TC Technology LLC v. Sprint Corporation et al Doc. 354

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

TC TECHNOLOGY LLC,

Plaintiff,

v.

SPRINT CORPORATION and SPRINT SPECTRUM L.P.,

Defendants.

No. 16-cv-153-RGA

MEMORANDUM OPINION

Kelly E. Farnan, Katharine L. Mowery, RICHARDS, LAYTON & FINGER, P.A., Wilmington, DE; Lawrence J. Gotts, Saswat Misra, LATHAM & WATKINS LLP, Washington, D.C.; Kevin L. Mallen, LATHAM & WATKINS LLP, New York, NY; Gabriel S. Gross, LATHAM & WATKINS LLP, Menlo Park, CA; Stephanie N. Solomon, QUINN EMANUEL URQUHART & SULLIVAN, LLP, New York, NY; David S. Benyacar, Daniel L. Reisner (argued), Maxwell C. Preston, Michael J. Block, ARNOLD & PORTER KAYE SCHOLER LLP, New York, NY.

Attorneys for Plaintiff.

Shanti M. Katona, Christina M. Belitz, POLSINELLI PC, Wilmington, DE; Robert Reckers (argued), David Morehan (argued), SHOOK, HARDY & BACON LLP, Houston, TX; Christine A. Guastello, Jordan T. Bergsten, Colman D. McCarthy, Thomas M. Patton, SHOOK, HARDY & BACON LLP, Kansas City, MO.

Attorneys for Defendants.

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ANDREWS, U.S. DISTRICT JUDGE:

Presently before the Court are Defendants' motion for summary judgment of noninfringement (D.I. 257) and Plaintiff's motion for partial summary judgment (D.I. 266). I have reviewed the parties' briefing. (D.I. 258, 267, 288, 293, 304, 306). I heard oral argument on March 7, 2019.[1]

I. BACKGROUND

Plaintiff TC Technology LLC ("TC Tech") filed this action on March 10, 2016, alleging that Defendants Sprint Corporation and Sprint Spectrum, L.P. (collectively, "Sprint") infringed U.S. Patent No. 5,815,488 ("the '488 patent") with certain wireless services on its LTE network. (D.I. 1).

The '488 patent has two independent method claims, both of which are asserted. The claims provide:

> 1. A method for enabling a plurality of remote locations to transmit data to a central location comprising the steps of:
>
> > at each remote location, coding data to be transmitted by translating each group of one or more bits of said data into a transform coefficient associated with a particular baseband frequency in a particular subset of orthogonal baseband frequencies allocated to the remote location, the particular subset of orthogonal baseband frequencies allocated to each remote location being chosen from a set of orthogonal baseband frequencies, the subsets of baseband frequencies allocated to each remote location being mutually exclusive[;]
> >
> > at each remote location, using an electronic processor, performing an inverse orthogonal transformation on said transform coefficients to obtain a block of time domain data;
> >
> > at each remote location, utilizing a modulator to modulate said block of time domain data onto a carrier signal for transmission to said central location, said carrier signal having the same carrier frequency for each remote location;

[1] I cite to the transcript as "Oral Argument."

receiving at said central location from one or more of said remote locations, one or more blocks of time domain data modulated on one or more of said carrier signals;

using a demodulator, demodulating said one or more blocks of time domain data from the carrier frequency signal[;]

performing said orthogonal transformation on said demodulated time domain data to reconstruct said transform coefficients, and

translating said transform coefficients into said data to be translated from each remote location.

2. A method for enabling a plurality of remote locations to transmit data to a central location comprising the steps of:

at each remote location, coding data to be transmitted by translating each group of one or more bits of said data into a transform coefficient associated with a particular baseband frequency in a particular subset of orthogonal baseband frequencies allocated to the remote location, the particular subset of orthogonal baseband frequencies allocated to each remote location being chosen from a set of orthogonal baseband frequencies, the subsets of baseband frequencies allocated to each remote location being mutually exclusive;

at each remote location, using an electronic processor, performing an inverse orthogonal transformation on said transform coefficients to obtain a block of time domain data;

at each remote location, utilizing a modulator to modulate said block of time domain data onto a carrier signal for transmission to said central location, said carrier signal having the same carrier frequency for each remote location[;]

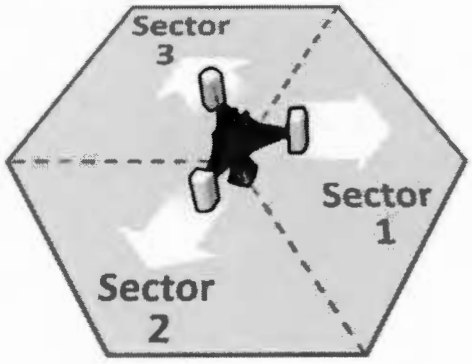
receiving at said central location from one or more of said remote locations, one or more blocks of time domain data modulated on one or more of said carrier signals;

using a demodulator, multiplying said received one or more blocks of time domain data with in-phase and quadrature carrier signals to obtain in-phase and quadrature baseband signals, converting said in-phase and quadrature baseband signals to digital form, and using an electronic processor, performing said orthogonal transform using said in-phase and quadrature baseband signals as real and imaginary values, respectively, to demodulate said one or more blocks of time domain data from the carrier frequency signal, and

performing said orthogonal transformation on the demodulated time domain data to reconstruct said transform coefficients.

'488 patent at 10:47-12:24.

Sprint's LTE network operates through a series of "cell sites." Each cell site consists of a cell tower with antennas connected to a computer that is referred to as a "base station" or "eNodeB." (D.I. 259, Ex. A at 36:8-37:6; D.I. 294, Ex. 2 ¶ 167). Each base station is divided into three "sectors," where each sector roughly corresponds to a 120-degree arc around the cell site. (D.I. 268, Ex. 2, Ex. A ¶¶ 112-113; D.I. 294, Ex. 2 ¶ 103). Each sector has dedicated hardware and software to receive and process information from, as well as to allocate frequencies to, user devices such as cellular phones. (*Id.*, Ex. 5 ¶ 34). The following is a simplified illustration of a cell site and its three sectors:



(*Id.*, Ex. 2 ¶ 103, Ex. 5 ¶ 35). The parties focus on the operations of a single base station in Sprint's LTE network.

II. LEGAL STANDARD

"The court shall grant summary judgment if the movant shows that there is no genuine dispute as to any material fact and the movant is entitled to judgment as a matter of law." Fed. R. Civ. P. 56(a). Material facts are those "that could affect the outcome" of the proceeding. *Lamont v. New Jersey*, 637 F.3d 177, 181 (3d Cir. 2011) (quoting *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 248 (1986)). "[A] dispute about a material fact is 'genuine' if the evidence is

sufficient to permit a reasonable jury to return a verdict for the nonmoving party." *Id.* The burden on the moving party may be discharged by pointing out to the district court that there is an absence of evidence supporting the non-moving party's case. *Celotex Corp. v. Catrett*, 477 U.S. 317, 323 (1986).

The burden then shifts to the non-movant to demonstrate the existence of a genuine issue for trial. *Matsushita Elec. Indus. Co., Ltd. v. Zenith Radio Corp.*, 475 U.S. 574, 586–87 (1986); *Williams v. Borough of West Chester, Pa.*, 891 F.2d 458, 460–61 (3d Cir. 1989). A non-moving party asserting that a fact is genuinely disputed must support such an assertion by: "(A) citing to particular parts of materials in the record, including depositions, documents, electronically stored information, affidavits or declarations, stipulations . . . , admissions, interrogatory answers, or other materials; or (B) showing that the materials cited [by the opposing party] do not establish the absence . . . of a genuine dispute . . . ." Fed. R. Civ. P. 56(c)(1). The non-moving party's evidence "must amount to more than a scintilla, but may amount to less (in the evaluation of the court) than a preponderance." *Williams*, 891 F.2d at 461.

When determining whether a genuine issue of material fact exists, the court must view the evidence in the light most favorable to the non-moving party and draw all reasonable inferences in that party's favor. *Wishkin v. Potter*, 476 F.3d 180, 184 (3d Cir. 2007). If the non-moving party fails to make a sufficient showing on an essential element of its case with respect to which it has the burden of proof, the moving party is entitled to judgment as a matter of law. *See Celotex Corp.*, 477 U.S. at 322.

III. SPRINT'S MOTION FOR SUMMARY JUDGMENT OF NONINFRINGEMENT

A patent is infringed when a person "without authority makes, uses, offers to sell, or sells any patented invention, within the United States . . . during the term of the patent . . . ." 35

U.S.C. § 271(a). A two-step analysis is employed in making an infringement determination. *See Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 976 (Fed. Cir. 1995) (en banc), *aff'd*, 517 U.S. 370 (1996). First, the court must construe the asserted claims to ascertain their meaning and scope. *See id.* The trier of fact must then compare the properly construed claims with the accused infringing product. *See id.* at 976. This second step is a question of fact. *See Bai v. L & L Wings, Inc.*, 160 F.3d 1350, 1353 (Fed. Cir. 1998).

"Literal infringement of a claim exists when every limitation recited in the claim is found in the accused device." *Kahn v. Gen. Motors Corp.*, 135 F.3d 1472, 1477 (Fed. Cir. 1998). "If any claim limitation is absent from the accused device, there is no literal infringement as a matter of law." *Bayer AG v. Elan Pharm. Research Corp.*, 212 F.3d 1241, 1247 (Fed. Cir. 2000). If an accused product does not infringe an independent claim, it also does not infringe any claim depending thereon. *See Wahpeton Canvas Co. v. Frontier, Inc.*, 870 F.2d 1546, 1553 (Fed. Cir. 1989). However, "[o]ne may infringe an independent claim and not infringe a claim dependent on that claim." *Monsanto Co. v. Syngenta Seeds, Inc.*, 503 F.3d 1352, 1359 (Fed. Cir. 2007). A product that does not literally infringe a patent claim may still infringe under the doctrine of equivalents if the differences between an individual limitation of the claimed invention and an element of the accused product are insubstantial. *See Warner–Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 24 (1997). The patent owner has the burden of proving infringement and must meet its burden by a preponderance of the evidence. *See SmithKline Diagnostics, Inc. v. Helena Lab. Corp.*, 859 F.2d 878, 889 (Fed. Cir. 1988).

When an accused infringer moves for summary judgment of non-infringement, such relief may be granted only if at least one limitation of the claim in question does not read on an element of the accused product, either literally or under the doctrine of equivalents. *See Chimie*

v. PPG Indus., Inc., 402 F.3d 1371, 1376 (Fed. Cir. 2005); *see also TechSearch, L.L.C. v. Intel Corp.*, 286 F.3d 1360, 1369 (Fed. Cir. 2002) ("Summary judgment of noninfringement is . . . appropriate where the patent owner's proof is deficient in meeting an essential part of the legal standard for infringement, because such failure will render all other facts immaterial."). Thus, summary judgment of noninfringement can only be granted if, after viewing the facts in the light most favorable to the non-movant, there is no genuine issue as to whether the accused product is covered by the claims (as construed by the court). *See Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1304 (Fed. Cir. 1999).

Sprint moves for summary judgment of noninfringement of claims 1 and 2 of the '488 patent. Sprint argues that its LTE network does not meet two claim limitations—(1) "subsets of baseband frequencies allocated to each remote location being mutually exclusive" and (2) "carrier signal having the same carrier frequency for each remote location." (D.I. 258).

For the following reasons, Sprint's motion is **GRANTED** with respect to TC Tech's doctrine of equivalents theory relating to the Physical Uplink Control Channel ("PUCCH") and the "mutually exclusive" limitation. The rest of the motion is **DENIED**.

A. "subsets of baseband frequencies allocated to each remote location being mutually exclusive"

The Court has construed "subsets of baseband frequencies allocated to each remote location being mutually exclusive," as "for any given time slot, no individual baseband frequency is allocated to more than one location." (D.I. 95). Sprint makes two noninfringement arguments. First, Sprint addresses the base station as a whole. Each base station in Sprint's LTE network is divided into three sectors. Sprint argues that baseband frequencies are not "mutually exclusive" across all three sectors. (D.I. 258 at 10-13). Second, Sprint focuses on the individual base station sectors. Sprint argues that baseband frequencies are also not "mutually exclusive"

within each sector due to the frequencies on the Physical Uplink Control Channel ("PUCCH"). (*Id.* at 13-20).

1. Frequencies Across Base Station Sectors

For the following reasons, Sprint's motion is **DENIED** with respect to frequencies across base station sectors.

It is undisputed that, viewing all three sectors together, a base station does not meet the "mutually exclusive" limitation, because different sectors may simultaneously allocate the same baseband frequency to different locations. (D.I. 258 at 10; D.I. 293 at 5-7). The key issue is whether infringement should be determined based on the sectors together or individually.

The preamble of both claims states, "A method for enabling a plurality of remote locations to transmit data to a *central location* comprising the steps of . . . ." '488 patent at 10:47-48, 11:12-13 (emphasis added). The Court has not construed "central location." (D.I. 95). Sprint asserts that it is undisputed that the "central location" is an entire base station in Sprint's LTE network. (D.I. 304 at 4). I disagree. TC Tech's expert, Mr. Bates, makes clear that he believes each individual base station sector may be a "central location" as required by the '488 patent. (D.I. 294, Ex. 5 ¶ 31-32 (opining that Sprint meets the "mutually exclusive" limitation by "using its network on a sector-by-sector basis, not collectively across sectors as [Sprint's expert, Mr. Proctor,] would require").

Sprint argues that to view the "central location" as a single sector, rather than the entire base station, would improperly limit the term. (D.I. 258 at 11-12). I think what constitutes a "central location" is a question of fact. The '488 patent does not give any special meaning to "central location." The specification merely provides, "At the central location, data is received from a plurality of remote locations," and, "The central location keeps track of which baseband

frequencies are allocated to which remote locations." '488 patent at 4:1-7. The '488 patent does not consider sectorization like that in Sprint's LTE network.

I do not think this is a claim construction issue. The parties do not dispute the meaning of "central location," but whether certain parts of Sprint's LTE network meet the limitation. Based on the parties' expert testimony, whether an individual base station sector in Sprint's LTE network can be considered a "central location" such that it meets the "mutually exclusive" limitation is a disputed question of fact. Sprint's noninfringement theory assumes that an individual sector cannot be a "central location." Therefore, Sprint fails to meet its burden on summary judgment.

2. PUCCH Frequencies

For the following reasons, Sprint's motion, as related to the PUCCH, is **DENIED** with respect to literal noninfringement, and **GRANTED** with respect to noninfringement under the doctrine of equivalents.

Sprint's LTE network allocates frequencies on several channels. The two relevant channels are the Physical Uplink Shared Channel ("PUSCH") and the Physical Uplink Control Channel ("PUCCH"). (D.I. 268, Ex. 1, Ex. A ¶ 117; D.I. 294, Ex. 2 ¶ 86). Sprint argues that it does not infringe because the PUCCH does not allocate "mutually exclusive" frequencies, even within a single base station sector. (D.I. 258 at 13-20). TC Tech argues that it is only asserting infringement with respect to the PUSCH frequencies, and regardless, the PUCCH frequencies meet the "mutually exclusive" limitation literally and under the doctrine of equivalents. (D.I. 293 at 7-10).

Sprint's noninfringement theory requires the PUCCH frequencies to be considered when determining whether its LTE network meets the "mutually exclusive" limitation. Sprint argues

that to exclude the PUCCH frequencies, TC Tech improperly limits the claim term "data" to "data other than the control data sent over the PUCCH." (D.I. 258 at 14). TC Tech argues, however, that the claims do not require the PUSCH and PUCCH frequencies to be considered together. Rather, the PUCCH frequencies are a set of frequencies distinct from the "set of orthogonal baseband frequencies" from which the "mutually exclusive" allocations are made on the PUSCH. (D.I. 293 at 8; D.I. 294 ¶ 86). Therefore, the "mutually exclusive" limitation can be met by the PUSCH frequencies alone. (D.I. 293 at 8).

This appears to be a factual dispute over whether certain elements of Sprint's LTE network meet the "mutually exclusive" limitation. Specifically, whether the frequencies on the PUSCH alone can meet the "mutually exclusive" limitation. Sprint's noninfringement theory assumes that the limitation must be met by both the PUSCH and PUCCH frequencies. Because Sprint has failed to show that the limitation must be met by the PUCCH frequencies, it has failed to meet its burden on summary judgment with respect to literal infringement. Thus, I do not need to address TC Tech's argument that the PUCCH frequencies literally meet the "mutually exclusive" limitation.

I will address, however, Sprint's argument that TC Tech has provided insufficient evidence for its theory under the doctrine of equivalents. (D.I. 258 at 18-20). TC Tech asserts that to the extent the "mutually exclusive" limitation is not literally satisfied, it is satisfied under the doctrine of equivalents. (D.I. 294, Ex. 9 ¶¶ 168-169). "A finding of infringement under the doctrine of equivalents requires a showing that the difference between the claimed invention and the accused product was insubstantial." *Stumbo v. Eastman Outdoors, Inc.*, 508 F.3d 1358, 1364 (Fed. Cir. 2007) (citing *Graver Tank & Mfg. Co. v. Linde Air Prods. Co.*, 339 U.S. 605, 608 (1950)). TC Tech relies solely on Mr. Bates' testimony, which states in relevant part:

> [A] person having ordinary skill in the art would have considered any differences between the claim language of "the subsets of baseband frequencies allocated to each remote location being mutually exclusive" and the features of Sprint's LTE [network system], to be insubstantial and would have found that the two perform substantially the same function and work in substantially the same way to achieve substantially the same result as required by the claim language. . . . [T]he vast majority of uplink transmission in an LTE network occurs in the PUSCH channel. . . . Variations in the implementation of the PUCCH channel, which consists of certain types of control information I have identified . . . , amount to at best an insubstantial difference in the overall uplink transmission of an LTE network. This is both because the fraction of data that is PUCCH data is small, . . . and because the purpose of an uplink LTE system is to transmit user data, at high rates, which is conveyed in the PUSCH, not to implement any particular control structure in PUCCH for implementation's sake.

(D.I. 294, Ex. 9 ¶ 169). The bulk of Mr. Bates' testimony is conclusory. The non-conclusory testimony essentially says, meeting the "mutually exclusive" limitation with the PUSCH frequencies is equivalent to meeting the limitation with both the PUSCH and PUCCH frequencies, because the "vast majority" of data is transmitted on the PUSCH. That is insufficient to support a finding of equivalence. *Novartis Pharm. Corp. v. Abbott Labs.*, 294 F. Supp. 2d 557, 564 (D. Del. 2003), *aff'd*, 375 F.3d 1328 (Fed. Cir. 2004) ("[A] plaintiff must 'articulate the comparison' between the claimed elements and the elements of the accused device and present 'substantial evidence' comparing the claimed elements and the accused device in each of the three aspects of equivalency, i.e. the function, way, and result inquiry.") (citing *Malta v. Schulmerich Carillons, Inc.*, 952 F.2d 1320, 1329 (Fed. Cir. 1991); *Lear Siegler v. Sealy Mattress Co. of Mich.*, 873 F.2d 1422, 1427 (Fed. Cir. 1989)).

B. "carrier signal having the same carrier frequency for each remote location"

For the following reasons, Sprint's motion is **DENIED** with respect to the "same carrier frequency" limitation.

Sprint argues that its LTE network does not meet the "same carrier frequency" limitation because it is undisputed that *not all* "remote locations" (*e.g.*, mobile devices) in the network have

the same carrier frequency. (D.I. 258 at 20-22). It is also undisputed, however, that *some* "remote locations" have the same carrier frequency. (D.I. 293 at 20-21; D.I. 304 at 10-12).

Sprint relies on the Federal Circuit's claim construction in *Apple Inc. v. Samsung Electronics Co.*, 695 F.3d 1370 (Fed. Cir. 2012). The claim in *Apple* required an apparatus with "a plurality of heuristic modules . . . wherein . . . each heuristic module . . . employs a different, predetermined heuristic algorithm." *Id.* at 1377. The parties disagreed over whether the "different . . . algorithm" limitation applied to every heuristic module in the accused device or whether it could be limited to a subset of modules. The district court found that "plurality" means "at least two," or "simply the state of being plural," and that "each" modified "a plurality of heuristic modules." *Id.* at 1378. Thus, the district court concluded that the claim only required a unique algorithm for "each of at least two modules," not "each of every module." *Id.* The Federal Circuit disagreed. First, the Federal Circuit held that "each" did not modify the term "a plurality of heuristic modules," but the term "heuristic modules" that immediately follows "each." *Id.* Second, the Federal Circuit rejected Apple's argument that the claim limitation was satisfied so long as one "plurality" of modules employed unique algorithms. The Federal Circuit found Apple's argument unsupported by both the specification and prosecution history of the asserted patent. *Id.* at 1379.

Sprint argues that the disputed claim language here is nearly identical to that in *Apple*, and thus the *Apple* construction should apply. (D.I. 258 at 21). Claims 1 and 2 of the '488 patent both require "*a plurality of remote locations* to transmit data to a central location comprising . . . *at each remote location*, utilizing a modulator to modulate . . . time domain data onto a carrier signal for transmission to said central location, said *carrier signal having the same carrier frequency for each remote location*." '488 patent at 10:47-48, 10:63-67, 11:12-13, 12:1-

6 (emphasis added). Sprint argues that the claims therefore require every "remote location" in Sprint's LTE network to use the same carrier frequency when communicating with the same "central location." (D.I. 258 at 20).

I do not think *Apple* controls here. Claim construction is a fact specific inquiry. "A claim construction is persuasive, not because it follows a certain rule, but because it defines terms in the context of the whole patent." *Renishaw PLC v. Marposs Societa' per Azioni*, 158 F.3d 1243, 1250 (Fed. Cir. 1998). *Apple* addressed a different patent and considered the proper construction in light of that patent's claim language, specification, and prosecution history. 695 F.3d at 1377-79. I do not think the Federal Circuit meant to establish a general rule for construing the terms "plurality" and "each." Nevertheless, the reasoning in *Apple* appears to be applicable to the claims here.

Sprint also relies on the '488 patent specification. (D.I. 258 at 21-22). The specification states, "It is desirable for all remote locations which transmit data to the headend [central location] to use the same carrier frequency." '488 patent at 8:9-10. Sprint further notes, the specification does not disclose embodiments in which only some "remote locations" use the same carrier frequency. (D.I. 258 at 22).

Based on the claim language and specification, I think Sprint's construction is correct, particularly given the similarities between this case and *Apple*. Therefore, I construe "having the same carrier frequency for each remote location" to mean the same carrier frequency is used by each and every "remote location" that transmits data to the "central location."

Although I conclude that Sprint's claim construction is correct, I do not think Sprint has met its burden on summary judgment. Sprint merely argues that not all "remote locations" in its entire LTE network use the same carrier frequency. (D.I. 258 at 20-22). Sprint does not address

whether all "remote locations" transmitting data to the "central location" use the same carrier frequency, where what constitutes a "central location" is a disputed material fact. *See supra* § III.A.1.

IV. TC TECH'S MOTION FOR PARTIAL SUMMARY JUDGMENT

TC Tech moves for summary judgment of (1) no invalidity under 35 U.S.C. § 102(g)[2] for no reduction to practice of Dr. Jacobsen's alleged prior invention, (2) no anticipation, (3) no license and patent exhaustion, and (4) no prosecution history estoppel. (D.I. 266, 267).

For the following reasons, TC Tech's motion is **GRANTED** with respect to (1) the use of computer simulations to prove actual reduction to practice of Dr. Jacobsen's prior invention under § 102(g), (2) no anticipation for failure to disclose modulation onto a carrier, (3) Sprint's license and patent exhaustion defenses, and (4) Sprint's prosecution history estoppel defense and related prosecution disclaimer arguments. The rest of the motion is **DENIED**.

A. Section 102(g)

Dr. Jacobsen opines that both claims of the '488 patent are anticipated under § 102(g) by her team's invention conceived of in May 1994 ("the Jacobsen invention"), before the September 28, 1995 filing date of the '488 patent. (D.I. 267, at 6; D.I. 268, Ex. 4 at 127:4-10, 130:19-131:11). Section 102(g) provides:

> A person shall be entitled to a patent unless . . . before the applicant's invention thereof the invention was made in this country by another who had not abandoned, suppressed, or concealed it. In determining priority of invention there shall be considered not only the respective dates of conception and reduction to practice of the invention, but also the reasonable diligence of

[2] The '488 patent was filed on September 28, 1995, before the enactment of the Leahy–Smith America Invents Act ("AIA"), Pub. L. No. 112–29, § 3, 125 Stat 284, 285–93 (2011). Post-AIA § 102 no longer includes subsection (g). All references to § 102 here refer to the pre-AIA version of the statute. *See* AIA § 3(n)(1), 125 Stat. at 293 (providing that AIA amendments apply only to applications and patents with an effective filing date of March 16, 2013, or later).

> one who was first to conceive and last to reduce to practice, from a time prior to conception by the other.

35 U.S.C. § 102(g) (1994).[3] Therefore, a patent is invalid under § 102(g) "if the claimed invention was made in this country by another inventor before the patent's priority date. Making the invention requires conception and reduction to practice." *Solvay S.A. v. Honeywell Int'l Inc.*, 742 F.3d 998, 1000 (Fed. Cir. 2014) ("*Solvay II*") (applying post-amendment § 102(g)(2)).

TC Tech argues that Sprint has failed to show reduction to practice. Dr. Jacobsen alleges that her team reduced the invention to practice through actual reduction to practice by computer simulations and constructive reduction to practice by filing patent applications for U.S. Patent Nos. 5,625,651 ("Cioffi '651"), 5,644,573 ("Bingham '573"), and 5,557,612 ("Bingham '612"). (D.I. 268, Ex. 4 at 132:15-138:23). TC Tech argues that neither constitutes reduction to practice under § 102(g). (D.I. 267 at 6, 7-10).

1. Computer Simulations

For the following reasons, TC Tech's motion is **GRANTED** with respect to actual reduction to practice through computer simulations.

To prove actual reduction to practice, a party must show that it "(1) constructed an embodiment or performed a process that met all the limitations of the claim and (2) determined that the invention would work for its intended purpose." *In re Steed*, 802 F.3d 1311, 1318 (Fed. Cir. 2015). TC Tech argues that Dr. Jacobsen's simulations fail to meet to the first requirement. (D.I. 267 at 8-9).

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[3] Section 102(g) was later amended to add subsections (g)(1) and (g)(2). The amendment does not apply to the '488 patent. 35 U.S.C. § 102(g) (Supp. V 2000) (made applicable to patent applications filed on or after November 29, 2000); Act of November 29, 1999, Pub. L. No. 106-113, div. B, § 1000(a)(9), 113 Stat. 1536. However, post-amendment § 102(g)(2) is substantively identical to pre-amendment § 102(g). *Compare* 35 U.S.C. § 102(g) (1994), *with* 35 U.S.C. § 102(g)(2) (2000). Therefore, I believe more recent caselaw under post-amendment § 102(g)(2) may inform my analysis under pre-amendment § 102(g). Post-amendment § 102(g)(1) controls priority of invention in interference proceedings and is not applicable here.

The parties agree that a computer simulation may prove actual reduction to practice under certain circumstances. (Oral Argument at 65:15-18 ("[A] computer simulation can be a reduction to practice if, in fact, you're performing all the steps of the claim.")). TC Tech argues, however, that such reduction to practice is inappropriate here because the '488 patent claims cannot be performed without a physical system. Thus, an allegedly anticipating invention cannot be reduced to practice without a physical system. (*Id.* at 9). It is undisputed that Dr. Jacobsen did not construct a physical system but performed simulations using software on a single computer. (D.I. 268, Ex. 4 at 135:21-136:24; D.I. 288 at 1-2; Oral Argument at 70:18-71:6).

TC Tech cites to this Court's opinion in *L-3 Communications Corp. v. Sony Corp.*, 2013 WL 5942521 (D. Del. Oct. 16, 2013). In *L-3*, the Court held that a computer simulation was insufficient to show actual reduction to practice because it was not "a physical embodiment" as required by *Cooper v. Goldfarb*, 154 F.3d 1321 (Fed. Cir. 1998). *Id.* at *1. *Cooper* addressed reduction to practice in the context of an interference proceeding. 154 F.3d at 1326. The Federal Circuit found no actual reduction to practice through laboratory experiments, in part because the party failed to show "the physical embodiment relied upon as an actual reduction to practice [included] every limitation of the [interference] count." *Id.* at 1327-28.

Sprint relies on *Huawei Technologies, Co. v. Samsung Electronics Co.*, 340 F. Supp. 3d 934 (N.D. Cal. 2018). In *Huawei*, the court found a computer simulation sufficient to show the alleged prior invention was reduced to practice and thus qualified as § 102(g) prior art. *Id.* at 986 (applying post-amendment § 102(g)(2)). The court did not provide any independent analysis, however, but merely followed *Mosaid Technologies Inc. v. Samsung Electronics Co.*, 362 F. Supp. 2d 526 (D.N.J. 2005). The court in *Mosaid* denied summary judgment of no reduction to practice based on a computer simulation. *Id.* at 548. The court in *Mosaid* explained, "[I]n this

technologically advanced society of ours, there are areas of science where a successfully run simulation represents the end of the inventive process and the construction of the physical embodiment is but a matter of mere routine and mechanical application. In that case, and only in that case, it seems appropriate that a simulation should be a valid reduction to practice." *Id.* This Court has declined to follow *Mosaid* in light of the Federal Circuit decision in *Cooper*. *L-3*, 2013 WL 5942521 at *2.

I again decline to follow *Mosaid*. I think actual reduction to practice should be addressed under the Federal Circuit's well-established framework set forth in *Steed*.

Under the first *Steed* requirement, the relevant question is whether Dr. Jacobsen's computer simulations "performed a process that met all the limitations of the [asserted] claim[s]." *See In re Steed*, 802 F.3d at 1318. TC Tech argues that they did not because the simulations were done on a single computer and the asserted claims require transmission of data from one location to another. (D.I. 267 at 9; Oral Argument at 66:6-23). Sprint argues that no such transmission is required. (D.I. 288 at 10).

I do not find Sprint's arguments persuasive. Although the asserted claims do not have a "transmitting" limitation, they clearly involve the movement of data from a "remote location" to a "central location." Both claims require "at each remote location, utilizing a modulator to modulate . . . time domain data onto a carrier signal for transmission to [a] central location," and "receiving at said central location from one or more of said remote locations . . . time domain data modulated on . . . carrier signals." '488 patent at 10:63-65, 11:1-3, 12:1-3, 12:7-9. Sprint offers no explanation for how a single computer could "receiv[e]" data at a "central location" from "remote locations." (*See* Oral Argument at 70:18-71:6).

Therefore, as Dr. Jacobsen's computer simulations could not meet all the limitations of the asserted claims, they are insufficient to show actual reduction to practice as required by § 102(g). I do not need to consider *Steed*'s second requirement.

2. Patent Applications

For the following reasons, TC Tech's motion is **DENIED** with respect to constructive reduction to practice by filing patent applications.

TC Tech asserts that a U.S. patent is prior art as of its filing date under 35 U.S.C. § 102(e) and not as of its date of conception under § 102(g). Therefore, TC Tech argues that Sprint cannot use the filing of patent applications for Cioffi '651, Bingham '573, or Bingham '612 to show constructive reduction to practice of Dr. Jacobsen's prior invention under § 102(g). (D.I. 267 at 9-10).

TC Tech is correct that § 102(e) governs the use of patents as prior art. The Federal Circuit has held, "When patents are not in interference, the effective date of a reference United States patent as prior art is its filing date in the United States, as stated in § 102(e), not the date of conception or actual reduction to practice of the invention claimed or the subject matter disclosed in the reference patent." *Sun Studs, Inc. v. ATA Equip. Leasing, Inc.*, 872 F.2d 978, 983 (Fed. Cir. 1989), *overruled on other grounds by A.C. Aukerman Co. v. R.L. Chaides Constr. Co.*, 960 F.2d 1020 (Fed. Cir. 1992). I think there is a difference, however, between asserting a patent as prior art, and relying on the filing of a patent application as constructive reduction to practice of a prior invention that is asserted as prior art. I do not think *Sun Studs* controls the latter situation.[4]

[4] Section 102(e) applies to patents and patent applications filed in the U.S. without regard for where the invention occurred. Section 102(g) applies to inventions made in the U.S. without regard for whether a related patent or patent application is filed. I see no reason why the subsections must be mutually exclusive—both may apply if a U.S. patent or patent application is filed on an invention made in the U.S.

TC Tech also relies on this Court's decision in *Sonos, Inc. v. D&M Holdings Inc.*, 2017 WL 4969330 (D. Del. Nov. 1, 2017). In *Sonos*, the Court followed *Sun Studs* to find that a patent ("the Rietschel patent") could not be asserted as § 102(g) prior art. *Id.* at *7 (applying post-amendment § 102(g)(2)). The Rietschel patent was filed too late to be prior art under § 102(e). Instead, D&M argued that its product ("the Exstreamer") was a prior invention invalidating the asserted patents under § 102(g). But D&M could not prove that the Exstreamer reflected a reduction to practice of the inventions claimed in the asserted patents. Therefore, D&M argued that the Exstreamer was an embodiment of the Rietschel patent and the disclosures of the Rietschel patent could be asserted as prior art under § 102(g). *Id.*

Sonos does not help TC Tech. D&M was attempting to use § 102(g) to circumvent § 102(e). Under D&M's theory, the Rietschel patent could be backdated under § 102(g) to qualify as prior art despite not being prior art under § 102(e). The Court rejected that theory as improperly distorting the § 102(g) analysis—the proper inquiry was "not whether the Exstreamer is an embodiment of the Rietschel patent, but whether the Exstreamer itself invalidates the [asserted] patents." *Sonos*, 2017 WL 4969330, at *6-7. Unlike D&M, Sprint is not using § 102(g) to backdate patents that are not otherwise prior art. The patents Sprint seeks to rely on for reduction to practice under § 102(g) are also independently asserted as prior art under § 102(e). TC Tech does not dispute that the patents qualify as prior art under § 102(e). (D.I. 288 at 11; D.I. 306 at 2-4; D.I. 352 at 3; Oral Argument at 76:15-18). Further, while I agree with *Sonos* that the proper inquiry under § 102(g) is "whether the [Jacobsen invention] itself invalidates the ['488 patent]," that does not address the present issue—whether filing a patent application can be constructive reduction to practice under § 102(g). *See* 2017 WL 4969330, at *6-7.

In *Solvay S.A. v. Honeywell International, Inc.*, the Federal Circuit addressed reduction to practice in the context of proving a prior invention under § 102(g). 622 F.3d 1367 (Fed. Cir. 2010) ("*Solvay I*") (applying post-amendment § 102(g)(2)). The court stated, "Actual reduction to practice requires that the claimed invention work for its intended purpose, while constructive reduction to practice occurs when a patent application on the claimed invention is filed." *Id.* at 1376 (citing *Hybritech Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1376 (Fed. Cir. 1986)).[5] Thus, I find filing a patent application may constitute constructive reduction to practice under § 102(g).

Therefore, TC Tech has failed to show that Sprint's § 102(g) defense fails as a matter of law, because the filing of the Cioffi '651, Bingham '573, or Bingham '612 patent applications can qualify as constructive reduction to practice of the Jacobsen invention.

B. Anticipation

TC Tech moves for summary judgment of no anticipation by eight different references—(1) "the ICC Paper" (D.I. 268, Ex. 5), (2) "the NCTA Paper" (*id.*, Ex. 6), (3) "the Amati Contribution" (*id.*, Ex. 7), (4) "the CCTA Paper" (*id.*, Ex. 8), (5) Cioffi '651 (*id.*, Ex. 9), (6) Bingham '573 (*id.*, Ex. 10), (7) Bingham '612 (*id.*, Ex. 11), and (8) "the Jacobsen Dissertation" (*id.*, Ex. 12) (collectively, "the Asserted References"). (D.I. 267 at 6). First, TC Tech argues that none of the Asserted References discloses the use of complex signals as required by claim 2 of the '488 patent. (*Id.* at 12-16). Second, TC Tech argues that three of the eight references—

[5] TC Tech argues that *Solvay I* should not control because the court only mentions constructive reduction to practice "in *dicta* and never applies it in any context." (D.I. 306 at 3-4). Although that may be true, TC Tech has not pointed to any Federal Circuit decisions indicating a contrary view. At minimum, *Solvay I* is persuasive authority.

the ICC Paper, the NCTA Paper, and the Amati Contribution—fail to disclose modulation onto a carrier signal as required by both claims 1 and 2 of the '488 patent. (*Id.* at 16-18).

1. Use of Complex Signals (Claim 2)

For the following reasons, TC Tech's motion is **DENIED** with respect to no anticipation for failure to disclose the use of complex signals.

The term "complex signal" does not appear in the claims. TC Tech argues that the limitation arises from the use of "in-phase" and "quadrature" signals, which together make up a complex signal. (D.I. 267 at 4; D.I. 268, Ex. 3 ¶ 63). The relevant portion of claim 2 states,

> Using a demodulator, multiplying . . . time domain data with in-phase and quadrature carrier signals to obtain in-phase and quadrature baseband signals, converting said in-phase and quadrature baseband signals to digital form, and . . . performing . . . orthogonal transform using said in-phase and quadrature baseband signals as real and imaginary values, respectively, to demodulate . . . time domain data from the carrier frequency signal . . . .

'488 patent at 12:11-19. TC Tech argues that in-phase signals represent real values, while quadrature signals represent imaginary values. (D.I. 267 at 4; D.I. 268, Ex. 3 ¶ 83). Thus, the Asserted References cannot anticipate claim 2 because they only disclose the use of real signals. (*Id.* at 13-14).

TC Tech's theory is based on a disputed material fact. The parties' experts clearly disagree over how the claimed in-phase and quadrature signals operate. TC Tech asserts that a quadrature signal is not a real signal and thus not disclosed by the Asserted References. (D.I. 267 at 13-15; D.I. 268, Ex. 3 ¶¶ 63, 83). Sprint asserts that both in-phase and quadrature signals are real signals and thus disclosed by the Asserted References. (D.I. 288 at 16; D.I. 289 ¶¶ 8-12). This is a factual dispute that cannot be resolved at summary judgment.

2. Modulation onto a Carrier (Claims 1 and 2)

For the following reasons, TC Tech's motion is **GRANTED** with respect to no anticipation for failure to disclose modulation onto a carrier.

Both claims of the '488 patent require "utilizing a modulator to modulate . . . time domain data onto a carrier signal for transmission to [the] central location." '488 patent at 10:63-65, 12:1-3. Sprint's expert, Dr. Jacobsen, argues that the ICC Paper, the NCTA Paper, and the Amati Contribution each inherently discloses the required modulation onto a carrier through disclosure of simulated systems that transmit signals in a bandwidth from 30-36 MHz. Dr. Jacobsen explains, "[A] skilled artisan would not have understood there to be any other way, other than by modulation onto a carrier, for the [disclosed signals] to reside between 30 and 36 MHz." (D.I. 289, Ex. 1 ¶ 290 (discussing the ICC Paper); *see also id.* ¶¶ 328, 400).

TC Tech argues, based on Mr. Bates' expert testimony, that Dr. Jacobsen's theory fails because there are multiple ways to transmit a signal in the 30-36 MHz range that do not require modulating onto a carrier. (D.I. 267 at 17; D.I. 268, Ex. B ¶¶ 283-285, 355-357, 435-437). Further, the fact that modulation onto a carrier would allegedly "be more cost-effective, simpler, easier to implement, and would consume less power" is insufficient to show that the references inherently disclose the limitation. (*Id.* at 17-18 (quoting Dr. Jacobsen's Reply Report (D.I. 269, Ex. 14 ¶ 202)). In support, TC Tech relies on *HTC Corp. v. Cellular Communications Equipment, LLC*, 877 F.3d 1361 (Fed. Cir. 2017).

"[A]nticipation by inherent disclosure is appropriate only when the reference discloses prior art that must necessarily include the unstated limitation." *Monsanto Tech. LLC v. E.I. du Pont de Nemours & Co.*, 878 F.3d 1336, 1343 (Fed. Cir. 2018). "Whether a claim limitation is inherent in a prior art reference is a question of fact." *Telemac Cellular Corp. v. Topp Telecom,*

Inc., 247 F.3d 1316, 1328 (Fed. Cir. 2011). "[R]ecourse to extrinsic evidence is proper to determine whether a feature, while not explicitly discussed, is necessarily present in a reference. The evidence must make clear that the missing feature is necessarily present, and that it would be so recognized by persons of ordinary skill in the relevant art." *Id.* (citations omitted).

HTC is on point. In *HTC*, the Federal Circuit agreed with the PTAB's finding that the disputed claim limitation was not inherently disclosed by the prior art. 877 F.3d at 1368-69. HTC had only shown that it was "possible" for the disclosed subject matter to correspond to the claim limitation. The Federal Circuit held that that possibility alone was not enough to find the prior art "necessarily discloses" the claim limitation. *Id.* at 1369.

Here, Dr. Jacobsen admits that Mr. Bates identifies another approach to transmit signals in the 30-36 MHz range without modulation onto a carrier. She opines, however, "A skilled artisan would have recognized the approach suggested by Mr. Bates as unnecessarily complex, expensive, and wasteful." (D.I. 269, Ex. 14 ¶ 145). She further notes that a textbook in the relevant field "characterizes the technical requirements of Mr. Bates's approach as 'ridiculous.'" (*Id.* ¶ 146).[6] Like in *HTC*, Dr. Jacobsen acknowledges that the claim limitation—modulation onto a carrier—is only one of a plurality of approaches corresponding to the disclosed subject matter—transmission in the 30-36 MHz range. *See* 877 F.3d at 1369. Therefore, based on Dr. Jacobsen's testimony, modulation onto a carrier cannot be "necessarily present" in the ICC Paper, the NCTA Paper, or the Amati Contribution. I do not think it is relevant, for inherent anticipation, that a person of ordinary skill in the art would have found modulation onto a carrier substantially more desirable than Mr. Bates' alternative approach.

[6] TC Tech argues that Dr. Jacobsen's reliance on the textbook ("Couch") is "factually unsupported." (D.I. 306 at 8). This appears to be based on the attorneys' understanding of the technology described in the textbook. (*Id.*). I do not find such argument persuasive.

C. License and Patent Exhaustion

For the following reasons, TC Tech's motion is **GRANTED** with respect to no license and patent exhaustion.

Sprint's license and patent exhaustion theories are based on a set of agreements between CableLabs, the original owner of the '488 patent, and several of Sprint's vendors ("the CableLabs Agreements"). (*E.g.*, D.I. 269, Ex. 19; *see also* D.I. 267 at 20; D.I. 288 at 19). The CableLabs Agreements created a pool of intellectual property associated with Data Over Cable Services Interface Specifications ("DOCSIS"), which "define interface requirements for equipment involved in the delivery of data over coax and hybrid fiber/coax networks and to sublicense such rights on a royalty-free basis." (D.I. 269, Ex. 19 at 1). I assume the CableLabs Agreements are substantively identical as the parties focus on just one agreement. (D.I. 267 at 20-23; D.I. 288 at 19-22 (referring to the agreement between CableLabs and ZTE USA Inc. (D.I. 269, Ex. 19)). The CableLabs Agreements, in relevant part, provide:

> CableLabs hereby grants to Licensor and its Affiliates a nontransferable, worldwide, nonexclusive, royalty-free license under CableLabs' patents and copyrights *which are essential for compliance with the Specifications* and a nontransferable, worldwide, nonexclusive, royalty-free sublicense under all patents and copyrights to which CableLabs may have or hereafter acquires the right to sublicense, through other [DOCSIS] Licenses Agreements, *which are essential for compliance with the Specifications to make, have made, use, offer to sell, sell and import products which conform to the Specifications*.

(D.I. 269, Ex. 19 § 2.3 (emphasis added)). "Specifications" means "any and all specifications designated by CableLabs . . . as part of the [DOCSIS] . . . ." (*Id.* § 1.5).

Sprint argues that the '488 patent was a CableLabs patent "essential for compliance with [DOCSIS]," and thus, its vendors had a license to the patent through the CableLabs Agreements. (D.I. 288 at 19). TC Tech argues that Sprint has failed to provide any evidence that (1) the '488

patent was an "essential" patent, and (2) the CableLabs Agreements covered use of the licensed patents for LTE cellular products or services. (D.I. 267 at 20).

To support its view that the '488 patent is "essential" and thus licensed by the CableLabs Agreements, Sprint argues that DOCSIS requires the use of orthogonal frequency-division multiple access ("OFDMA"), which is the same technology allegedly covered by the '488 patent. (D.I. 288 at 19 (citing DOCSIS (D.I. 290, Ex. 5 § 7.3.2))). Sprint asserts that this was confirmed by Thomas Williams, a named inventor of the '488 patent, and Judson Cary, a VP and Deputy General Counsel of CableLabs. (*Id.* at 20).

Mr. Williams stated during deposition that the term "OFDMA" post-dated the '488 patent. (D.I. 290, Ex. 6 at 220:23-24). However, he agreed that DOCSIS requires use of OFDMA (*id.* at 220:13-16), and that he believed "[e]lements in OFDMA . . . are included in the 488 Patent" (*id.* at 221:1-2; *see also id.* at 51:21-52:14).

Mr. Cary stated, in a pre-suit email while preparing to sell CableLabs patents, that he had "tentatively identified 5 of the patents for sale/license, mostly in the DOCSIS area." (D.I. 290, Ex. 13 at IAG000191). He listed the '488 patent as one of the five but added that CableLabs would "need to noodle over how to make potential buyer/licensees aware of the exclusions [CableLabs would] need for [its] members and licensees (e.g., under the DOCSIS patent pool, but limited to that use for DOCSIS)." (*Id.*). During deposition, Mr. Cary clarified that he meant (1) whoever bought the patents would need to grant a reciprocal license back to CableLabs and its members, and (2) any patents "essential" to DOCSIS would be licensed pursuant to an existing agreement. (D.I. 269, Ex. 18 at 37:6-24). Notably, he added that CableLabs has "never made any determination whether any of [the identified patents] are essential." (*Id.* at 37:24-

38:1). Sprint also asserts, and TC Tech does not dispute, that Mr. Cary provided a list of licenses to the patent broker including the CableLabs Agreements. (D.I. 288 at 20; D.I. 306 at 9).

I do not think Sprint has provided sufficient evidence to support a finding that the '488 patent is "essential" to DOCSIS and thus covered by the CableLabs Agreements. At most, Mr. Williams and Mr. Cary have indicated that they believe the '488 patent has some overlapping elements with DOCSIS. First, I do not think having some overlapping elements is equivalent to being "essential."[7] Second, both Mr. Williams and Mr. Cary made conclusory statements—neither articulated *why* the '488 patent should be considered "essential" to DOCSIS. Mr. Cary admitted that CableLabs never conducted an analysis. (D.I. 269, Ex. 18 at 37:24-38:1). Mr. Williams based his testimony on OFDMA yet was unable to define the term. (D.I. 290, Ex. 6 at 52:3-10 ("[W]hat even does OFDMA constitute? . . . [A] lot of questions that need to be answered.").

Therefore, TC Tech has met its burden on summary judgment of showing that there is no dispute of material fact concerning the defenses of license and patent exhaustion based on the CableLabs Agreements. Because I find Sprint cannot show the '488 patent was licensed under the CableLabs Agreement, I do not reach TC Tech's second argument that even licensed patents cannot be used for LTE products and services.

D. Prosecution History Estoppel and Disclaimer

For the following reasons, TC Tech's motion is **GRANTED** with respect to Sprint's prosecution history estoppel defense. I also find that Sprint's related prosecution disclaimer arguments fail as a matter of law.

[7] I would think that for a patent to be "essential," DOCSIS must require practicing the claimed invention. Sprint has not provided any evidence comparing DOCSIS with the '488 patent claims.

TC Tech only moves for summary judgment on prosecution history estoppel, but I believe the parties' arguments may be better suited for prosecution disclaimer. (D.I. 288 at 22-23; D.I. 306 at 10-11). The Federal Circuit explained the distinction:

> Prosecution history estoppel applies as part of an infringement analysis to prevent a patentee from using the doctrine of equivalents to recapture subject matter surrendered from the literal scope of a claim during prosecution. Prosecution disclaimer, on the other hand, affects claim construction and applies where an applicant's actions during prosecution prospectively narrow the literal scope of an otherwise more expansive claim limitation. Though distinct, both doctrines serve to constrain the enforceable scope of patent claims commensurate with any subject matter surrendered during prosecution to obtain the patent, and a single action during prosecution can engender both a prosecution disclaimer and prosecution history estoppel.

Trading Techs. Int'l, Inc. v. Open E Cry, LLC, 728 F.3d 1309, 1322 (Fed. Cir. 2013) (internal citations omitted).

Sprint raises two arguments based on TC Tech's preliminary response in the *inter partes review* ("IPR") of the '488 patent. (D.I. 288 at 23-24; D.I. 290, Ex. 8). First, the claimed "central location" must refer to Sprint's LTE network base station. (D.I. 288 at 23). Second, the claimed "remote locations" must use the same carrier frequency, which Sprint's "remote locations" do not do. (*Id.* at 24).

1. Prosecution History Estoppel

Prosecution history estoppel is a multi-step inquiry. First, a court must find "an amendment filed in the [USPTO] has narrowed the literal scope of a claim." *Festo v. Shoketsu Kinzoku Kogyo Kabushiki*, 344 F.3d 1359, 1366 (Fed. Cir. 2003). Second, the reason for that narrowing amendment must be "a substantial one relating to patentability." *Id.* at 1366-67. Third, the subject matter surrendered by the narrowing amendment must include the particular equivalent in question. *Id.* at 1367.

Sprint has failed to identify a narrowing amendment, let alone a particular equivalent surrendered by that narrowing amendment. In fact, the only evidence that Sprint relies on are TC Tech's IPR statements, which are unrelated to any claim amendment. (D.I. 288 at 23-24). Those statements, if relevant, go towards prosecution disclaimer, not prosecution history estoppel.

2. Prosecution Disclaimer

Prosecution disclaimer requires that "the alleged disavowing actions or statements made during prosecution be both clear and unmistakable." *Omega Eng'g, Inc. v. Raytek Corp.*, 334 F.3d 1314, 1325-26 (Fed. Cir. 2003). Statements made during an IPR proceeding, before or after an institution decision, can support a finding of prosecution disclaimer. *Aylus Networks, Inc. v. Apple Inc.*, 856 F.3d 1353, 1359, 1362 (Fed. Cir. 2017).

First, Sprint argues that TC Tech has disclaimed any construction of "central location" that excludes Sprint's LTE network base station, because TC Tech has indicated that a base station may be a "central location." (D.I. 288 at 23). Sprint points to TC Tech's IPR response describing the '488 patented invention as a method "for multiple remote units (such as cellular phones) to communicate with a *central unit (such as a base station)*" (D.I. 290, Ex. 8 at 1), "providing an efficient multiple access-scheme to transfer data from multiple remotes to *a single base station*" (*id.*), and addressing "signaling sent from multiple remote locations (*e.g.*, cellular phones) towards *a central location (*e.g.*, cellular base stations)*" (*id.* at 5). Therefore, Sprint argues that TC Tech cannot now assert infringement based on a "central location" being an individual sector in Sprint's LTE base station, as opposed to the entire base station. (D.I. 288 at 23-24).

As discussed regarding Sprint's motion for summary judgment, whether an individual sector in Sprint's LTE base station can be considered a "central location" is a disputed question

of fact. *See supra* § III.A.1. Although TC Tech indicated in its IPR response that a generic "base station" may be a "central location," that does not necessarily mean that Sprint's particular LTE network base station is also a "central location." Prosecution disclaimer thus does not apply to limit "central location." Therefore, TC Tech is not barred from asserting its infringement theory based on Sprint's individual base station sectors.

Second, Sprint argues that prosecution disclaimer bars TC Tech from asserting that Sprint's LTE network meets the "same carrier frequency" limitation in the '488 patent. (D.I. 288 at 24). Sprint relies on TC Tech's IPR argument that the prior art did not teach the "same carrier frequency" limitation because the disclosed technology "could transmit on different carriers at the same time." (*Id.* (quoting D.I. 290, Ex. 8 at 21-22)). Sprint argues that it is undisputed that the remote locations in Sprint's LTE network "could transmit [and do transmit] on different carriers at the same time," and thus do not meet the "same carrier frequency" limitation. (*Id.*).

Sprint makes a noninfringement argument under the guise of prosecution disclaimer.[8] The cited portion of TC Tech's IPR response merely indicates that the claimed invention requires transmission on the "same carrier frequency," which is not disputed. (*See* D.I. 290, Ex. 8 at 21-22). Therefore, as prosecution disclaimer does not apply, TC Tech is not barred from asserting that Sprint's LTE network meets the "same carrier frequency" limitation.

V. CONCLUSION

A separate order will be entered.

[8] I already addressed the noninfringement argument in relation to Sprint's motion for summary judgment. *See supra* § III.B.