier signal of the first plurality of carrier signals;

transmitting the first plurality of carrier signals from a first transmitter;

transmitting the second plurality of carrier signals from a second transmitter *in simulcast* with transmission of the first plurality of carrier signals from the first transmitter.

* * *

19. A multi-carrier *simulcast* transmission system for transmitting in a desired frequency band at least one message contained in an *information signal*, the system comprising:

means for transmitting a first plurality of carrier signals within the desired frequency band, each of the first plurality of carrier signals representing a portion of the *information signal* substantially not represented by others of the first plurality of carrier signals; and

means for *transmitting* a second plurality of carrier signals *in simulcast* with the first plurality of carrier signals, each of the second plurality of carrier signals corresponding to and representing substantially the *same information* as a respective carrier signal of the first plurality of carrier signals.

The Background of the Invention states:

However, in "overlap" areas D, E, and F shown in FIG. 1, where the signals from two or more transmitters are approximately equal, problems can arise because destructive interference of signals occurs in these overlap areas such as areas D, E, and F. *Destructive interference occurs when the two signals are equal in magnitude and 180° out of phase and completely cancel each other.* While there were some successes, reliable design procedures were not available.

Attempting to precisely synchronize the carrier frequencies of all simulcast transmitters does not overcome the problem because points (i.e. nodes) at which

> destructive summing occurred persisted for long periods of time. At such points, a mobile receiver can not receive the simulcast signal.
>
> Deliberately offsetting the carrier frequencies of adjacent transmitters can ensure that destructive interference does not persist at one point for an extended period of time. The slight errors in frequency displayed by high quality reference oscillators (e.g., 20 hertz errors in 100 MHz signals or a few parts in 10^7) render deliberate offsetting unnecessary.

'403 Patent at 1:64-2:16 (emphasis added); *see id.* at 3:63-65 ("Simulcast operation avoids the need for scanning and re-tuning as the mobile unit moves between areas."). The specification further discloses:

> As explained in the Background of the Invention section, if base transmitters 612 and 614 are *broadcasting identical signals* on the same frequencies in *simulcast*, good reception by a receiver located near the dashed line 660, and possibly in an overlap area (not shown), can be achieved. *Simulcast* thus may provide uniform transmitter coverage for the region shown in FIG. 6. However, if base transmitter 612 is *broadcasting a first information signal* and base transmitter 614 is *broadcasting a different, second information signal* on identical frequencies simultaneously, it will likely be difficult for a receiver located in the overlap area to receive either the first or the second information signal. In this instance, the overlap area may be referred to as an interference area because *a receiver in this area would receive a composite signal, including the first and second information signal*, that would likely be unusable.

Id. at 10:3-9 (emphasis added).

> It should also be understood that in accordance with good simulcast practice, the respective carrier frequencies between adjacent base transmitters, such as base transmitter 612 and base transmitter 614 in FIG. 6, should be slightly offset to prevent sustained nodes or "dead spots" where destructive interference between the signals from each transmitter provides an unusable composite signal, as was explained in the background section of this application. This frequency offset is preferably on the order of 10-20 hertz.

Id. at 13:39-47.

> In accordance with the invention, a preferred method 2600 for accomplishing zonal redefinition is shown in FIG. 26. In accordance with the method, step 2602 provides for transmitting substantially simultaneously a first information signal and a second information signal, *the first information signal being transmitted in simulcast by a first set of base transmitters* assigned to a first zone, and *the second information signal being transmitted in simulcast by a second set of base*

> *transmitters* assigned to a second zone. For example, as shown in FIG. 25, the base transmitters in zone 1 defined by boundary line 2502 could be the first set of base transmitters, and the base transmitters located in zone 2 defined by boundary line 2504 could be the second set of base transmitters.

Id. at 24:39-47 (emphasis added).

On balance, Defendants have failed to adequately support their proposal of "modulating a plurality of carrier signals by the same information signal." In particular, whereas some claim limitations use the term "information signal," others also refer to merely "information." *Compare* '403 Patent at Claims 1 & 10 ("information signal") *with* '210 Patent at Claims 1, 10 & 19 ("information signal" and "information"). Defendants' proposal, which would require an "information signal" in all limitations, is therefore rejected.

The Court accordingly hereby construes **"transmit . . . in simulcast," "transmitted . . . in simulcast,"** and **"transmitting . . . in simulcast"** to mean **"[transmit / transmitted / transmitting] . . . the same information at the same time."** The Court further hereby adopts the above-quoted conclusions reached in *Clearwire* and orders that at trial the parties shall not present any arguments inconsistent with those conclusions.

D. "block of information"

Plaintiff's Proposed Construction	**Defendants' Proposed Construction**
No construction necessary; plain and ordinary meaning.	"a discrete portion of an electromagnetic signal that comprises a message or messages for transmission"

Dkt. No. 58 at 14. The parties submit that this disputed term appears in Claim 1 of the '403 Patent. Dkt. No. 54, Ex. B at 1.

Plaintiff has argued that "[t]he term 'block of information' is commonly understood in the art, clear on its face, and therefore does not require construction." Dkt. No. 58 at 14. Plaintiff has also noted that the only disclosure regarding an "electromagnetic" signal is with

reference to a potentially interfering signal. *Id.* at 15. Further, Plaintiff has argued, rather than comprising a message or messages, "the specification specifically discloses that blocks of information are a smaller part of an electronic message." *Id.* (citing '403 Patent at 10:23-27).

Defendants responded:

> With respect to the term "block [of] information," for which the parties previously had a dispute, [Defendants] note[] that in arguing what the plain meaning of "block [of] information" should be, [Plaintiff] proposes the following in its brief: "The term 'block of information' is sufficiently explained in the claim language as well as the specification: *a system information signal* includes a plurality of blocks of information which, in the aggregate, include an electronic message." Dkt. 58 . . . at 14 (emphasis added). [Defendants] agree[] that "block [of] information" is a discrete portion of a system information signal. Therefore, so as to narrow disputes, [Defendants] withdraw[] [their] proposed construction, such that both parties propose plain meaning.

Dkt. No. 62 at 5 n.2.

Plaintiff has replied by noting that "[Defendants] agree[] that the Court should afford this term its plain and ordinary meaning." Dkt. No. 64 at 4.

This agreement between the parties is set forth in Appendix A to this Claim Construction Memorandum and Order.

CONSTRUCTION OF DISPUTED TERMS IN U.S. PATENT NO. 5,659,891

The '891 Patent is titled "Multicarrier Techniques in Bandlimited Channels." The '891 Patent issued on August 19, 1997, and bears a filing date of June 7, 1995. In general, the '891 Patent relates to operating more than one carrier within a single channel. The Abstract of the '891 Patent states:

> A method of multicarrier modulation using co-located transmitters to achieve higher transmission capacity for mobile paging and two-way digital communication in a manner consistent with FCC emission mask limits. Co-location of the transmitters obviates the need for stringent, symmetrical subchannel interference protection and provides for a wider range of operating parameters, including peak frequency deviation, bit rate, and carrier frequencies, to obtain optimal transmission performance.

The Court addressed the '891 Patent in *Sprint*, and relevant findings therein are set forth as to particular disputed terms below.

A. "single mask-defined, bandlimited channel"

Plaintiff's Proposed Construction	**Defendants' Proposed Construction**
"a channel confined to a frequency range"[6]	"a channel confined to a frequency range meeting the FCC paging requirements"

Dkt. No. 58 at 16; Dkt. No. 62 at 12; *see* Dkt. No. 64 at 4. The parties submit that this disputed term appears in Claims 1, 3, and 5 of the '891 Patent. Dkt. No. 54, Ex. B at 3.

In *Sprint*, the parties agreed to construe this term to mean "a channel confined to a frequency range." *Sprint* at 76.

Shortly before the start of the October 21, 2014 hearing, the Court provided the parties with the following preliminary construction: "a channel confined to a frequency range."

(1) The Parties' Positions

Plaintiff argues that "FCC paging requirements" are not set forth in the specification and, moreover, "[t]he word 'paging' in Claims 1, 3, and 5 of the '891 Patent is only used in the non-limiting preamble." Dkt. No. 58 at 16. Plaintiff also notes that the Federal Communications Commission ("FCC") is not mentioned anywhere in the specification and "emission masks are used by various organizations, such as the IEEE for example." *Id.* at 17. Further, Plaintiff argues, "[a]dding this new limitation would create difficulties for a jury because it would require the jury to understand numerous complex topics regarding emission masks, spectral densities, and attenuations and the like, when it is only the effect of these complexities, the relative

[6] Plaintiff previously proposed: "No construction necessary; plain and ordinary meaning." Dkt. No. 54, Ex. B at 3.

confinement of the channel, which is relevant to the claims. It is unnecessary to so complicate the claim language, because the precise requirements of the claimed channel are explicitly recited in the remainder of the independent claims." *Id.* (footnote omitted).

Defendants respond that "[m]eeting FCC regulations is emphasized repeatedly in the patent." Dkt. No. 62 at 13. Defendants also note that "'47 C.F.R. § 22.106 (1994),' the relevant FCC regulations for emissions masks, is listed on the face of the patent as one of the references cited." *Id.* at 14. Likewise, Defendants cite an Information Disclosure Statement, filed during prosecution of the '891 Patent, in which the patentee referred to an FCC regulation. *Id.*

Plaintiff replies that "the FCC is not mentioned in any of the claims of the '891 Patent, and the patent specification—while explaining the background of the invention in relation to FCC requirements—carefully avoids importing any regulatory limitation into the claimed invention." Dkt. No. 64 at 5. Plaintiff emphasizes that "in the 'Detailed Description of the Preferred Embodiments,' the only reference to paging is in the description of one of the preferred embodiments, which the specification clarifies is 'purely exemplary.'" *Id.* (citing '891 Patent at 4:53-55). As to the prosecution history, Plaintiff argues that the patentee nowhere defined the invention as limited to paging. *Id.* at 5-6.

(2) Analysis

Claim 5 of the '891 Patent is representative for purposes of the present disputed term and recites (emphasis added):

> 5. In a *paging system* having a plurality of transmitters transmitting a plurality of modulated carriers over a *single mask-defined, bandlimited channel* and a plurality of mobile receiving units independently receiving one of said plurality of carriers, a method of operating said plurality of carriers in said channel to achieve higher transmission capacity comprising the steps of:
>
> co-locating said plurality of transmitters such that said plurality of carriers can be emanated from the same transmission source; and

> transmitting said plurality of carriers over a plurality of subchannels spaced within *the mask defining said channel* wherein the frequency difference between the center frequency of the outer most carriers and the band edge of *said mask* is greater than half the frequency difference between the center frequencies of each adjacent carrier.

Thus, although the preamble of this claim refers to a "paging system," the claim does not refer to FCC requirements.

In some cases, description of the "invention" in the specification has been found to be limiting. *See, e.g., Honeywell Int'l, Inc. v. ITT Indus.*, 452 F.3d 1312, 1318 (Fed. Cir. 2006) ("On at least four occasions, the written description refers to the fuel filter as 'this invention' or 'the present invention' . . . The public is entitled to take the patentee at his word and the word was that the invention is a fuel filter."); *see also SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc.*, 242 F.3d 1337, 1343 (Fed. Cir. 2001) ("the characterization of the coaxial configuration as part of the 'present invention' is strong evidence that the claims should not be read to encompass the opposite structure"); *Verizon Servs. Corp. v. Vonage Holdings Corp.*, 503 F.3d 1295, 1308 (Fed. Cir. 2007) ("When a patent thus describes the features of the 'present invention' as a whole, this description limits the scope of the invention.").

The Abstract of the '891 Patent refers to paging and the FCC (emphasis added):

> A method of multicarrier modulation using co-located transmitters to achieve higher transmission capacity for mobile *paging* and two-way digital communication in a manner *consistent with FCC emission mask limits*.

The Description of Related Art likewise states:

> The rising popularity of mobile *paging* services has resulted in increased competition for air time on the limited number of radiofrequency channels allocated by the *Federal Communications Commission (FCC)* for mobile *paging* use.

Id. at 1:11-14 (emphasis added); *see id.* at 1:22-24 ("Channels assigned by the FCC to radio paging providers typically have narrow bandwidths (e.g. 25 kHz) and are subject to stringent

emission mask limitations."); *see also id.* at 1:39-46 ("compliance with FCC mask requirements").

> The FCC requires signals to be confined within emission limit masks in order to prevent interference caused by signals straying or spilling into adjacent channels. FCC masks typically require the power spectral density of a signal to be attenuated at least 70 dB at the band edge. Despite these stringent constraints, some carrier overlap can be expected, even when the maximum carrier spacing consistent with the FCC mask requirements is utilized. Such overlap can result in unacceptable interference of the carriers, making it difficult for the receivers to acquire the proper carrier.

Id. at 1:57-64. The specification then discloses:

> In accordance with the present invention, these and other [operating] parameters can be adjusted so that the carriers generated and transmitted according to the present invention will remain within the FCC emission limits while providing optimal transmission performance.

Id. at 4:41-46.

> In the modulation technique of the present invention, carriers operating at different frequencies are fit within a single bandwidth allocation in a manner consistent with FCC mask requirements.

Id. at 5:15-19; *see id.* at 3:16-18 ("FIG. 4 is a graph depicting an exemplary FCC emissions mask that requires the power spectral density to be attenuated at least 70 dB within 10kHz from center frequency."); *see also id.* at 4:12-15, 4:47-53 & 4:61-63.

On balance, the above-cited *Honeywell* case and similar cases are inapplicable because although the above-quoted and above-cited disclosures suggest that the claimed invention may be useful in a paging system, the specification does not state that the invention is limited to "paging" channels or channels "defined by FCC paging requirements," as Defendants have proposed.

As for the prosecution history, Defendants have emphasized that the patentee submitted an Information Disclosure Statement ("IDS") disclosing 47 C.F.R. § 22.106 (1994). Dkt. No. 62,

Ex. 10, Information Disclosure Statement Under 37 C.F.R. § 1.97(b). Defendants have not demonstrated, however, that the IDS gave rise to any clear and unmistakable disclaimer. *See Omega Eng'g v. Raytek Corp.*, 334 F.3d 1314, 1324 (Fed. Cir. 2003) ("As a basic principle of claim interpretation, prosecution disclaimer promotes the public notice function of the intrinsic evidence and protects the public's reliance on *definitive* statements made during prosecution.") (emphasis added); *id.* at 1325-26 ("[F]or prosecution disclaimer to attach, our precedent requires that the alleged disavowing actions or statements made during prosecution be both *clear and unmistakable*.") (emphasis added).

Finally, at the October 21, 2014 hearing, Defendants urged that the *Clearwire* construction, proposed here by Plaintiff, perhaps gives meaning to "bandlimited channel" but fails to give meaning to "mask-defined." *See Bicon, Inc. v. Straumann Co.*, 441 F.3d 945, 950 (Fed. Cir. 2006) ("[C]laims are interpreted with an eye toward giving effect to all terms in the claim."). On balance, "bandlimited" has been given appropriate meaning through the "frequency range" portion of the *Clearwire* construction, and "mask-defined" has been given appropriate meaning through the "confined" portion of the *Clearwire* construction. That is, whereas "bandlimited" refers to a range of frequencies," "mask-defined" refers to the mask that confines a signal to that range, such as the edge-attenuated mask illustrated in Figure 4. *See* '891 Patent at 1:57-67 & 4:27-54 & Fig. 4.

The Court therefore hereby expressly rejects Defendants' proposal of limiting the disputed term to "meeting the FCC paging requirements." The Court also rejects Defendants' proposal, at the October 21, 2014 hearing, of including in the construction a reference to particular federal regulations, such as 47 C.F.R. § 22.106 (1994). *See* Dkt. No. 62, Ex. 10, Information Disclosure Statement Under 37 C.F.R. § 1.97(b).

The Court accordingly hereby construes **"single mask-defined, bandlimited channel"** to mean **"a channel confined to a frequency range."**

B. "independently receiving one of said plurality of carriers"

Plaintiff's Proposed Construction	**Defendants' Proposed Construction**
No construction necessary; plain and ordinary meaning	"receiving only one carrier of the plurality of carriers"

Dkt. No. 58 at 18; Dkt. No. 62 at 15. The parties submit that this disputed term appears in Claim 5 of the '891 Patent. Dkt. No. 54, Ex. B at 3.

Shortly before the start of the October 21, 2014 hearing, the Court provided the parties with the following preliminary construction: "Plain meaning."

(1) The Parties' Positions

Plaintiff argues that the prosecution history relied upon by Defendants does not support Defendants' proposed construction because the prior art reference at issue, United States Patent No. 3,488,445 ("Chang") "differs from the '891 patent by involving the simultaneous receipt of multiplexed orthogonal carriers over a simple transmission line." Dkt. No. 58 at 19. "The '891 Patent, on the other hand," Plaintiff argues, "claims that a plurality [of] mobile receiving units independently receive one subcarrier. Whether or not the plurality of mobile units also receive any additional subcarriers is irrelevant to the claim." *Id.* Further, Plaintiff submits, "Applicants had no reason to make a statement . . . to limit how many subcarriers were received by the claimed invention, because the examiner found that the admitted prior art had already taught the limitation of 'a plurality of mobile receiving units independently receiving one of the plurality of carriers.'" *Id.*

Defendants respond that "[b]y arguing that the claim allows receiving more than one carrier, [Plaintiff] seeks to re-write the claim by replacing the phrase 'independently receiving one' with the phrase 'receiving one or more.'" Dkt. No. 62 at 15. Defendants also cite the above-mentioned prosecution history involving the Chang reference, arguing that the patentee "disclaimed any construction of 'independently receiving one' that would encompass 'receiv[ing] the entire frequency spectrum of *all the channels*.'" *Id.* at 16 (quoting *id.*, Ex. 14, 8/9/1996 Amendment at 6) (emphasis Defendants'). Finally, Defendants argue that "[i]f [Defendants'] refinement is not adopted, then the claim will be indefinite as it will not be clear what scope the phrase 'independently receiving one' will have, consistent with the prosecution history." *Id.* at 16 n.12.

Plaintiff replies that "Chang . . . requires receipt of the entire frequency spectrum of all channels while the '891 Patent claims that a plurality of mobile receiving units may independently receive a subcarrier." Dkt. No. 64 at 7.

At the October 21, 2014 hearing, the parties presented no oral argument on this disputed term and instead rested on their briefing.

(2) Analysis

Claim 5 of the '891 Patent recites (emphasis added):

> 5. In a paging system having a plurality of transmitters transmitting a plurality of modulated carriers over a single mask-defined, bandlimited channel and a plurality of mobile receiving units *independently receiving one of said plurality of carriers*, a method of operating said plurality of carriers in said channel to achieve higher transmission capacity comprising the steps of:
>
> co-locating said plurality of transmitters such that said plurality of carriers can be emanated from the same transmission source; and
>
> transmitting said plurality of carriers over a plurality of subchannels spaced within the mask defining said channel wherein the frequency difference between the center frequency of the outer most carriers and the band edge of said mask is greater than half the frequency difference between the center frequencies of each adjacent carrier.

Defendants are correct, as a general matter, that "[t]he purpose of consulting the prosecution history in construing a claim is to exclude any interpretation that was disclaimed during prosecution." *Chimie v. PPG Indus., Inc.*, 402 F.3d 1371, 1384 (Fed. Cir. 2005) (citation and internal quotation marks omitted).

The examiner rejected the claim at issue as "unpatentable over the prior art admitted by the Applicant in view of Chang . . .":

> As to claim 5, pages 1-3 of the admitted prior art teaches all what is claimed, except transmitting the plurality of carriers over a plurality of subchannels spaced asymmetrically within the mask defining the channel. Chang teaches what is claimed in col. 1, lines 60-68 where asymmetry reads on overlap.

Dkt. No. 62, Ex. 13, 2/9/1996 Office Action at 3. As a threshold matter, Plaintiff's argument that "Applicants had no reason to make a statement . . . to limit how many subcarriers were received" is of minimal persuasive weight, if any, because the issue of disclaimer ultimately turns on what the patentee stated. *See Andersen Corp. v. Fiber Composites, LLC*, 474 F.3d 1361, 1374 (Fed. Cir. 2007) ("An applicant's invocation of multiple grounds for distinguishing a prior art reference does not immunize each of them from being used to construe the claim language. Rather, as we have made clear, an applicant's argument that a prior art reference is distinguishable on a particular ground can serve as a disclaimer of claim scope even if the applicant distinguishes the reference on other grounds as well.").

The patentee responded as follows, in relevant part:

> Chang does not disclose a "plurality of mobile receiving units independently receiving one of said plurality of carriers," as required by Applicants' claim 5. Nor does Chang disclose a method of transmitting a plurality of carriers over a plurality of "subchannels" that are asymmetrically located "within the mask defining said channel." Each "channel" of Chang of a particular orthogonality is non-overlapped with an adjacent channel of the same orthogonality. There is no teaching in Chang of "subchannels," as required by the mobile receiver paging system of claim 5. Accordingly, *to receive any one channel in Chang, a mobile*

> *receiving unit would need to receive the entire frequency spectrum of all the channels. This is directly contrary to the requirements of claim 5.*

Id., Ex. 14, 8/9/1996 Amendment at 6 (emphases modified). That is, in more common parlance, the patentee distinguished the Chang reference as lacking disclosure of the ability to "tune" to a particular subchannel.

The patentee thus explained that the claim requires a capability of receiving a particular channel regardless of whether other channels are received. This meaning is readily evident from the language of the disputed term itself.

Thus, Defendants' proposal of limiting the claim to receiving one *and only one* channel is an unwarranted extrapolation from what the patentee actually argued, as set forth above. *See Omega*, 334 F.3d at 1324 ("As a basic principle of claim interpretation, prosecution disclaimer promotes the public notice function of the intrinsic evidence and protects the public's reliance on *definitive* statements made during prosecution.") (emphasis added); *id.* at 1325-26 ("[F]or prosecution disclaimer to attach, our precedent requires that the alleged disavowing actions or statements made during prosecution be both *clear and unmistakable*.") (emphasis added). Defendants' proposed construction is therefore hereby expressly rejected.

No further construction is necessary. *See U.S. Surgical Corp. v. Ethicon, Inc.*, 103 F.3d 1554, 1568 (Fed. Cir. 1997) ("Claim construction is a matter of resolution of disputed meanings and technical scope, to clarify and when necessary to explain what the patentee covered by the claims, for use in the determination of infringement."); *see also O2 Micro Int'l Ltd. v. Beyond Innovation Tech. Co.*, 521 F.3d 1351, 1362 (Fed. Cir. 2008) ("[D]istrict courts are not (and should not be) required to construe every limitation present in a patent's asserted claims."); *Finjan, Inc. v. Secure Computing Corp.*, 626 F.3d 1197, 1207 (Fed. Cir. 2010) ("Unlike *O2*

Micro, where the court failed to resolve the parties' quarrel, the district court rejected Defendants' construction.").

The Court therefore hereby construes **"independently receiving one of said plurality of carriers"** to have its **plain meaning**.

C. "paging carriers" and "modulated carriers"

Plaintiff's Proposed Construction	**Defendants' Proposed Construction**
"radio frequency transmission signals that are capable of being modulated to carry paging information"	"radio frequency transmission signals that are capable of being modulated to carry paging information *and are not orthogonally multiplexed*"

Dkt. No. 58 at 19-20; Dkt. No. 62 at 17 (emphasis Defendants'). The term "paging carriers" appears in Claims 1 and 3 of the '891 Patent. The term "modulated carriers" appears in Claim 5 of the '891 Patent. The parties agree that these two disputed terms should be construed together. *See id.*

In *Sprint*, the Court construed "paging carrier" to mean "transmission signal that can be modulated to carry paging information." *Sprint* at 19.

Shortly before the start of the October 21, 2014 hearing, the Court provided the parties with the following preliminary construction: "radio frequency transmission signals that are capable of being modulated to carry paging information."

(1) The Parties' Positions

Plaintiff argues that "[t]he specification of the '891 patent does not contain any discussion of whether subcarriers are orthogonally multiplexed or not. In fact, the word orthogonal does not appear in the '891 patent specification." Dkt. No. 58 at 20. As to the prosecution history cited by Defendants, Plaintiff argues that "[w]hile the cited prior art [(Chang)] disclosed orthogonally multiplexed carriers, the novelty of the '891 patent is not the

requirement that paging carriers are not orthogonally multiplexed as required by [Defendants'] construction." *Id.*

Defendants respond that they "add[] the refinement 'and are not orthogonally multiplexed' to expressly reflect the scope specified by the patent applicants in the prosecution record." Dkt. No. 62 at 17. Specifically, Defendants argue that while distinguishing the above-discussed Chang reference, the patentee "disclaimed any construction of 'paging carriers' that encompasses carriers that are orthogonally multiplexed with one another." *Id.* at 18.

Plaintiff replies that the prosecution history cited by Defendants is open to multiple interpretations and "[Defendants] ha[ve] simply chosen the interpretation that best suits [their] case. This is insufficient for the unequivocal disavowal of claim scope required for the application of prosecution history estoppel [*sic*, disclaimer]." Dkt. No. 64 at 7.

At the October 21, 2014 hearing, Defendants reiterated their position that, during prosecution, the only relevant basis upon which the patentee distinguished Chang was the use of orthogonal multiplexing in Chang. Plaintiffs responded by highlighting that the patentee characterized Chang as a wire line system and by noting that the prosecution history cited by Defendants pertains to original claims 5-7, which were cancelled.

(2) Analysis

Claim 5 of the '891 Patent is reproduced in the discussion of previous terms, above. Claims 1 and 3 of the '891 Patent are reproduced in the discussion of the term "same location," discussion below.

During prosecution, the patentee stated:

> . . . Applicants' method does not involve the simultaneous receipt of multiplexed orthogonal carriers over a simple transmission line, as disclosed by *Chang*. Rather, in Applicants' claimed method, a plurality of carriers are broadcasted over

> a plurality of individual subchannels spaced asymmetrically within a bandlimited channel. * * *
>
> *Chang* discloses a plurality of data signals that are orthogonally multiplexed on equally spaced carrier frequencies for transmission via odd and even channels. In this regard, no even channel is overlapped with another even channel. Similarly, no odd channel is overlapped with another odd channel. The even and odd channels are instead superimposed on each other and then separated at a common receiver by an orthogonal demuliplexing method.

Dkt. No. 62, Ex. 14, 8/9/1996 Amendment at 5-6.

Of particular note, the patentee's reference to orthogonal multiplexing is coupled with "simultaneous receipt" over a "simple transmission line" and "equally spaced carrier frequencies for transmission via odd and even channels" such that "no even channel is overlapped with another even channel" and "no odd channel is overlapped with another odd channel." *Id.* Also, as to the patentee's reference to a "simple transmission line," the patentee characterized Chang as "disclos[ing] a point-to-point *wire line data transmission system* that simultaneously transmits and simultaneously receives a plurality of multiplexed band-limited data signals over a line 49 using mutually orthogonal signaling channels." *Id.* at 2 (emphasis added).

On balance, the prosecution history cited by Defendants does not amount to a clear disclaimer of orthogonal multiplexing. *See Omega*, 334 F.3d at 1324 ("As a basic principle of claim interpretation, prosecution disclaimer promotes the public notice function of the intrinsic evidence and protects the public's reliance on *definitive* statements made during prosecution.") (emphasis added); *see also id.* at 1325-26 ("[F]or prosecution disclaimer to attach, our precedent requires that the alleged disavowing actions or statements made during prosecution be both *clear and unmistakable*.") (emphasis added); *Golight, Inc. v. Wal-Mart Stores, Inc.*, 355 F.3d 1327, 1332 (Fed. Cir. 2004) ("Because the statements in the prosecution history are subject to multiple

reasonable interpretations, they do not constitute a clear and unmistakable departure from the ordinary meaning of the term 'rotating.'").

Because Defendants have thus failed to establish any clear disclaimer, Defendants' proposed construction is hereby expressly rejected.

The Court accordingly hereby construes **"paging carriers"** and **"modulated carriers"** to mean **"radio frequency transmission signals that are capable of being modulated to carry paging information."**

D. "same location"

Plaintiff's Proposed Construction	**Defendants' Proposed Construction**
No construction necessary; plain and ordinary meaning.	"same antenna"

Dkt. No. 58 at 21; Dkt. No. 62 at 19. The parties submit that this disputed term appears in Claims 1 and 3 of the '891 Patent. Dkt. No. 54, Ex. B at 3.

Shortly before the start of the October 21, 2014 hearing, the Court provided the parties with the following preliminary construction: "Plain meaning."

(1) The Parties' Positions

Plaintiff argues: "When a term is neither highly technical nor complex and can easily be understood by a jury, no construction is necessary. The term 'same location,' especially when considered in the context of the claim language, epitomizes this axiom of claim construction." Dkt. No. 58 at 21 (footnote omitted). Plaintiff explains that Defendants' proposal is incorrect because the specification "makes clear that the term 'same location' refers to the same geographic location." *Id.* (citing '891 Patent at 1:54-56). "While FIGS. 1 and 2 do depict transmitters that in fact use the same antenna," Plaintiff notes, "the specification is clear that

these are preferred embodiments and specifically recites that 'alternative embodiments of co-located transmitter systems are also possible.'" Dkt. No. 58 at 21-22 (citing '891 Patent at 3:38-40 & 4:7-8).

Defendants respond that "[w]hen looking to the correct portions of the patent, where the alleged invention is described, the only supported construction is [Defendants']." Dkt. No. 62 at 20. Defendants emphasize that "[n]owhere does the '891 patent disclose using multiple antennas, nor is it clear from the specification how the claimed invention could be carried out with multiple antennas." *Id.* Further, Defendants argue, the claim language and the Summary of the Invention "reflect that the transmission over the 'single mask-defined, bandlimited channel' occurs over the same antenna (namely, the 'same transmission source'), and the Summary describes this as an aspect of 'the invention.'" *Id.* at 21. Finally, Defendants submit that "[Plaintiff's] proposed construction would render the claim indefinite, as uncertainty of claim scope would arise as to what is meant by 'the same geographic location' in terms of size of region." *Id.* at 21 n.15.

Plaintiff replies that "[Defendants] cite[] nothing to support that a plurality of carriers could not be transmitted in a single mask-defined, bandlimited channel using more than one antenna, or that multiple transmitters cannot transmit a plurality of carriers using multiple antennas and a single mask-defined, bandlimited channel." Dkt. No. 64 at 8.

At the October 21, 2014 hearing, the parties presented no oral argument on this disputed term and instead rested on their briefing.

(2) Analysis

Claims 1 and 3 of the '891 Patent recite (emphasis added):

> 1. A method of operating a plurality of paging carriers in a single mask-defined, bandlimited channel comprising the step of transmitting said carriers from the

> *same location* with said carriers having center frequencies within said channel such that the frequency difference between the center frequency of the outer most of said carriers and the band edge of the mask defining said channel is more than half the frequency difference between the center frequencies of each adjacent carrier.
>
> * * *
>
> 3. A method of operating at least two paging carriers each in a corresponding subchannel of a single mask-defined, bandlimited channel comprising the step of transmitting said carriers from the *same location* with each carrier centrally located in said corresponding subchannel wherein the frequency difference between the center frequency of the outer most of said corresponding subchannels and the band edge of the mask defining said channel is more than half the frequency difference between the center frequencies of each adjacent carrier.

Claim 5, by contrast, recites "co-locating the plurality of transmitters such that the plurality of carriers can be emanated from the *same transmission source*." Because the recital of "same transmission source" in Claim 5 appears to align with Defendants' proposal of "same antenna," this difference between the claims suggests that the term "same location" is not limited to meaning "same antenna." *See Phillips*, 415 F.3d at 1314 ("Other claims of the patent in question, both asserted and unasserted, can also be valuable sources of enlightenment as to the meaning of a claim term. . . . Differences among claims can also be a useful guide in understanding the meaning of particular claim terms." (citations omitted).

The specification discloses:

> The problem of interference is compounded when a receiver is attempting to acquire a signal from a distant transmitter while in close proximity to a transmitter operating on an adjacent []channel. In this environment, the receiver may experience difficulty in detecting the signal from the distant source due to interference from the signal transmitted on the adjacent channel from the closer source. This is known as the "near-far" problem. This problem can be avoided by *co-locating the transmitters at essentially the same geographic location*.
>
> * * *
>
> Referring to FIG. 1, a *co-located* multicarrier transmitter system in a linear amplifier configuration 10 comprises a first and second data source, 11a and 11b,

> a first and second modulator, 12a and 12b, a summation circuit 13, a linear RF amplifier 14, and an antenna 15. The first and second data sources, 11a and 11b, generate a respective first and second digital bit stream which are provided to respective first and second modulators, 12a and 12b. Each modulator converts the incoming digital information into a representative modulated signal or carrier. *The outputs of each modulator are then combined into a single output signal* by summation circuit 13, the output of which is fed into linear RF amplifier 14. *The combined output signal is then applied to antenna 15 for transmission* in a bandlimited channel.
>
> Alternatively, referring to FIG. 2, a *co-located* multicarrier transmitter in a composite amplifier configuration 20 comprises a first and second data source, 21a and 21b, a first and second modulator, 22a and 22b, a first and second RF amplifier, 23a and 23b, a summation circuit 24, and an antenna 25. The first and second digital bit streams generated respectively by the first and second data sources, 21a and 21b, are provided to first and second modulators, 22a and 22b, respectively. Each modulator converts the incoming digital information into a representative modulated signal or carrier. The outputs of the first and second modulators are fed into first and second RF amplifiers, 23a and 23b, respectively. The outputs of the RF amplifiers are *combined into a single output signal* by summation circuit 24, the output of which is *applied to antenna 25 for transmission* in a bandlimited channel.
>
> Alternative embodiments of *co-located* transmitter systems are also possible. For example, the *co-located* transmitter configurations discussed above can be expanded to support more than two data sources and transmit more than two carriers in the bandlimited channel.
>
> Because *transmitter co-location does not give rise to the near-far problem* to which the FCC mask requirements are directed, carrier spacings far closer than would ordinarily be allowed (e.g., 5 to 10 kHz) are achievable. Moreover, the carriers need not be symmetrically or evenly spaced within the mask defining the channel. That is, the frequency spacings between adjacent carriers, while symmetric to each other, can be smaller than the frequency spacings between the band edges of the mask and the nearest respective carrier. Indeed, carrier spacings may be irregular such that the carriers are asymmetrically located within the mask without incurring undue interference.

‘891 Patent at 1:47-56 & 3:44-4:23 (emphasis added).

On balance, Defendants’ proposal of “same antenna” would improperly limit the claims to a feature of a preferred embodiment. *See Comark*, 156 F.3d at 1187. Defendants’ proposed construction is therefore hereby expressly rejected.

Finally, Defendants' alternative, footnoted indefiniteness argument is hereby rejected as not adequately presented or supported. Instead, whether the "same location" limitation is met is a factual issue of infringement rather than a legal issue for claim construction. *See PPG Indus. v. Guardian Indus. Corp.*, 156 F.3d 1351, 1355 (Fed. Cir. 1998) ("[A]fter the court has defined the claim with whatever specificity and precision is warranted by the language of the claim and the evidence bearing on the proper construction, the task of determining whether the construed claim reads on the accused product is for the finder of fact.").

The Court therefore hereby construes **"same location"** to have its **plain meaning**.

E. "subchannel(s)"

Plaintiff's Proposed Construction	**Defendants' Proposed Construction**
No construction necessary; plain and ordinary meaning.	"a defined portion of a radio frequency channel corresponding to a single carrier"[7]

Dkt. No. 58 at 22; Dkt. No. 62 at 21. The parties submit that this disputed term appears in Claims 3, 4, and 5 of the '891 Patent. Dkt. No. 54, Ex. B at 3.

Shortly before the start of the October 21, 2014 hearing, the Court provided the parties with the following preliminary construction: "a defined portion of a frequency channel."

(1) The Parties' Positions

Plaintiff submits that "[g]iven that the [(above-discussed)] term 'single mask-defined, bandlimited channel' is, according to both parties, a channel confined to a frequency range, a subchannel must be a subset of that frequency range." Dkt. No. 58 at 22. Plaintiff argues that

[7] Defendants previously proposed: "a defined portion of a radio frequency channel corresponding to a single *subcarrier*." Dkt. No. 54, Ex. B at 3 (emphasis added). Defendants submit that "to be consistent with the language of the claim and patent specification, [Defendants] ha[ve] updated [their] construction from 'subcarrier' to 'carrier.'" Dkt. No. 62 at 21 n.16.

Defendants' proposal is "an inversion of the claim language that does not follow from the actual claim limitation that each paging carriers [*sic*, carrier] is in a corresponding subchannel." *Id.*

Defendants respond that "[t]he '891 patent specification reflects that there is a one-to-one relationship between carriers and subchannels." Dkt. No. 62 at 22. Defendants also note that Claim 3 recites a carrier being in a "corresponding" subchannel. *Id.*

Plaintiff replies that "[Defendants'] proposed inversion of the claim language—that each subchannel must correspond to exactly one single subcarrier—does not follow" from the disclosure that "each carrier is *traditionally* confined to a sub-mask defining a subchannel internal to the channel." Dkt. No. 64 at 8 (quoting '891 Patent at 2:3-6) (emphasis added).

At the October 21, 2014 hearing, the parties presented no oral argument on this disputed term and instead rested on their briefing.

(2) Analysis

Claims 3 and 4 of the '891 Patent recite:

> 3. A method of operating at least two paging carriers each in a corresponding *subchannel* of a single mask-defined, bandlimited channel comprising the step of transmitting said carriers from the same location with each carrier centrally located in said corresponding *subchannel* wherein the frequency difference between the center frequency of the outer most of said corresponding *subchannels* and the band edge of the mask defining said channel is more than half the frequency difference between the center frequencies of each adjacent carrier.
>
> 4. The method of claim 3 wherein adjacent *subchannels* overlap with each other.

On one hand, the above-quoted recital of carriers "each in a corresponding subchannel" and the repeated recitals of "corresponding" subchannels weigh in favor of finding that subchannels are associated with carriers.

On the other hand, the Discussion of Related Art states that "when more than one carrier is operating within a single channel, each carrier is *traditionally* confined to a submask defining

a subchannel internal to the channel." '891 Patent at 2:3-6 (emphasis added); *see also id.* at 4:27-30 ("FIG. 3B depicts two carriers, 32a and 32b, operating respectively over two asymmetrically-located subchannels, resulting in some carrier overlap."). Even if this passage is read as suggesting a one-to-one correspondence between carriers and subchannels, this passage refers to what is "traditional[]" and thereby indicates that the claimed invention is not necessarily so limited. *See id.* at 2:3-6.

On balance, although the claim language and the specification demonstrate a relationship between subchannels and carriers, Defendants have not demonstrated that each subchannel must be associated with only a *single* carrier. Also, as to Defendants' proposal of a "radio" frequency channel, Defendants have failed to identify anything in the claims or the specification that necessarily limits the disputed term to "radio" communication. Defendants' proposal of a "frequency channel" is accepted, however, so as to provide proper context and meaning for the word "carrier."

The Court therefore hereby construes **"subchannel"** to mean **"a defined portion of a frequency channel corresponding to a carrier."**

F. "spaced within the mask"

Plaintiff's Proposed Construction	**Defendants' Proposed Construction**
No construction necessary; plain and ordinary meaning.	"spaced asymmetrically within the mask"

Dkt. No. 58 at 23; Dkt. No. 62 at 22. The parties submit that this disputed term appears in Claim 5 of the '891 Patent. Dkt. No. 54, Ex. B at 3.

Shortly before the start of the October 21, 2014 hearing, the Court provided the parties with the following preliminary construction: "Plain meaning."

(1) The Parties' Positions

Plaintiff argues that "[i]nstead of requiring asymmetrical spacing, the specification states only that symmetric spacing is not required . . . ." Dkt. No. 58 at 23. Plaintiff also notes that whereas the patent application originally included a claim with a limitation of "subchannels spaced asymmetrically within the mask defining said channel," during prosecution the patentee eliminated "asymmetrically" from the claims. *Id.* at 24.

Defendants respond that during prosecution, in response to the examiner's statement that application claim 8, a dependent claim, would be allowable if rewritten in independent form, "the patentee represented that it was combining [application] independent claim 5 and [application] dependent claim 8 into new [application] claim 9," which ultimately issued as Claim 5. Dkt. No. 62 at 22-23. Defendants emphasize that the original claim 8 included an "asymmetrically" limitation, but "[i]n actuality, the word 'asymmetrically' was somehow—without warning, statement, or explanation—not included in new claim 9 (issued claim 5)." *Id.* at 23. Defendants conclude that "[o]ne of ordinary skill in the art, after reviewing the patent and its prosecution history described above, would conclude that issued claim 5 requires carriers that are 'spaced asymmetrically within the mask,' as was originally claimed and represented." *Id.* Finally, Defendants argue that "if the word 'asymmetrically' were somehow not included in the construction for new claim 9 (issued claim 5), then the claim would be indefinite, because after reviewing the intrinsic record the scope of the claim could not be reasonably ascertained with respect to whether it is limited to asymmetric spacing in light of the prosecution history." *Id.* at 24 n.18.

Plaintiff replies that "[Defendants] argue[]—again without support—that the examiner allowed issued Claim 5 only in reliance on the word 'asymmetrically' being included. Again,

the absence of support renders this statement unpersuasive attorney argument. Since the subcarrier spacing is well defined in the remainder of the asserted claims, the term 'spaced within the mask' does not require further construction." Dkt. No. 64 at 9.

At the October 21, 2014 hearing, upon inquiry, Defendants submitted that neither side has identified any case law on the specific issue presented here.

(2) Analysis

The specification discloses:

> [T]he carriers need not be symmetrically or evenly spaced within the mask defining the channel. That is, the frequency spacings between adjacent carriers, while symmetric to each other, can be smaller than the frequency spacings between the band edges of the mask and the nearest respective carrier. Indeed, carrier spacings may be irregular such that the carriers are asymmetrically located within the mask without incurring undue interference.

'891 Patent at 4:15-23.

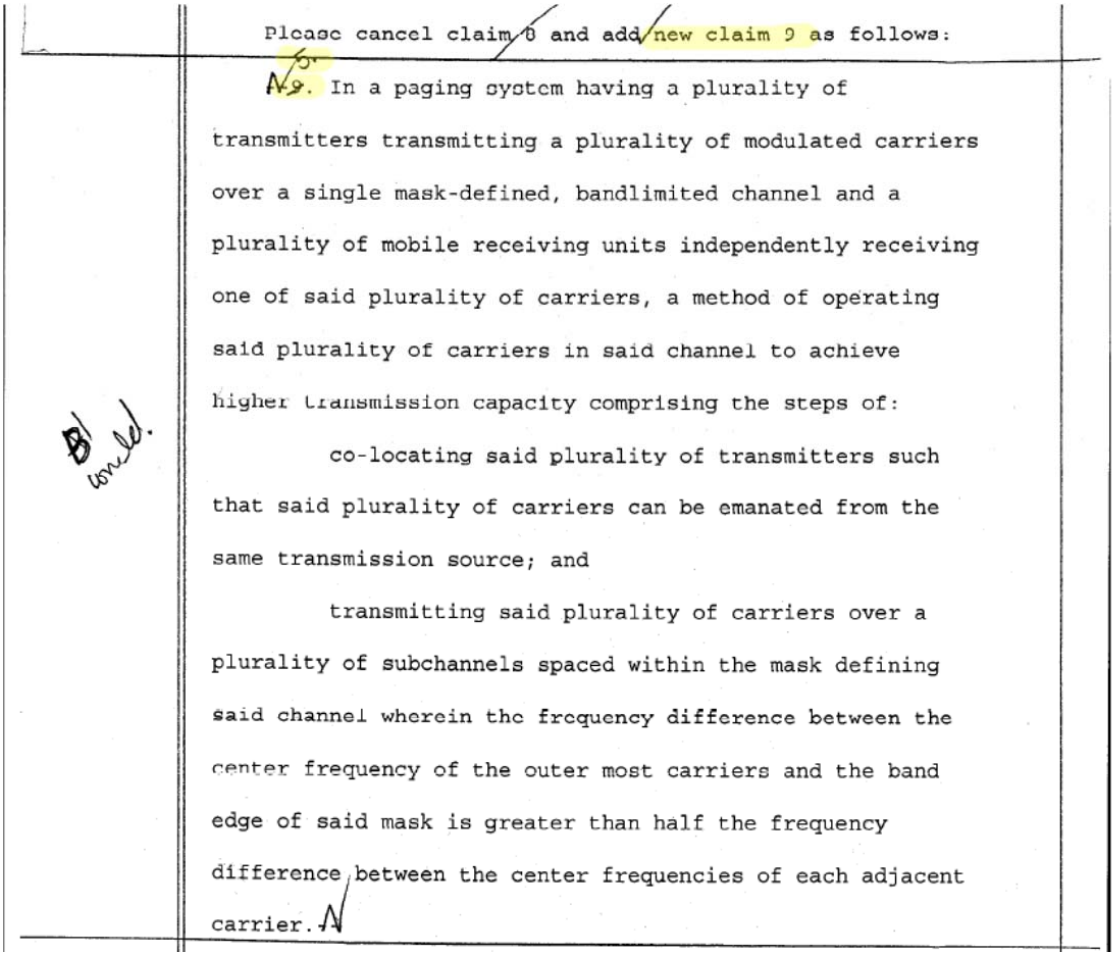
During prosecution, application claim 5 included the phrase "spaced asymmetrically within the mask." *See* Dkt. No. 66, Ex. C at p. 23 of 119. The examiner stated:

> Claim 8 is objected to as being dependent upon a rejected base claim [(application claim 5)], but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Dkt. No. 62, Ex. 13, 2/9/1996 Office Action at 4.

The patentee responded by amending the claims and stating that "claim 8 has been cancelled and rewritten in independent form as new claim 9, which includes the limitations of claim 5." *Id.*, Ex. 14, 8/9/1996 Amendment at 3.

Yet, that "new claim 9," which issued as Claim 5 of the '891 Patent, recited "spaced within the mask" without any mention of asymmetry (emphasis added):



Please cancel claim 6 and add new claim 9 as follows:

9. In a paging system having a plurality of transmitters transmitting a plurality of modulated carriers over a single mask-defined, bandlimited channel and a plurality of mobile receiving units independently receiving one of said plurality of carriers, a method of operating said plurality of carriers in said channel to achieve higher transmission capacity comprising the steps of:

co-locating said plurality of transmitters such that said plurality of carriers can be emanated from the same transmission source; and

transmitting said plurality of carriers over a plurality of subchannels spaced within the mask defining said channel wherein the frequency difference between the center frequency of the outer most carriers and the band edge of said mask is greater than half the frequency difference between the center frequencies of each adjacent carrier.

Id. at 2.

On balance, here the applicable adage is that "the name of the game is the claim." *Apple Inc. v. Motorola, Inc.*, 757 F.3d 1286, 1298 (Fed. Cir. 2014) (quoting *In re Hiniker Co.*, 150 F.3d 1362, 1369 (Fed. Cir. 1998) (quoting Giles Sutherland Rich, *Extent of Protection and Interpretation of Claims—American Perspectives*, 21 Int'l Rev. Indus. Prop. & Copyright L. 497, 499 (1990))).

Thus, in light of the "primacy of the claims," Defendants' proposed construction is hereby expressly rejected. *Apple*, 757 F.3d at 1298 (citing *Phillips*, 415 F.3d 1303); *see Tempo Lighting, Inc. v. Tivoli, LLC*, 742 F.3d 973, 977 (Fed. Cir. 2014) ("In claim construction, this

court gives primacy to the language of the claims, followed by the specification."); *see also Aria Diagnostics, Inc. v. Sequenom, Inc.*, 726 F.3d 1296, 1300 (Fed. Cir. 2013) ("Claim construction focuses primarily on the language of the claims.") (citing *Phillips*, 415 F.3d 1303); *Renishaw PLC v. Marposs Societa' per Azioni*, 158 F.3d 1243, 1248 (Fed. Cir. 1998) ("[T]he claims define the scope of the right to exclude; the claim construction inquiry, therefore, begins and ends in all cases with the actual words of the claim.").

No further construction is necessary. *See U.S. Surgical*, 103 F.3d at 1568; *see also O2 Micro*, 521 F.3d at 1362; *Finjan*, 626 F.3d at 1207. Finally, Defendants' alternative, footnoted indefiniteness argument is hereby rejected as not adequately presented or supported.

The Court accordingly hereby construes **"spaced within the mask"** to have its **plain meaning**.

G. Preambles of Claims 1, 3, and 5

Plaintiff's Proposed Construction	**Defendants' Proposed Construction**
Not limiting; no construction necessary.	The preambles of independent claims 1, 3, and 5 are limiting

Dkt. No. 58 at 24; Dkt. No. 62 at 24.

Shortly before the start of the October 21, 2014 hearing, the Court provided the parties with the following preliminary construction: "Preambles are limiting."

At the October 21, 2014 hearing, given the Court's other preliminary constructions, Plaintiff had no objection to the Court's preliminary construction that the preambles of Claims 1, 3, and 5 are limiting. Because the Court has not modified any of its other preliminary constructions, the Court adopts its now-agreed-upon preliminary construction that the preambles of Claims 1, 3, and 5 are limiting.

The Court accordingly hereby construes Claims 1, 3, and 5 of the '891 Patent such that the **preambles are limiting**.

H. "said plurality of carriers can be emanated from the same transmission source"

Plaintiff's Proposed Construction	**Defendants' Proposed Construction**
No construction necessary; plain and ordinary meaning.	Indefinite

Dkt. No. 58 at 25; *see* Dkt. No. 62 at 27-28. The parties submit that this disputed term appears in Claim 5 of the '891 Patent. Dkt. No. 54, Ex. B at 3.

Shortly before the start of the October 21, 2014 hearing, the Court provided the parties with the following preliminary construction: "Plain meaning (Expressly reject Defendants' indefiniteness argument)."

(1) The Parties' Positions

Plaintiff submits that Defendants have "identified no evidence in support of [their] indefiniteness argument." Dkt. No. 58 at 26. Plaintiff urges that "[i]n the absence of clear and convincing evidence supporting [Defendants'] position, there is a failure of proof." *Id.* at 27. Plaintiff concludes that this term "should be given plain and ordinary meaning because [it is] well defined in the art and [it is] used in [its] ordinary meaning in the patent." *Id.*

Defendants respond that, based on the word "can," "the patent is unclear as to whether or not a system can practice claim 5 without being required to transmit the carriers from the same transmission source." Dkt. No. 62 at 28. Defendants cite a recent decision by the Patent Trial and Appeal Board as support for finding that the word "can" renders the claim indefinite. *Id.* (citing *Ex parte Breed*, No. 2012-003990 (P.T.A.B. June 4, 2014) (attached to Defendants' response brief as Exhibit 15)).

Plaintiff replies that whereas Defendants essentially argue that "the phrase 'can be' is indefinite as a matter of law[,] [n]o Court has held thus, and the case law [Defendants] cite[] is distinguishable." Dkt. No. 64 at 10.

At the October 21, 2014 hearing, the parties presented no oral argument on this disputed term and instead rested on their briefing.

(2) Analysis

In *Ex parte Breed*, the claim at issue recited, in relevant part (emphasis added):

> whereby roadway conditions from multiple roadways *can be* obtained and processed at the remote facility via multiple vehicles travelling on different roadways or different portions of the same roadway and *can be* directed from the remote facility to other vehicles on the roadway or roadways from which the information is obtained.

Dkt. No. 62, Ex. 15, 6/4/2014 Decision on Appeal at 2. The Board found:

> The verb form of the word "can" carries multiple meanings in the English language. It can be used to indicate a physical ability or some other specified capability. It can also be used to indicate a possibility or probability.

Id. at 5 (footnotes omitted). The Board concluded:

> We agree with the Examiner that "can be" is indefinite, because it is susceptible to more than one plausible construction. It is unclear whether the limitation refers to a capability that is required to be present in the invention or whether it refers to a system capability that is a mere possibility that is not required.

Id. at 6.

Here, Claim 5 of the '891 Patent recites (emphasis added):

> 5. In a paging system having a plurality of transmitters transmitting a plurality of modulated carriers over a single mask-defined, bandlimited channel and a plurality of mobile receiving units independently receiving one of said plurality of carriers, a method of operating said plurality of carriers in said channel to achieve higher transmission capacity comprising the steps of:
>
> co-locating said plurality of transmitters such that *said plurality of carriers can be emanated from the same transmission source*; and
>
> transmitting said plurality of carriers over a plurality of subchannels spaced within the mask defining said channel wherein the frequency difference

> between the center frequency of the outer most carriers and the band edge of said mask is greater than half the frequency difference between the center frequencies of each adjacent carrier.

First, *Ex parte Breed* is not binding authority. Second, unlike in *Ex parte Breed*, the claim here at issue uses the phrase "can be" to limit the manner in which the plurality of transmitters are co-located. In other words, whereas *Ex parte Breed* involved an entire feature that may have been read as optional, here Claim 5 of the '891 Patent uses "can be" to further limit a positively recited limitation. *Ex parte Breed* is therefore inapplicable and distinguishable.

On balance, the disputed term "inform[s] those skilled in the art about the scope of the invention with reasonable certainty." *Nautilus*, 134 S. Ct. at 2129. The Court therefore hereby expressly rejects Defendants' indefiniteness argument. No further construction is necessary.

The Court accordingly hereby construes **"said plurality of carriers can be emanated from the same transmission source"** to have its **plain meaning**.

I. "frequency difference between the center frequencies of each adjacent carrier"

Plaintiff's Proposed Construction	**Defendants' Proposed Construction**
No construction necessary; plain and ordinary meaning.	Indefinite

Dkt. No. 58 at 25; *see* Dkt. No. 62 at 28-30. The parties submit that this disputed term appears in Claims 1, 3, and 5 of the '891 Patent. Dkt. No. 54, Ex. B at 3.

Shortly before the start of the October 21, 2014 hearing, the Court provided the parties with the following preliminary construction: "Plain meaning (Expressly reject Defendants' indefiniteness argument)."

(1) The Parties' Positions

Plaintiff submits that Defendants have "identified no evidence in support of [their] indefiniteness argument." Dkt. No. 58 at 26. Plaintiff urges that "[i]n the absence of clear and convincing evidence supporting [Defendants'] position, there is a failure of proof." *Id.* at 27. Plaintiff concludes that this term "should be given plain and ordinary meaning because [it is] well defined in the art and [it is] used in [its] ordinary meaning in the patent." *Id.*

Defendants respond:

> Whereas these claims require a determination of "the frequency difference" between the center frequencies of each adjacent carrier, that determination cannot be made when there is more than one such "difference" to choose from. For example, when there are three carriers in the channel, A, B, and C, then there is a difference between the center frequencies of A and B, and another difference between the center frequencies of B and C. In this example, it is unclear whether the claim would refer to the frequency difference between A and B, or to the frequency difference between B and C.

Dkt. No. 62 at 29. Defendants submit that the specification fails to resolve this ambiguity because the figures and associated written description set forth only a two-carrier embodiment. *Id.* Finally, Defendants argue that "even with the word 'asymmetrically' properly included" (for the reasons argued by Defendants as to the term "spaced within the mask," addressed above), "the public would be confused on how to determine 'the frequency difference' between multiple asymmetrically-spaced channels." *Id.* at 30.

Plaintiff replies that "[t]he pertinent question is whether one of ordinary skill in the art," not merely "the public," "would understand the scope of the invention with reasonable certainty." Dkt. No. 64 at 10. "Regardless," Plaintiff argues, "the claim language is clear on its face, and requires that the pertinent distance is 'more than half the frequency difference between the center frequencies of each adjacent carrier.'" *Id.* (citing '891 Patent at Claims 1, 3 & 5).

(2) Analysis

35 U.S.C. § 112, ¶ 2 requires that a patent's claims, viewed in light of the specification and prosecution history, must "inform those skilled in the art about the scope of the invention with reasonable certainty." *Nautilus*, 134 S. Ct. at 2129.

Claims 1, 3, and 5 of the '891 Patent recite (emphasis added):

> 1. A method of operating a plurality of paging carriers in a single mask-defined, bandlimited channel comprising the step of transmitting said carriers from the same location with said carriers having center frequencies within said channel such that the frequency difference between the center frequency of the outer most of said carriers and the band edge of the mask defining said channel is more than half the *frequency difference between the center frequencies of each adjacent carrier.*
>
> * * *
>
> 3. A method of operating at least two paging carriers each in a corresponding subchannel of a single mask-defined, bandlimited channel comprising the step of transmitting said carriers from the same location with each carrier centrally located in said corresponding subchannel wherein the frequency difference between the center frequency of the outer most of said corresponding subchannels and the band edge of the mask defining said channel is more than half the *frequency difference between the center frequencies of each adjacent carrier.*
>
> * * *
>
> 5. In a paging system having a plurality of transmitters transmitting a plurality of modulated carriers over a single mask-defined, bandlimited channel and a plurality of mobile receiving units independently receiving one of said plurality of carriers, a method of operating said plurality of carriers in said channel to achieve higher transmission capacity comprising the steps of:
>
> co-locating said plurality of transmitters such that said plurality of carriers can be emanated from the same transmission source; and
>
> transmitting said plurality of carriers over a plurality of subchannels spaced within the mask defining said channel wherein the frequency difference between the center frequency of the outer most carriers and the band edge of said mask is greater than half the *frequency difference between the center frequencies of each adjacent carrier*.

The specification discloses:

> Referring to FIG. 3A, two submasks defining two subchannels, 30a and 30b, are asymmetrically located within a single mask-defined, bandlimited channel 31, resulting in some subchannel overlap. FIG. 3B depicts two carriers, 32a and 32b, operating respectively over two asymmetrically-located subchannels, resulting in some carrier overlap. In accordance with this asymmetry, the frequency difference between the center frequency of each carrier and the nearest band edge of the mask is greater than half the frequency difference between the center frequencies of the two carriers.

'891 Patent at 4:25-35. Figure 3B is reproduced here:

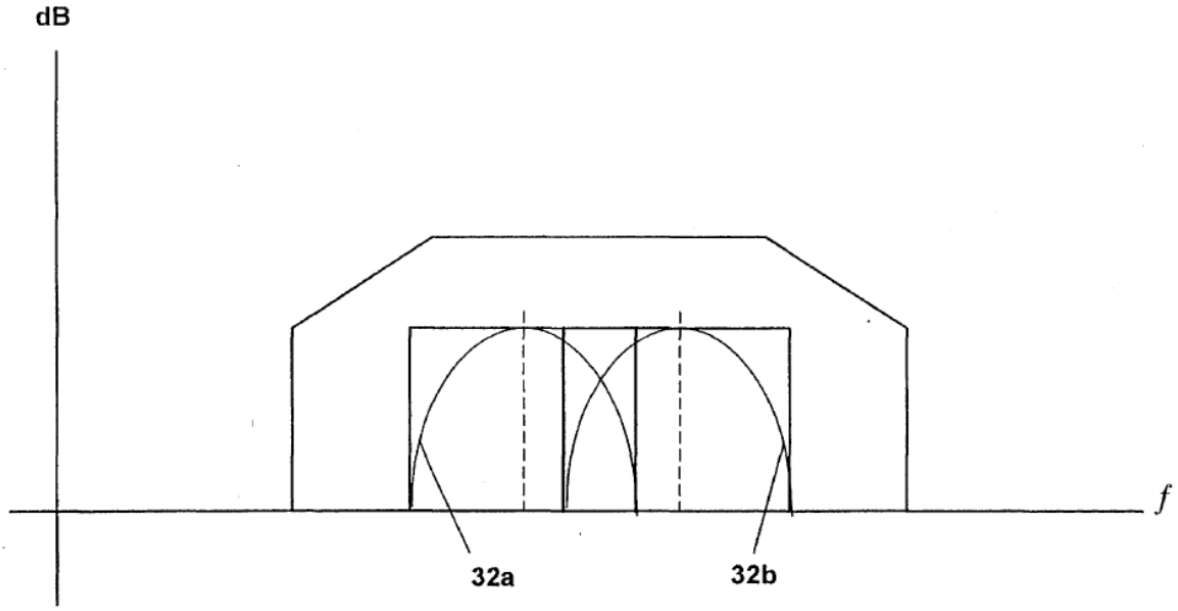


FIGURE 3B

In this illustrated embodiment, because there are only two frequencies at issue it is a simple matter to identify the recited "frequency difference between the center frequencies of each adjacent carrier."

Even if there were more than two carriers, however, any purported confusion regarding which frequencies should be used to determine the frequency difference is unfounded because the disputed term is "frequency difference between the center frequencies of *each* adjacent carrier." Thus, the plain language of the claims requires that the frequency difference between

the center frequency of an outermost carrier and the adjacent band edge is more than half the frequency difference between the center frequencies of any pair of adjacent carriers in the channel. *See id.* at 2:11 (referring to "interference among adjacent carriers") & 4:17-23 (discussing "frequency spacings between adjacent carriers").

Defendants' indefiniteness argument is therefore hereby expressly rejected. No further construction is necessary.

The Court accordingly hereby construes **"frequency difference between the center frequencies of each adjacent carrier"** to have its **plain meaning**.

J. "adjacent carriers overlap" and "adjacent subchannels overlap"

Plaintiff's Proposed Construction	**Defendants' Proposed Construction**
No construction necessary; plain and ordinary meaning.	Indefinite

Dkt. No. 58 at 25. The parties submit that these terms appear in Claims 2 and 4 of the '891 Patent. Dkt. No. 54, Ex. B at 3.

Although these terms are listed as disputed terms in the parties' Joint Claim Construction and Prehearing Statement (Dkt. No. 54, Ex. B at 3; *id.*, Ex. D at 7), Defendants' response brief does not address these terms. *See* Dkt. No. 62. Shortly before the start of the October 21, 2014 hearing, the Court provided the parties with its preliminary proposal that: "The Court need not address these terms because they are no longer in dispute." At the October 21, 2014 hearing, the parties presented no oral argument on these terms. The Court therefore concludes that Defendants are no longer arguing indefiniteness as to these terms. Because these terms are no longer disputed, the Court does not address these terms.

CONCLUSION

The Court adopts the constructions set forth in this opinion for the disputed terms of the patents-in-suit.

The parties are ordered that they may not refer, directly or indirectly, to each other's claim construction positions in the presence of the jury. Likewise, the parties are ordered to refrain from mentioning any portion of this opinion, other than the actual definitions adopted by the Court, in the presence of the jury. Any reference to claim construction proceedings is limited to informing the jury of the definitions adopted by the Court.

SIGNED this 23rd day of January, 2015.

ROY S. PAYNE
UNITED STATES MAGISTRATE JUDGE

APPENDIX A

U.S. Patents No. 5,590,403 and 5,915,210	
Term	Parties' Agreement
"zone"	"a portion of a region of space"
"plurality of"	"at least two"
"means for transmitting a first plurality of carrier signals within the desired frequency band, each of the first plurality of carrier signals representing a portion of the information signal substantially not represented by others of the first plurality of carrier signals"	Function: "transmitting a first plurality of carrier signals within the desired frequency band, each of the first plurality of carrier signals representing a portion of the information signal substantially not represented by others of the first plurality of carrier signals" Structure: "base transmitter 1300 including data input 1302, control logic 1304, modulators 1306-1314, combiner 1316, power amplifier 1318, and an antenna 1320, as depicted in Figure 13; and equivalents thereof"; or "base transmitter 1400 including data input 1402, control logic 1404, modulators 1406-1414, power amplifiers 1416-1424, combiner 1426, and an antenna 1428, as depicted in Figure 14; and equivalents thereof"

"means for transmitting a second plurality of carrier signals in simulcast with the first plurality of carrier signals, each of the second plurality of carrier signals corresponding to and representing substantially the same information as a respective carrier signal of the first plurality of carrier signals"	Function: "transmitting a second plurality of carrier signals [in simulcast with the first plurality of carrier signals],[8] each of the second plurality of carrier signals corresponding to and representing substantially the same information as a respective carrier signal of the first plurality of carrier signals" Structure: "base transmitter 1300 including data input 1302, control logic 1304, modulators 1306-1314, combiner 1316, power amplifier 1318, and an antenna 1320, as depicted in Figure 13; and equivalents thereof"; or "base transmitter 1400 including data input 1402, control logic 1404, modulators 1406-1414, power amplifiers 1416-1424, combiner 1426, and an antenna 1428, as depicted in Figure 14; and equivalents thereof"
"carrier signal[s]"	"radio frequency signal that is capable of being modulated to carry information"
"block of information"	Plain meaning
U.S. Patent No. 5,659,891	
Term	Parties' Agreement
"plurality of"	"at least two"

Dkt. No. 54 at Ex. A; Dkt. No. 58 at 5; Dkt. No. 62 at Ex. 4.

[8] This square-bracketed text appears in the listing of Agreed Claim Constructions attached to Defendants' responsive brief but does not appear in the parties' Joint Claim Construction and Prehearing Statement or in Plaintiff's opening brief. *Compare* Dkt. No. 62, Ex. 4 at 2 *with* Dkt. No. 54 at Ex. A & Dkt. No. 58 at 5.