

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

GOLDEN BRIDGE TECHNOLOGY, INC.,)	
)	
)	
Plaintiff,)	
)	
v.)	Civ. No. 10-428-SLR
)	
APPLE INC., et al.,)	
)	
Defendants.)	

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MEMORANDUM OPINION

Dated: April 9, 2013
Wilmington, Delaware


ROBINSON, District Judge

I. INTRODUCTION

Plaintiff Golden Bridge Technology, Inc. (“GBT”) filed this action against Apple, Inc. (“Apple”), three AT&T entities,¹ and Motorola Mobility LLC, alleging infringement of U.S. Patent Nos. 6,574,267 C1 (“the ‘267 patent”), as reexamined, and 7,359,427 (“the ‘427 patent”) (collectively, “the patents-in-suit”). (D.I. 1)² GBT has asserted the same patents-in-suit against other defendants in a separate case before this court, captioned *Golden Bridge Technology, Inc. v. Amazon.com Inc.* (Civ. No. 11-165, D.I. 1) The parties stayed both cases to pursue mediation, which resulted in the dismissal of several defendants. Following a status conference held by the court, the parties jointly stipulated to consolidate claim construction proceedings and to stay all claims other than those asserted against Apple. (D.I. 178; Civ. No. 11-165, D.I. 244) The parties also agreed upon, and the court approved, a procedure by which all defendants (other than Apple) could choose whether to participate in the consolidated claim construction. The court has construed the limitations “preamble,” “access preamble,” and “discrete power level” in a consolidated claim construction memorandum opinion. The court has also resolved, in a separate memorandum order, various motions by GBT and Apple to exclude or strike expert testimony.

Before the court are several summary judgment motions: Apple’s motion for summary judgment of invalidity (D.I. 218); GBT’s motion for partial summary judgment

¹AT&T Inc., AT&T Corp., and AT&T Mobility LLC have been voluntarily dismissed without prejudice. (D.I. 17, 167)

²Unless otherwise noted, D.I. numbers refer to docket items in the instant case, Civ. No. 10-428.

of infringement (D.I. 223); and Apple's motion for summary judgment of non-infringement (D.I. 233). The court has jurisdiction over these matters pursuant to 28 U.S.C. § 1338.

II. BACKGROUND

A. The Parties

GBT is a New Jersey corporation with its principal place of business in Long Branch, New Jersey. (D.I. 1 at ¶ 1) It was founded in 1995 to develop wireless telecommunication solutions, including those employing wideband code division multiple access ("W-CDMA") technology. (D.I. 229 at JA 1848-49) In early 1998, GBT became involved in efforts to develop a third-generation ("3G") wireless standard by regularly participating on the TR 46.1 committee organized through the Telecommunications Industry Association. (D.I. 225 at A73)

Apple Inc. is a California corporation with its principal place of business in Cupertino, California. (D.I. 1 at ¶ 5) It makes, offers to sell, and sells the accused products – the Apple iPhone 3G, iPhone 3GS, iPhone 4, iPhone 4S, iPad (original), iPad 2, and (new) iPad (released March 2012) (collectively, the "accused products"). (*Id.* at ¶¶ 88, 90, 102, 104; D.I. 107 at ¶ 60)

B. Technology Overview

A code division multiple access ("CDMA") wireless cellular network consists of a base station and multiple mobile stations, such as cellular phones. To establish communication between a mobile station and a base station in a CDMA system, the mobile station transmits an access preamble over a random access channel ("RACH"). Rather than dedicating a single communication channel to each mobile station, the

CDMA system allows multiple signals to be sent over the same RACH. A mobile station trying to connect with a base station must transmit an access preamble over the RACH at a power level high enough to be detected by the base station. However, if the power is too high, it can cause interference to other mobile stations sharing the same communication channel.

C. The Patents-in-Suit

The patents-in-suit are assigned to GBT and list the same two inventors – Dr. Emmanuel Kanterakis and Dr. Kourosh Parsa. The ‘267 patent, titled “RACH Ramp-Up Acknowledgement,” originally issued on June 3, 2003 with twenty-nine claims (“the original ‘267 patent”). Following ex parte reexamination, the United States Patent and Trademark Office (“PTO”) issued a reexamination certificate on December 15, 2009, confirming the patentability of claims 1-12 and 27-29; cancelling claims 13-26; and adding new claims 30-60. The ‘427 patent, also titled “RACH Ramp-Up Acknowledgement,” is a continuation of the ‘267 patent and issued on April 15, 2008.

The parties agree that the patents-in-suit share the same relevant written description and figures and that the claim limitations have the same meaning throughout.³ (See D.I. 193; D.I. 208 at 4; D.I. 210 at 2 n.1) GBT asserts infringement of claims 42-44, 50-52, and 58-60 of the ‘267 patent and claims 9, 10, 14-22, 24, and 26-28 of the ‘427 patent. (D.I. 1)

The invention of the patents-in-suit relates to the RACH process and teaches a “ramp-up” method to “provide random channel access with reliable high data throughput

³For convenience, the court will cite to the ‘267 specification.

and low delay on CDMA systems.” (‘267 patent, col. 1:19-21) This ramp-up method aims to reduce the risk of interference by ensuring the lowest detectable power level is used while providing a fast communication link. A mobile station seeking to establish a connection with a base station will transmit preambles at increasing power levels, separated by pilot signals, until the preamble is detected by a base station. The pilot signals can be set to zero power level such that they become intermittent waiting periods between preamble transmissions. Once a base station detects a preamble, it sends the mobile station an acknowledgment, after which the mobile station ceases transmitting preambles and begins transmitting data or voice communications. If no acknowledgement is received, the mobile station continues transmitting intermittent preambles, each at a higher discrete power level, until either a maximum number of preambles have been transmitted or a predetermined time has elapsed.

III. 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). The moving party bears the burden of demonstrating the absence of a genuine issue of material fact. *Matsushita Elec. Indus. Co. v. Zenith Radio Corp.*, 415 U.S. 574, 586 n.10 (1986). A party asserting that a fact cannot be – or, alternatively, is – genuinely disputed must demonstrate such, either by citing to “particular parts of materials in the record, including depositions, documents, electronically stored information, affidavits or declarations, stipulations (including those made for the purposes of the motions only), admissions, interrogatory answers, or other materials,” or by “showing that the materials cited do not establish the absence or

presence of a genuine dispute, or that an adverse party cannot produce admissible evidence to support the fact.” Fed. R. Civ. P. 56(c)(1)(A) & (B). If the moving party has carried its burden, the nonmovant must then “come forward with specific facts showing that there is a genuine issue for trial.” *Matsushita*, 415 U.S. at 587 (internal quotation marks omitted). The court will “draw all reasonable inferences in favor of the nonmoving party, and it may not make credibility determinations or weigh the evidence.” *Reeves v. Sanderson Plumbing Prods., Inc.*, 530 U.S. 133, 150 (2000).

To defeat a motion for summary judgment, the non-moving party must “do more than simply show that there is some metaphysical doubt as to the material facts.” *Matsushita*, 415 U.S. at 586-87; see also *Podohnik v. U.S. Postal Service*, 409 F.3d 584, 594 (3d Cir. 2005) (stating party opposing summary judgment “must present more than just bare assertions, conclusory allegations or suspicions to show the existence of a genuine issue”) (internal quotation marks omitted). Although the “mere existence of some alleged factual dispute between the parties will not defeat an otherwise properly supported motion for summary judgment,” a factual dispute is genuine where “the evidence is such that a reasonable jury could return a verdict for the nonmoving party.” *Anderson v. Liberty Lobby, Inc.*, 411 U.S. 242, 247-48 (1986). “If the evidence is merely colorable, or is not significantly probative, summary judgment may be granted.” *Id.* at 249-50 (internal citations omitted); see also *Celotex Corp. v. Catrett*, 411 U.S. 317, 322 (1986) (stating entry of summary judgment is mandated “against a party who fails to make a showing sufficient to establish the existence of an element essential to that party’s case, and on which that party will bear the burden of proof at trial”).

IV. DISCUSSION

A. Infringement

GBT moves for partial summary judgment of infringement of claims 42-44, 50-52, and 58-60 of the '267 patent and claims 14-22, 24, 26, and 28 of the '427 patent (collectively, "the claims-at-issue").⁴ GBT alleges direct infringement of the device claims – claims 44, 52, and 60 of the '267 patent and claims 26 and 28 of the '427 patent. It alleges both direct and indirect infringement of the method claims – claims 42, 43, 50, 51, 58, and 59 of the '267 patent and claims 14-22 and 24 of the '427 patent. Apple moves for summary judgment of non-infringement of all asserted claims.

With respect to the '267 patent, Apple has conceded that the accused devices or their methods of operation read on all limitations of the asserted claims, except those that claim "spreading an access preamble" (or a "spread access preamble"), an "access preamble" (or a "preamble"), and a "discrete power level." (See D.I. 225 at A613-31) With respect to the '427 patent claims at issue for summary judgment infringement, Apple has conceded that the accused devices or their methods of operation read on all limitations, except those that claim an "access-burst signal," "discrete power levels," and "spreading the selected preamble code."⁵ Each "access-burst signal" limitation includes an "access preamble," which is the only aspect of the "access-burst signal" limitation disputed for infringement. Therefore, the court's infringement analysis on summary

⁴It is unclear whether GBT is moving for summary judgment of infringement of claim 10 of the '427 patent. (See D.I. 223-1) GBT is not moving for summary judgment of infringement of claims 9 and 27 of the '427 patent.

⁵For claims 9 and 27 of the '427 patent (not at issue for summary judgment), Apple also disputes the "spreading sequence generator" and "product device" limitations. Apple no longer disputes the "broadcast common synchronization channel" limitation of the asserted claims of the '427 patent. (See D.I. 234 at 49)

judgment will focus on the claim limitations reciting spreading a preamble/access preamble (or spread access preamble) and discrete power level.

GBT contends that the accused devices necessarily infringe the claims-at-issue because they establish communication with a base station in compliance with the 3G Partnership Project ("3GPP") system, which allegedly requires the invention of the patents-in-suit. (D.I. 224 at 5) GBT asserts that various testing it has conducted on the accused devices confirm infringement. (*Id.* at 5-7)

1. Standard

A patent is infringed when a person "without authority makes, uses or sells any patented invention, within the United States . . . during the term of the patent." 35 U.S.C. § 271(a). To prove direct infringement, the patentee must establish, by a preponderance of the evidence, that one or more claims of the patent read on the accused device literally or under the doctrine of equivalents. *See Advanced Cardiovascular Sys., Inc. v. Scimed Life Sys., Inc.*, 261 F.3d 1329, 1336 (Fed. Cir. 2001). 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). First, the court must construe the asserted claims to ascertain their meaning and scope. *See id.* Construction of the claims is a question of law subject to de novo review. *See Cybor Corp. v. FAS Techs.*, 138 F.3d 1448, 1454 (Fed. Cir. 1998). The trier of fact must then compare the properly construed claims with the accused infringing product. *See Markman*, 52 F.3d 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).

“Direct infringement requires a party to perform each and every step or element of a claimed method or product.” *BMC Res., Inc. v. Paymentech, L.P.*, 498 F.3d 1373, 1378 (Fed. Cir. 2007). “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) (quoting *Wahpeton Canvas*, 870 F.2d at 1552) (internal quotations omitted). 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).

To establish indirect infringement, a patent owner has available two theories: active inducement of infringement and contributory infringement. See 35 U.S.C. § 271(b) & (c). To establish active inducement of infringement, a patent owner must show that an accused infringer “knew or should have known [its] actions would induce actual infringements.” *DSU Med. Corp. v. JMS Co., Ltd.*, 471 F.3d 1293, 1306 (Fed. Cir. 2006). To establish contributory infringement, a patent owner must show that an accused infringer sells “a component of a patented machine . . . knowing the same to be especially made or especially adapted for use in an infringement of such patent, and not a staple article or commodity of commerce suitable for substantial noninfringing use.”

Golden Blount, Inc. v. Robert H. Peterson Co., 365 F.3d 1054, 1061 (Fed. Cir. 2004) (quoting 35 U.S.C. § 271(c)). Liability under either theory, however, depends on the patent owner having first shown direct infringement. *Joy Technologies, Inc. v. Flakt, Inc.*, 6 F.3d 770, 774 (Fed. Cir. 1993).

When an accused infringer moves for summary judgment of non-infringement, such relief may be granted only if one or more limitations 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 non-infringement 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 non-infringement 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).

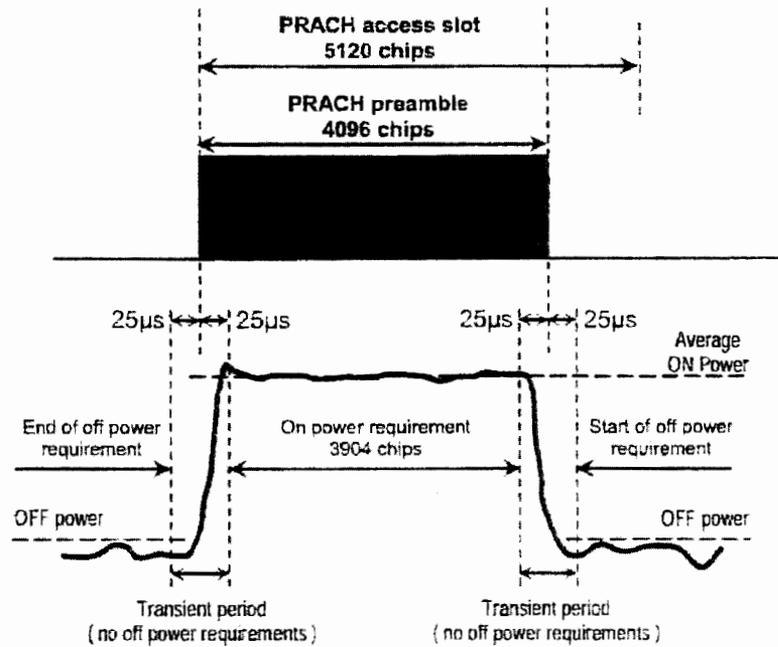
2. Disputed Limitations

a. “Discrete power level”

The court has construed the limitation “discrete power level” to mean “a constant distinct power level.” GBT points to various tests that it and Apple conducted as proof that the accused devices literally infringe the “discrete power level” limitation.⁶ As a

⁶For purposes of summary judgment, GBT does not assert doctrine of equivalents for the “discrete power level” limitation.

preliminary matter, GBT and Apple agree that the transmission of a preamble under the 3GPP standard is shown in figure 6.2 of 3GPP 25.101 Section 6:



(D.I. 225 at A726; see also D.I. 224 at 28; D.I. 234 at 10) The preamble is 4096 chips in length, and the parties agree that there are transient “ramp-up” and “ramp-down” periods over 96 chips at the very beginning and 96 chips at the very end of each preamble.⁷ (See D.I. 251 at 6 n.4)

GBT has produced testing that a third party company, AT4, performed at the request of its expert, Dr. Boncelet. The test was a standard test, 3GPP TS 34.123-1 Section 7.1.2.3.1. (D.I. 225 at A354 at ¶ 24) The AT4 testing measured the average power of a preamble over the middle 3904-chip, or “on power,” portion, of the 4096-chip

⁷Although GBT contests the shape of the transient ramp-up and ramp-down periods, it does not contest that the transient periods exist over the first 96 chips and last 96 chips of each preamble. (See D.I. 251 at 6 n.4)

preamble and did not provide the shape of the curve for the signal. (D.I. 248, ex. 1 at 124:13-15, 227:6-228:2) The testing found that, in the iPhone 4, the “on power” portions of the preambles were transmitted at average powers of -28.3 dB, -25.3 dB, -22.3 dB, -17.8 dB, and -11.6 dB.⁸ (D.I. 225 at A376-78 at ¶¶ 78-82) From these results, another GBT expert, Dr. Vojcic, concluded that each successive preamble was transmitted at an increasingly higher, discretely different power level. (D.I. 225 at A115, ¶ 78, A187-88, A410, ¶ F) GBT concedes that the AT4 testing reports the average power over the middle 3904-chip portion of the 4096-chip preamble and that the 3GPP standard permits a preamble with transient ramp-up and ramp-down periods at the beginning and end of each preamble. (See D.I. 224 at 30; D.I. 251 at 19-20)

Apple avers that GBT has not shown that the accused devices transmit each preamble at a “constant” power level, as required by the court’s claim construction, for three reasons. First, because the AT4 testing only measured the middle 3904-chip portion of each 4096-chip preamble, it allegedly fails to demonstrate that the accused device’s preambles are transmitted “entirely” or “completely” at a constant power level. Second, Apple argues that each preamble must pass through multiple powers, not just the average measured power, because the transient ramp-up necessarily requires the preamble signal to pass through every power from 0 dB to the power at the end of ramp-up period (and vice versa for the ramp-down period). Third, as the AT4 testing only measured the average power and GBT has not produced the shape of the

⁸Apple has performed the same test on the accused devices and found that they passed. (D.I. 225 at A407-08 at ¶ 27)

preamble's power, Apple avers that GBT has not ruled out the possibility that the measured portion of the preamble could be in any shape, even continuously ramping up. (D.I. 234 at 16-17)

The court first considers Apple's argument arising from the fact that GBT measured **average** power. Apple and GBT agree that a "constant" power level is not so rigid as to disallow some fluctuation within a tolerance range. Apple's expert, Dr. Kakaes, testified that "constant," to a person of ordinary skill in the art, does not mean "perfectly constant" but, rather, as close to constant as practically possible within system tolerance. (D.I. 225 at A688, 241:13-20) Nonetheless, Apple cites Dr. Boncelet's testimony to argue that GBT has not ruled out the possibility that the power is continuously ramping up during the measured 3904-chip portion of the preamble. Dr. Boncelet, however, qualified his response and pointed to other tests for support:

Q: So it could well be starting lower than the average on power continuously ramping up to something above the average on power towards the end of the 3,904 chips; is that right?

MR. GIARRATANA: Objection to form.

THE WITNESS: Yes, but remember these are conforming the phones, so at – at some point the design passed all the tests and so we would assume that they the other tests were passed so that the other test limits how much we could deviate, but the answer is yes.

(D.I. 248, ex. 1 at 227:6-228:2)

In fact, GBT has submitted tests conducted by Apple under 3GPP test 5.13.4. (D.I. 225 at A411, ¶¶ H-I) Apple's expert, Dr. Kakaes, testified that test 5.13.4 is intended to "check that the mobile's transmitted power does not veer away from the intended power by more than, on the average, 17.5%. That's a tight constraint." (*Id.* at

A691-92, 257:25-258:3) He testified further that “if the mobile station does perform satisfactorily at that extreme, which is the most difficult region of operation, then it’s going to operate satisfactorily at all lower levels.” (*Id.* at A692, 258:15-19; *see also id.* at A693, 262:6-16) As the accused devices passed 3GPP test 5.13.4 (*Id.* at A411, ¶¶ H-I), Apple cannot genuinely dispute that the power stayed within the permitted tolerance such that it was “constant” at least during the preamble’s middle 3904-chip portion. Therefore, the results of the AT4 testing and 3GPP test 5.13.4 together preclude any genuine dispute about the fact that, over the middle 3904-chip portion of each preamble, the preamble is at a “constant” power level.

Apple’s other two arguments that the accused devices do not transmit preambles at a “constant” level are resolved by the claim construction. As construed, a “discrete power level” requires a power level that is constant. The claim language, which uses the open-ended claim language of “comprising,” does not preclude a transient power ramp-up or ramp-down before or after the transmitted power level. *See Free Motion Fitness*, 423 F.3d 1343, 1353 (Fed. Cir. 2005). So long as the claimed preamble has one, and only one, discrete power level, it may include additional powers, such as a transient power ramp-up and ramp-down.

Moreover, Dr. Kakaes testified at deposition that one of ordinary skill in the art would understand that ramp-up and ramp-down periods are necessary to transmit a preamble under the 3GPP standard:

Q: By the way, a person of ordinary skill in the art would understand that you necessarily have to have a ramp-up and a ramp-down as shown, generally, in Figure 6.2; isn’t that correct?

A: They would understand that you have to have a ramp-up and a ramp-down, but not necessarily as drawn in Figure 6.2. You could do the ramp-up and the ramp-down differently than what's shown in Figure 6.2.

(D.I. 225 at A690, 253:2-10) Relying solely on this testimony, Apple attempts to raise a factual dispute, surmising that Dr. Kakaes' testimony indicates it might be possible to transmit a preamble with an instantaneous power "on"/"off," by ramping up **prior** to transmission of a preamble and ramping down **after** transmission of the preamble. Dr. Kakaes, however, does not go as far as to opine that the ramp-up and ramp-down periods could take place entirely outside of a preamble; he only asserts, vaguely, that they could be done "differently." As Apple's conclusion that the ramp-up and ramp-down periods are unnecessary is not supported by the record, it is attorney argument that does not create a genuine issue of fact to preclude summary judgment. Dr. Kakaes' testimony reflects that ramp-up and ramp-down periods are required to transmit a preamble at a discrete power level.

Apple additionally contests whether the accused products transmit access preambles that are "distinct." It contends that, because the transient ramp-up and ramp-down periods of one preamble may pass through, or overlap, the same powers as another preamble, GBT has not carried its burden of showing that the accused devices transmit preambles that are "distinct." However, for the same reasons as above, the "discrete power level" limitation pertains to the "power levels" being distinct. As there is no genuine factual dispute that the middle 3904-chip portion of each successive preamble is distinctly different, the preambles are "discrete." In light of the undisputed

facts, the court finds that the accused devices and related processes practice the “discrete power level” limitation.

b. “Spreading the access preamble”/“spread access preamble”

Nevertheless, summary judgment of non-infringement is appropriate because GBT has not identified a genuine issue of material fact regarding the limitation of “spreading the access preamble” or of a “spread access preamble.” Under the court’s construction, a “preamble” or “access preamble” must be “spread prior to transmission.” In other words, **the preamble itself** must be spread prior to transmission.

In this regard, GBT and Apple disagree, in their infringement arguments, as to what “spreading” entails. They agree that “spreading” a preamble means “increasing the bandwidth” of the preamble (D.I. 193), but they dispute what the plain and ordinary meaning of “bandwidth” is, pointing to the testimony of their respective experts. Citing the rebuttal report of its expert, Dr. Kakaes, Apple asserts that “bandwidth,” in the context of digital signals, is determined by the rate of transmission of binary digits, or the “chip rate,” so that a digital signal is “spread” when it is multiplied by a higher chip rate. (D.I. 234 at 46-47) GBT maintains that, regardless of whether a signal is analog or digital, bandwidth refers to “the range of frequencies occupied by a signal.” (D.I. 224 at 15; D.I. 225 at A89-90, ¶ 31)

The court, however, need not reach which definition of “bandwidth” is applicable. GBT and Apple do not dispute that each access preamble is generated by selecting an access preamble signature (a “signature”) from a set of 16 available signatures which is

then repeated 256 times to obtain the 4906-chip preamble. (D.I. 225 at A105, ¶ 50, A108, ¶ 57) GBT's infringement contention is that each signature is "spread" by a scrambling code during generation of an access preamble and that such spreading increases the access preamble bandwidth. (D.I. 224 at 4, 7, 11-15) As evidence, GBT submits power spectra produced by Dr. Vojcic, which plot the magnitude of power spectrum against frequency for each available signature before and after the purported "spreading" by a respective scrambling code.⁹ (D.I. 225 at A102-04, ¶¶ 49-50, A326-42, ex. C)

GBT concedes that its evidence is limited to showing the "spreading" of signatures that allegedly takes place during the **generation** of preambles; it is unrelated to what happens after a preamble is generated. (See, e.g., D.I. 224 at 7, 11-12; D.I. 251 at 27-30) GBT's evidence, even if accepted, would only show that a **signature** – not an access preamble – is spread. GBT submits no other evidence that the accused devices "spread" preambles prior to transmission.¹⁰ Therefore, GBT's power spectra is not probative of infringement under the court's claim construction, and there is no genuine issue of material fact precluding the court's finding that GBT has not carried its burden of showing the accused products practice the "access preamble" limitation.

3. Infringement conclusion

⁹GBT contends that "Apple has not introduced any testing, analysis or factual evidence regarding the composition or bandwidth of the access preambles of the Accused Devices." (D.I. 224 at 14) However, it is GBT's burden, not Apple's, to prove infringement.

¹⁰GBT offers no argument under the doctrine of equivalents for the "spreading the access preamble" or "spread access preamble" limitation. (See D.I. 251 at 27-33)

The accused devices do not directly infringe any of the asserted claims because they do not practice the limitation of “spreading an access preamble” or a “spread access preamble,” which is recited in each asserted claim. As there can be no indirect infringement without direct infringement, the accused devices or their methods of operation also do not indirectly infringe any of the asserted claims. Accordingly, the court denies GBT’s motion for partial summary judgment of infringement and grants Apple’s motion for summary judgment of non-infringement.

B. Invalidity Under 35 U.S.C. § 102(e)

Apple contends that all of the asserted claims are invalid as either anticipated or rendered obvious under 35 U.S.C. § 102(e) by U.S. Patent No. 6,606,313 (“Dahlman”), entitled “Random Access in a Mobile Telecommunications System.” Ericsson filed the application for Dahlman on October 5, 1998 (“the Ericsson filing date”), and the patent issued on August 12, 2003. There is no dispute that the original ‘267 patent application was filed on March 22, 1999 (“the GBT filing date”), after the Ericsson filing date, and constituted constructive reduction to practice by GBT. The original ‘267 patent is upstream of all of the patents-in-suit and lists two inventors – Dr. Kanterakis and Dr. Parsa (collectively, “the inventors”).

GBT’s expert, Dr. Vojcic, opined at his deposition that if Dahlman is prior art, all of the asserted claims are anticipated or obvious.¹¹ (D.I. 220, ex. 20 at 18:1-15) GBT

¹¹A claim is anticipated only if each and every limitation as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Bros., Inc. v. Union Oil Co.*, 814 F.2d 628, 631 (Fed. Cir. 1987). With respect to obviousness, “[a] patent may not be obtained . . . if the differences between the subject matter sought to be patented and the prior art are such that the subject matter

does not dispute that position. Rather, it asserts that Dahlman is not prior art because Dr. Kanterakis and Dr. Parsa conceived of the invention prior to the Ericsson filing date and proceeded with reasonable diligence until the GBT filing date. Therefore, the only issue for summary judgment of invalidity is priority of invention.

1. Standard

Under 35 U.S.C. § 102(e), a patent application may be prior art. The section provides:

A person shall be entitled to a patent unless an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent . . . or a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent

35 U.S.C. § 102(e) (2006).¹² To determine whether a patent application is prior art under § 102(e), it is necessary to determine the patentee's date of invention. A party asserting prior invention may establish that he was the first to invent by showing that he was either: (1) the first to reduce the invention to practice; or (2) the first to conceive the invention and to then exercise reasonable diligence in attempting to reduce the invention to practice from a date just prior to the applicant's conception to the date of his reduction to practice. See *Union Carbide Chems. & Plastics Tech. Corp. v. Shell Oil Co.*, 308 F.3d 1167, 1189 (Fed. Cir. 2002). Reduction to practice may either occur actually or constructively. Actual reduction to practice requires a showing by the

as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art." 35 U.S.C. § 103(a).

¹²Section 102, concerning novelty and loss of right to patent, has been revised by the Leahy-Smith America Invents Act, but old Section 102 still applies to this case because the asserted claims have effective filing dates before March 15, 2013.

inventor that “the invention is suitable for its intended purpose.” *Mahurkar v. C.R. Bard, Inc.*, 79 F.3d 1572, 1578 (Fed. Cir. 1996). Constructive reduction to practice, in contrast, occurs when a party alleging prior invention files a patent application on the claimed invention. *Hybritech Inc. V. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1376 (Fed. Cir. 1986).

With respect to showing prior invention by conception and diligence, the inventor who was first to conceive but last to reduce to practice will prevail if he was “diligent” in reducing the invention to practice. See 35 U.S.C. § 102(g) (“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 one who was the first to conceive and last to reduce to practice, from a time prior to conception by the other.”). As recognized by the Federal Circuit,

[a] principal purpose of § 102(g) is to ensure that a patent is awarded to a first inventor. However, it also encourages prompt public disclosure of an invention by penalizing the unexcused delay or failure of a first inventor to share the “benefit of the knowledge of [the] invention” with the public after the invention has been completed.

Checkpoint Sys. v. United States Int’l Trade Comm’n, 54 F.3d 756, 761 (Fed. Cir. 1995) (citing *Paulik v. Rizkalla*, 760 F.2d 1270, 1280 (Fed. Cir. 1985)).

Conception is the “formation in the inventor’s mind of a definite and permanent idea of the complete and operative invention, as it is hereafter to be applied in practice.” *Hybritech*, 802 F.2d at 1376 (citations omitted). A conception must encompass all limitations of the claimed invention, and “is complete only when the idea is so clearly defined in the inventor’s mind that only ordinary skill would be necessary to reduce the

invention to practice, without extensive research or experimentation.” *Singh v. Brake*, 317 F.3d 1334, 1340 (Fed. Cir. 2002) (citations omitted). Put differently, every limitation must be shown to have been known to the inventor at the time the invention is alleged to have been conceived. *Davis v. Reddy*, 620 F.2d 885, 889 (C.C.P.A. 1980) (citing *Schur v. Muller*, 372 F.2d 546, 551 (1967); *Anderson v. Anderson*, 403 F. Supp. 834, 846 (D. D.C. 1975)).

Because conception is a mental act, “it must be proven by evidence showing what the inventor has disclosed to others and what that disclosure means to one of ordinary skill in the art.” *In re Jolly*, 308 F.3d 1317, 1321 (Fed. Cir. 2002) (quoting *Spero v. Ringold*, 377 F.2d 652, 660 (C.C.P.A. 1967)). Corroboration by independent evidence is required where a party seeks to show conception through oral testimony of an inventor. *See id.* (citing *Price v. Symsek*, 988 F.2d 1187, 1190 (Fed. Cir. 1993)). “This requirement arose out of a concern that inventors testifying in patent infringement cases would be tempted to remember facts favorable to their case by the lure of protecting their patent or defeating another’s patent.” *Id.* (citing *Eibel Process Co. v. Minnesota & Ontario Paper Co.*, 261 U.S. 45, 60 (1923)). The Federal Circuit has opined that a court should apply the “rule of reason” in assessing corroboration of oral testimony. *Loral Fairchild Corp. v. Matsushita Elec.*, 266 F.3d 1358, 1363 (Fed. Cir. 2001); *Mahurkar*, 79 F.3d at 1577. That is, “[a]n evaluation of all pertinent evidence must be made so that a sound determination of the credibility of the inventor’s story may be reached.” *Mahurkar*, 79 F.3d at 1577 (internal quotation marks omitted) (quoting *Price*, 988 F.2d at 1195).

The party alleging prior invention must also be able to show diligence “from a date just prior to the other party's conception to . . . [the date of] reduction to practice [by the party first to conceive].” *Monsanto Co. v. Mycogen Plant Sci., Inc.*, 261 F.3d 1356, 1369 (Fed. Cir. 2002); *Mahurkar*, 79 F.3d at 1577. There is no rule requiring a specific type of activity in determining whether the applicant was reasonably diligent in proceeding toward an actual or constructive reduction to practice from the date of conception. See *Brown v. Barbacid*, 436 F.3d 1376, 1380 (Fed. Cir. 2006) (“Unlike the legal rigor of conception and reduction to practice, diligence and its corroboration may be shown by a variety of activities . . .”). It is also not necessary for a party alleging prior invention to drop all other work and concentrate solely on the particular invention involved. *Rines v. Morgan*, 250 F.2d 365, 369 (C.C.P.A. 1957). There need not be evidence of activity on every single day if a satisfactory explanation is evidenced. *Monsanto*, 261 F.3d at 1369 (citations omitted).

“Priority of invention and its constituent issues of conception and reduction to practice are questions of law predicated on subsidiary factual findings.” *Singh v. Brake*, 317 F.3d 1334, 1340 (Fed. Cir. 2003). The patentee has the burden of production in antedating a reference. However, because a patent is presumed valid, the party challenging validity bears the burden of persuasion, by clear and convincing evidence, that the invention fails to meet the requirements of patentability. See *Stamps.com Inc. v. Endicia, Inc.*, 437 F. App'x 897, 907-08 (Fed. Cir. 2011) (citing *Mahurkar*, 79 F.3d at 1577-78); see also *Apotex USA, Inc. v. Merck & Co., Inc.*, 254 F.3d 1031, 1037 (Fed. Cir. 2001).

2. Evidence

a. Prior to the Ericsson filing date

Although the inventors at bar could not recall some details regarding conception, they testified that, well before the Ericsson filing date, they had recognized the prior art RACH procedure in the CDMA system was inefficient and had started “brainstorming” a new standard that would include a faster, more efficient RACH process. (D.I. 220, ex. 21 at 230:10-231:20; D.I. 240 at PA3, 42:8-11, 42:15-18; D.I. 240 at PA275, 135:9-11, 135:22-136:1, PA279, 315:25-319:13) The inventors claim that they “conceived of the invention claimed in the ‘267 patent at least by the summer of 1998.” (D.I. 240 at PA28-29, ¶ 41) Dr. Kanterakis testified at his deposition that “sending a preamble and waiting for an acknowledgement and sending another preamble at half power and waiting for acknowledgement was something we had discussed with [Dr. Parsa] in the summer of ‘98.” (*Id.* at PA275, 135:22-136:1) Dr. Kanterakis also testified:

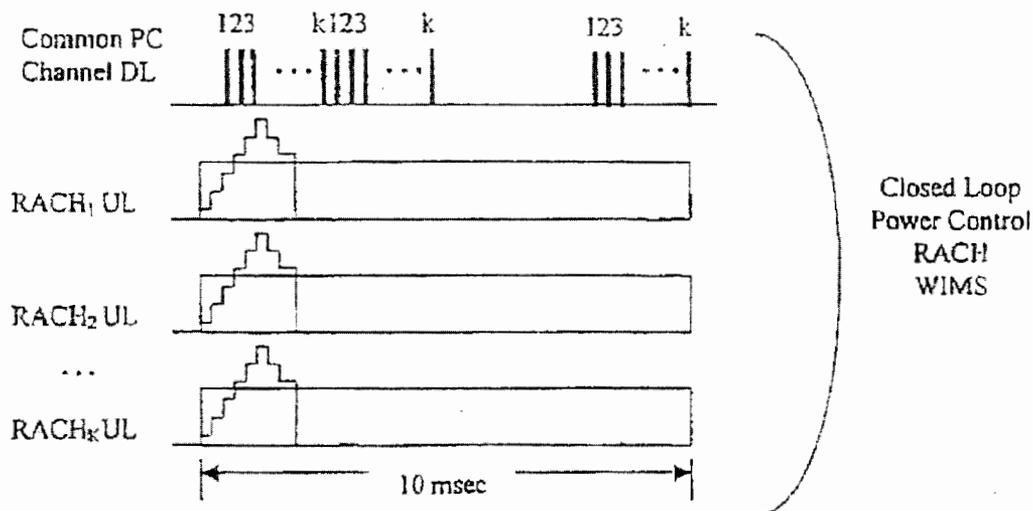
Q: . . . Did you and Dr. Parsa conceive of the separation of the preamble from the message data, with a physical layer acknowledgement prior to transfer of any message data?

A. It was within our discussion in the summer of ‘98.

(*Id.* at PA279, 316:24-317:4)

Dr. Parsa was GBT’s representative to the TR 46.1 committee, an industry standards group that worked on 3G standards, including W-CDMA. (D.I. 225 at A74) According to Dr. Kanterakis, Dr. Parsa would ask him what features were technically possible and how to implement them in order to draft proposals for the TR 46.1 committee. (D.I. 220, ex. 22 at 185:14-186:10)

In August 1998, Dr. Parsa presented three contributions to the TR 46.1 committee, including one titled "Preamble Architecture for Closed Loop Power Control of Isolated Packets in the Uplink Direction." (D.I. 240 at PA200-15) In September 1998, Dr. Parsa made a proposal regarding a "closed loop power control" process in which "[t]he power in the preamble should be stepped up (linearly, exponentially, etc.) starting from TBD dB below the initial Open Loop Power estimate." (D.I. 220, ex. 6 at GBT00535) Figure 1 of Dr. Parsa's proposal illustrates his concept:



(*Id.*, ex. 6 at GBT00538)

On October 7, 1998, Dr. Parsa attended another TR 46.1 committee meeting and made another contribution that GBT contends, in light of its detailed nature and Dr. Parsa's traveling plans, were prepared with Dr. Kanterakis' contribution prior to the Ericsson filing date of October 5, 1998. (D.I. 239 at 12; D.I. 240 at PA55, ¶¶ 76-78, PA283-84, 313:23-314:7, 314:11-25, 316:3-8, PA355-63)

GBT's expert, Dr. Vojcic, stated that a person of ordinary skill in the art would understand that Dr. Parsa's contributions to the TR 46.1 committee, including the August, September, and October 1998 proposals, disclosed all of the limitations of the asserted claims of the patents-in-suit. (D.I. 240 at PA56-57, ¶ 79, PA60, ¶ 82) Apple points out portions of testimony that are allegedly admissions by Dr. Parsa that the TR46.1 contributions did not provide details of the invention and merely outlined goals of the invention. (D.I. 219 at 26-28)

On October 22, 1998, Ericsson, another participant in the TR 46.1 committee, pointed out that Dr. Parsa's proposal did not insert wait periods between preamble transmissions and expressed concern that the proposal might result in runaway power ramping:

[O]ne difference is that there is no idle period between power steps in the proposal from GBT. The effect of this is that the MS might start transmitting at a too high power if the GBT proposal would be utilized. This is due mainly to the fact that the MS will keep ramping up its power not knowing that it has been acquired.

....
The GBT proposal introduces a significant danger due to faulty power control. An MS generating a CLPC ramping header will continue to rapidly "ramp-up" until it receives an indication that a mobile has been detected. This means that the DL "stop" signal must be transmitted sufficiently robustly to ensure that any mobile contending for the channel can receive it. Otherwise, the mobile will continue to rapidly ramp up and may seriously disrupt UL traffic. Generating a "stop" signal with sufficient robustness may impact WL performance.

(D.I. 220, ex. 8 at GBT03561) Ericsson then submitted its own RACH proposal introducing wait periods between preambles transmitted at different power levels (*Id.*, ex. 9), which Apple contends reflects the patent application that Ericsson filed on October 5, 1998 and ultimately issued as Dahlman. (D.I. 219 at 7, 11) The standards-

setting committee eventually rejected GBT's proposal to use a closed loop power control feedback.¹³ (See D.I. 240 at PA184, 136:12-18)

GBT also submits as evidence three hand-drawn sketches from two pages of a notebook belonging to Dr. Parsa. (D.I. 241 at PA687, PA697) The pages on which the sketches appear are undated, but the first sketch appears two pages after a page dated January 23, 1998 and three pages before a page dated January 27, 1998, while the second and third sketches appear several pages after the page dated January 27, 1998 and before a page dated February 26, 1998. (*Id.* at PA685, PA690, PA714)

Dr. Parsa testified that the first sketch shows a type of power ramp-up sent by intermittent preambles over a RACH and that the second and third sketches show a RACH where "nobody has [a] right of way," as well as the transmission of flat top preambles by three mobile stations and the transmission of an acknowledgement by the base station. (D.I. 240 at PA195, 47:20-49:17, PA199, 67:1-68:22) Dr. Vojcic stated that a person of ordinary skill in the art would understand the sketches to show a base station, mobile stations transmitting preambles (without data) in the shape of subsequently higher power levels in square waveforms, idle times between subsequent preambles, and an acknowledgement corresponding to detection of a preamble by the

¹³GBT later filed an antitrust case in the United District Court for the Eastern District of Texas ("the Texas court") against Ericsson and other members of the 3G standards-setting organization, alleging an industry-wide conspiracy "to remove GBT technology from the new standards . . . for the purpose of punishing GBT and . . . render[] GBT's technology virtually valueless." (*Id.*, ex. 12 at ¶ 3) The Texas court granted summary judgment, finding that Ericsson and others did nothing actionable when they excluded GBT's intellectual property, and the Fifth Circuit affirmed. *Golden Bridge Tech., Inc. v. Motorola, Inc.*, 547 F.3d 266 (Fed. Cir. 2008).

base station. (*Id.* at PA20, ¶ 48, PA34, ¶ 46, PA37-38 at ¶¶ 51, 53)

b. Between the Ericsson filing date and the GBT filing date

After Ericsson filed the application for Dahlman, Dr. Parsa testified that he and Dr. Kanterakis continued working on the overall W-CDMA system, but the RACH process of the patents-in-suit was not high on their priority list. (D.I. 220, ex. 7 at 195:18-196:12) Both inventors attended TR 46.1 meetings on October 7-9 and October 27-29, 1998, where they presented papers directed to the RACH procedure and overall W-CDMA system. (D.I. 264 at AA3-4 ¶ 97, AA5-7 ¶¶ 99-104, AA37-73, AA8 ¶¶ 109-10, AA74-89) They also presented other papers directed to network hardware and protocols for the W-CDMA system. (*Id.* at AA74-80, AA7-8 ¶¶ 105-06, AA90-95, AA96-152, AA153-58, AA6-7 ¶¶ 102-04, AA8 ¶ 108)

Dr. Parsa continued attending TR 46.1 meetings, including ones that took place on December 14-16, 1998 and January 18-20, 1999, making presentations on the RACH procedure and overall W-CDMA system. (*Id.* at AA159-296, AA13-14 ¶¶ 125-26, 128-30, AA297-303, AA14-15 ¶ 131, AA304-11.8, AA312-21) In mid-January of 1999, the 3GPP group was formed to develop what ultimately became known as the 3GPP standard. (*Id.* at AA14-15 ¶ 131) Dr. Parsa was assigned to work on five out of seven initial submissions for 3GPP. (*Id.* at AA300-01, AA15 ¶ 132)

From mid-January until GBT's filing date, GBT contends that the inventors continued to develop and present on the network and protocols associated with the invention. Dr. Parsa made presentations to a 3GPP working group in Yokohama, Japan on February 22-25, 1999 and in Stockholm, Sweden on March 22-26, 1999. (*Id.* at

AA15 ¶¶ 135, AA326-40) At a March 24, 1999 TR46.1 committee meeting, Dr. Parsa presented again on the RACH procedure and its integration into a W-CDMA system.

Dr. Kanterakis testified that, on an unspecified date, he and Dr. Parsa met with GBT's patent attorney, Dr. David Newman. (D.I. 240 at PA271-72, 95-100) On February 23, 1999, Dr. Kanterakis faxed the initial draft of the patent drawings in the patents-in-suit to his secretary to finalize, and there is no dispute that his secretary forwarded those drawings to Dr. Newman on February 26, 1999. (D.I. 264 at AA415 ¶¶ 6-7) GBT avers that Dr. Newman "needed the drawings to prepare the patent application because, as is evident from the '267 patent, the specification is largely directed to a detailed description of the drawings." (D.I. 239 at 39) The application for the original '267 patent was then filed twenty-four days later, on March 22, 1999.

3. Discussion

a. Conception

As a threshold matter, GBT and Apple dispute the admissibility and use of Dr. Parsa's notebook sketches as evidence of prior conception. Regarding admissibility, Dr. Parsa confirmed that the notebook was his and that it contained his handwriting. (D.I. 220 at PA286, 335:6-336:6, 336:21-337:17) He used it as a place where he would "jot[] down whatever was bugging [him]" (*Id.* at PA286, 335:6-336:6, 336:21-337:17) Although the sketches appear on undated pages (between dated pages) and are on the back side of pages, such criticism merely goes to the weight of the evidence, not their admissibility. See *Cordance Corp. v. Amazon.com, Inc.*, 693 F. Supp. 2d 406, 433-34 (D. Del. 2009) (holding that a document was properly authenticated by its

authoring inventor and that remaining criticisms merely went to the weight of the evidence).

GBT does not attempt to use the notebook sketches by Dr. Parsa as independent corroborating evidence. See *Brown v. Barbacid*, 276 F.3d 1327, 1335 (Fed. Cir. 2002) (“[A]n inventor’s own unwitnessed documentation does not corroborate an inventor’s testimony about inventive facts.”). Nonetheless, it asserts that the court should still consider the notebook sketches under the “rule of reason.” (D.I. 239 at 27) However, the “rule of reason” applies in the context of assessing **corroborating** evidence. It requires the court to evaluate “all pertinent evidence when determining the credibility of an inventor’s testimony. In order to corroborate a reduction to practice, it is not necessary to produce an actual over-the-shoulder observer. Rather, sufficient circumstantial evidence of an independent nature can satisfy the corroboration requirement.” *Cooper*, 154 F.3d at 1330; see also *Hybritech*, 802 F.3d at 1377-78 (finding corroborative value in research notebooks that were either contemporaneously signed and witnessed, or prudently witnessed by other researchers within a reasonable time thereafter). Therefore, the court does not consider the notebook sketches under the “rule of reason.”¹⁴

¹⁴However, the jury, as the trier of fact, may make its own determinations as to what Dr. Parsa’s notebook sketches disclose. The Federal Circuit in *Brown* used a notebook as physical documentary evidence of conception that, with an explanation of its meaning to one of skill in the art, did not require corroboration “to demonstrate the content of the physical evidence itself.” *Brown*, 276 F.3d at 1334, 1337; see also *Mahurkar*, 79 F.3d at 1577 (“The trier of fact can conclude for itself what documents show, aided by testimony as to what [it] would mean to one skilled in the art.” (citation omitted)); *Price*, 988 F.2d at 1195-96 (finding that what a drawing discloses need not be supported by corroborating evidence, as “[o]nly the inventor’s testimony requires corroboration before it can be considered”).

“To avoid summary judgment, a patentee need only show that [the inventors] asserted reduction to practice prior to the [alleged prior art date], and to provide the corroborating evidence required under [the Federal Circuit’s] precedent.” *Loral Fairchild*, 266 F.3d at 1365. The court finds that material fact issues remain that preclude summary judgment of invalidity. The inventors alleged reduction to practice at least by the summer of 1998, which was prior to the Ericsson filing date. Apple has not offered contradictory testimony, instead highlighting passages of testimony that allegedly show the inventors could not remember some details of their inventive process. (D.I. 219 at 19-20) Although the inventors admitted having difficulty recalling some details, the court may not assess the credibility or persuasiveness of testimony when resolving motions for summary judgment.

Therefore, as GBT has offered evidence to assert conception, the issue becomes whether GBT submitted independent evidence sufficient to corroborate this assertion. *See Loral Fairchild*, 266 F.3d at 1362-63 (finding that the inventor’s affidavit was sufficient to assert reduction of practice before the alleged prior art date). The primary independent evidence that GBT has submitted to corroborate the inventors’ testimony is GBT’s contributions to the TR 46.1 committee. (See D.I. 239 at 1, 22-27) GBT also submits that the TR 46.1 contributions are evidence of conception that, as physical documentary evidence in view of guidance on how one of ordinary skill in the art would understand them, do not require corroboration. GBT and Apple vigorously dispute what

the TR 46.1 contributions show.¹⁵ GBT's expert, Dr. Vojcic, stated that one of ordinary skill in the art would understand GBT's contributions to the TR 46.1 committee, including the August, September, and October 1998 proposals, to disclose all of the limitations of the asserted claims. (D.I. 240 at PA56-57, ¶ 79, PA60, ¶ 82) Apple points out portions of Dr. Parsa's testimony that are allegedly admissions that the TR 46.1 contributions did not provide enough details and merely outlined goals of the invention. (D.I. 219 at 26-28) The court concludes that there are genuine issues of material fact regarding the import of the TR 46.1 contributions and, therefore, as to conception.¹⁶

b. Diligence

GBT argues that the patentees also satisfied the diligence requirement to antedate the Ericsson filing date because, between Ericsson's filing date and GBT's filing date: (1) the inventors demonstrated "engineering diligence" by attending TR46.1 committee meetings and making presentations related to the invention; and (2) their patent attorney, Dr. Newman, demonstrated "attorney diligence" by diligently working on the patent application at least after receiving Dr. Kanterakis' drawings. (D.I. 239 at 38-

¹⁵There also seems to be a factual dispute regarding whether Dr. Parsa's October 7, 1998 proposal to the TR 46.1 committee is evidence of prior conception because he allegedly had to prepare the presentation before the Ericsson filing date of October 5, 1998.

¹⁶Apple contends that there is insufficient evidence of prior conception because Dr. Kanterakis' drawings "were necessary for Dr. Newman to constructively reduce the invention to practice," and the drawings did not exist before February 23, 1999. (D.I. 247 at 16) While GBT concedes that the drawings were important for preparing the application for the original '267 patent, Apple has not shown on summary judgment, under its burden, that the drawings were required for actual reduction to practice.

40) Viewing the evidence of record in the light most favorable to GBT, the court concludes that there are genuine issues of material fact for the jury to determine.

The court denies Apple's motion for summary judgment on invalidity.

V. CONCLUSION

For the foregoing reasons, the court denies GBT's motion for partial summary judgment of infringement; grants Apple's motion for summary judgment of non-infringement of all asserted claims; and denies Apple's motion for summary judgment of invalidity. An appropriate order shall issue.