

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

TQ DELTA, LLC,

Plaintiff,

v.

2WIRE, INC.,

Defendant.

Civil Action No. 1:13-cv-01835-RGA

MEMORANDUM OPINION

Brian E. Farnan and Michael J. Farnan, FARNAN LLP, Wilmington, DE; Peter J. McAndrews, Timothy J. Malloy, Thomas J. Wimbiscus, James P. Murphy, Paul W. McAndrews, Rajendra Chiplunkar, and Anna M. Targowska, MCANDREWS, HELD & MALLOY, LTD., Chicago, IL.

Attorneys for Plaintiff.

Jody C. Barillare, MORGAN LEWIS & BOCKIUS LLP, Wilmington, DE; Brett Schuman, Rachel M. Walsh, and Monte M.F. Cooper, GOODWIN PROCTER LLP, San Francisco, CA.

Attorneys for Defendant.

March 26, 2019



ANDREWS, U.S. DISTRICT JUDGE:

Presently before me are the Parties' summary judgment motions on the Family 1 Patents: Plaintiff's Motion for Summary Judgment of No Invalidity of Family 1 Patent Claims (D.I. 615 (briefing at D.I. 616, 655, 694)), Plaintiff's Motion for Summary Judgment of Infringement of Family 1 Patent Claims (D.I. 620 (briefing at D.I. 622, 654, 693)), and Defendant's Motion for Summary Judgment of Invalidity of Claim 1 of U.S. Patent No. 7,899,784 (D.I. 608 (briefing at 609, 664, 686)). The Parties' *Daubert* motions are also before me: Plaintiff's Motion to Preclude Certain Opinions of Dr. Krista S. Jacobsen (D.I. 597 (briefing at D.I. 598, 650, 691)) and Defendant's Motion to Preclude the Expert Testimony of Dr. Todor Cooklev for Family 1 (D.I. 618 (briefing at 619, 668, 683)). The Parties have fully briefed the issues. For the reasons set out below, I will grant Defendant's Motion for Summary Judgment of Invalidity of Claim 1 of U.S. Patent No. 7,899,784 and dismiss as moot the remainder of the Parties' Family 1 motions.

I. BACKGROUND

A. The '784 Patent

Claim 1 of the 7,889,784 Patent ("784 Patent") is the last remaining asserted claim in Family 1. (D.I. 609 at 2). It claims:

1. A transceiver capable of transmitting test information over a communication channel using multicarrier modulation comprising:

a transmitter portion capable of transmitting a message, wherein the message comprises one or more data variables that represent the test information, wherein bits in the message are modulated onto DMT symbols using Quadrature Amplitude Modulation (QAM) with more than 1 bit per subchannel and wherein at least one data variable of the one or more data variables comprises an *array representing Signal to Noise ratio per subchannel during Showtime information*.

('784 Patent, claim 1 (disputed term italicized)).

B. The Prior Art

Plaintiff does not dispute that the references at issue are prior art to the '784 Patent. (*See* D.I. 664). The Parties also largely agree on the content of the prior art.

1. U.S. Patent No. 6,636,603 (“Milbrandt”)

Milbrandt was filed on July 30, 1999 and is prior art to the '784 Patent pursuant to 35 U.S.C. § 102(e) (pre-AIA). (D.I. 612-10). It teaches a system for “determining the transmit power of a communication device operating on digital subscriber lines.” (*Id.* at 1:20-23).

Milbrandt’s Detailed Description of the Invention discloses:

Each of several central offices is coupled to a number of subscribers using subscriber lines. A system management server is coupled to each central office using a data link. A system management database is coupled to each central office using a data link and coupled to server using a data link. In general, database stores subscriber line information and communication device information defining the physical and operating characteristics of subscriber lines and communication devices of communication system, respectively. In one aspect of operation, system management server determines the approximate data rate capacity of selected subscriber lines for subscribers using subscriber line information stored in database. In another aspect of operation, server determines the optimal transmit power for a communication device operating on a subscriber line.

(*Id.* at 4:6-21 (figure element numbers omitted)). The stored “physical and operating characteristics of subscriber lines” include “attenuation information, noise information, received signal power spectrum density, S_f , or any other information describing the physical or operating characteristics of subscriber line at the one or more sub-frequencies over which the connection between modem[s] is established.” (*Id.* at 11:38-45 (figure element numbers omitted)). One embodiment of the system described in Milbrandt expressly “support[s] communication using ADSL techniques that comply with ANSI Standard T1.413.” (*Id.* at 9:31-34).

2. U.S. Patent No. 6,590,893 (“Hwang”)

Hwang was filed on April 7, 1999 and is prior art to the '784 Patent pursuant to 35 U.S.C.

§ 102(e) (pre-AIA). (D.I. 612-11). Hwang discloses “an adaptive transmission system used in a network” that employs discrete multi-tone (DMT) modulation. (*Id.* at 1:7-8, 3:52-54). The system uses a differential coder to encode an input bit stream into a predetermined number of tones. (*Id.* at 5:14-17). After the transmission of those tones, each tone of subsequent symbols transmits two bits of data using QAM signals. (*Id.* at 2:66-3:3; 5:25-44; 5:64-6:4).

3. American National Standards Institute T1.413-1995: Network and Customer Installation Interfaces—Asymmetric Digital Subscriber Line (ADSL) Metallic Interface (“T1.413-1995”)

T1.413-1995 is prior art to the '784 Patent pursuant to 35 U.S.C. §§ 102(a)-(b) as it was approved on August 18, 1995 and published shortly thereafter. (D.I. 612-12 at 3; D.I. 609 at 9). T1.413-1995 specifies requirements and optional capabilities of ADSL transceivers. (D.I. 612-12). One such requirement is the use of DMT modulation. (*Id.*). T1.413-1995 also specifies that each subcarrier that is used to transmit data, whether downstream or upstream, carries at least two bits. (*Id.* at § 6.6.1).

4. U.S. Patent No. 6,434,119 (“Wiese”)

Wiese is prior art to the '784 Patent pursuant to 35 U.S.C. § 102(e) & (g) (pre-AIA) as it was filed on July 7, 1998 and claims priority to a March 19, 1998 provisional application. (D.I. 612-15). Wiese discloses “methods of initializing a connection between a remote modem and a central unit in a communication system that utilizes a multi-carrier modulation scheme.” (*Id.* at Abstract). Part of that process involves the remote modem transmitting a message that contains a vector of detected signal to noise ratios back to the central unit, which then calculates the bit and power allocations for each of the subchannels and transmits them to the remote modem as part of a response message. (*Id.* at 9:21-35).

5. U.S. Patent No. 6,606,719 (“Ryckebusch”)

Ryckebusch claims priority to a European patent application filed on March 31, 1999 and is prior art to the '784 Patent pursuant to 35 U.S.C. § 102(e) (pre-AIA version). (D.I. 612-13). Ryckebusch discloses “an Asymmetric Digital Subscriber Line (ADSL) system operating in accordance with ANSI’s T1.413 standard, issue 2,” in which a remote terminal automatically collects information about a channel and transmits the information to a central office. (*Id.* At 2:16-24). The automatically-collected information includes “a signal to noise ratio (SNR) measurement for each carrier.” (*Id.* at 4:10-15). The “remote terminal . . . contains a channel information gathering unit and channel information memory.” (*Id.* at 3:22-27 (figure element numbers omitted)). The channel information gathering unit collects the channel information and stores it in the channel information memory. (*Id.* at 4:20-23). The transmitter then “reads the channel information out of the channel information memory and sends the information to the central office so that it is available at the operator’s side for channel estimation purposes.” (*Id.* at 4:23-27 (figure element numbers omitted)).

The remote terminal can send the collected information to the central office as needed. (*Id.* at 5:2-13). This enables the operator to “take appropriate measures in case of quality loss, to monitor changes to the customer’s in-house network that may affect the quality of service, and to fast [sic] evaluate complaints of the customer concerning the quality of service.” (*Id.* at 4:49-54).

II. LEGAL STANDARD

A. Summary Judgment

“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 has the initial burden of proving the absence of a genuinely

disputed material fact relative to the claims in question. *Celotex Corp. v. Catrett*, 477 U.S. 317, 330 (1986). Material facts are those “that could affect the outcome” of the proceeding, and “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.” *Lamont v. New Jersey*, 637 F.3d 177, 181 (3d Cir. 2011) (quoting *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 248 (1986)). 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*, 477 U.S. at 323.

The burden then shifts to the non-movant to demonstrate the existence of a genuine issue for trial. *Matsushita Elec. Indus. Co. 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).

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. *Scott v. Harris*, 550 U.S. 372, 380 (2007); *Wishkin v. Potter*, 476 F.3d 180, 184 (3d Cir. 2007). A dispute is “genuine” only if the evidence is such that a reasonable jury could return a verdict for the non-moving party. *Anderson*, 477 U.S. at 247-49. 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.

B. Claim Construction

“It is a bedrock principle of patent law that the claims of a patent define the invention to which the patentee is entitled the right to exclude.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (citation omitted). “[T]here is no magic formula or catechism for conducting claim construction.’ Instead, the court is free to attach the appropriate weight to appropriate sources ‘in light of the statutes and policies that inform patent law.’” *SoftView LLC v. Apple Inc.*, 2013 WL 4758195, at *1 (D. Del. Sept. 4, 2013) (quoting *Phillips*, 415 F.3d at 1324) (alteration in original). When construing patent claims, a court considers the literal language of the claim, the patent specification, and the prosecution history. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979-80 (Fed. Cir. 1995) (en banc), *aff’d*, 517 U.S. 370 (1996). Of these sources, “the specification is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.” *Phillips*, 415 F.3d at 1315.

“[T]he words of a claim are generally given their ordinary and customary meaning. . . . [This is] the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date of the patent application.” *Id.* at 1312-13. “[T]he ordinary meaning of a claim term is its meaning to [an] ordinary artisan after reading the entire patent.” *Id.* at 1321. “In some cases, the ordinary meaning of claim language as understood by a person of skill in the art may be readily apparent even to lay judges, and claim construction in such cases involves little more than the application of the widely accepted meaning of commonly understood words.” *Id.* at 1314.

When a court relies solely on the intrinsic evidence—the patent claims, the specification, and the prosecution history—the court’s construction is a determination of law. *See Teva Pharm. USA, Inc. v. Sandoz, Inc.*, 135 S. Ct. 831, 841 (2015). The court may also make factual findings

based on consideration of extrinsic evidence, which “consists of all evidence external to the patent and prosecution history, including expert and inventor testimony, dictionaries, and learned treatises.” *Phillips*, 415 F.3d at 1317-19. Extrinsic evidence may assist the court in understanding the underlying technology, the meaning of terms to one skilled in the art, and how the invention works. *Id.* Extrinsic evidence, however, is less reliable and less useful in claim construction than the patent and its prosecution history. *Id.*

“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). It follows that “a claim interpretation that would exclude the inventor’s device is rarely the correct interpretation.” *Osram GMBH v. Int’l Trade Comm’n*, 505 F.3d 1351, 1358 (Fed. Cir. 2007) (citation omitted).

C. Obviousness

The presumption that all patents are valid is the starting point for any obviousness determination. 35 U.S.C. § 282. A patent claim is invalid as obvious under 35 U.S.C. § 103 if the novel aspect of the claimed invention “would have been obvious . . . to a person having ordinary skill in the art. . . .” *Id.* § 103(a); *see also KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406-07 (2007).

Obviousness is a question of law that depends on the following factual inquiries: (1) the scope and content of the prior art; (2) the differences between the claims and the prior art; (3) the level of ordinary skill in the relevant art; and (4) any objective indicia of nonobviousness. *See KSR*, 550 U.S. at 406; *see also Transocean Offshore Deepwater Drilling, Inc. v. Maersk Drilling USA, Inc.*, 699 F.3d 1340, 1347 (Fed. Cir. 2012).

To prove obviousness, a party must show that a skilled artisan would have been motivated to combine the prior art teachings to create the claimed method with a reasonable

expectation of success. *See Allergan, Inc. v. Sandoz Inc.*, 726 F.3d 1286, 1291 (Fed. Cir. 2013). The improvement over prior art must be “more than the predictable use of prior art elements according to their established functions.” *KSR*, 550 U.S. at 417. Evidence of obviousness, however, especially when that evidence is proffered in support of an “obvious-to-try” theory, is insufficient unless it indicates that the possible options skilled artisans would have encountered were “finite, small, or easily traversed, and that skilled artisans would have had a reason to select the route that produced the claimed invention.” *In re Cyclobenzaprine Hydrochloride*, 676 F.3d at 1072 (internal quotation marks omitted). Obviousness must be proven by clear and convincing evidence. *Id.* at 1078.

D. Anticipation

“To show that a patent claim is invalid as anticipated, the accused infringer must show by clear and convincing evidence that a single prior art reference discloses each and every element of a claimed invention.” *Silicon Graphics, Inc. v. ATI Tech., Inc.*, 607 F.3d 784, 796 (Fed. Cir. 2010). “[E]very element of the claimed invention [must be described], either expressly or inherently, such that a person of ordinary skill in the art could practice the invention without undue experimentation.” *Callaway Golf Co. v. Acushnet Co.*, 576 F.3d 1331, 1346 (Fed. Cir. 2009). As with infringement, the court construes the claims and compares them against the prior art. *See Enzo Biochem, Inc. v. Applera Corp.*, 599 F.3d 1325, 1332 (Fed. Cir. 2010). “While anticipation is a question of fact, it may be decided on summary judgment if the record reveals no genuine dispute of material fact.” *Encyclopaedia Britannica, Inc. v. Alpine Elecs. of Am., Inc.*, 609 F.3d 1345, 1349 (Fed. Cir. 2010).

III. DISCUSSION

Although the pending motions relate to summary judgment and *Daubert* disputes, the briefing revealed a clear, and potentially case dispositive, claim construction dispute. Thus, I will first resolve that dispute and then address the substance of the motions.

A. Construction of “array representing Signal to Noise ratio per subchannel during Showtime information”

During claim construction, the Parties agreed that I should construe “Showtime” as “the state of the transceiver reached after all initialization and training is completed, in which user data is transmitted or received.” (D.I. 290-1 at 5). They further agreed that I should construe “array representing Signal to Noise ratio per subchannel during Showtime information” as “ordered set of values representative of the signal to noise ratio of respective subchannels during the state of the transceiver reached after all initialization and training is completed, in which user data is transmitted or received.” (*Id.*). I adopted their agreed proposed constructions. (D.I. 485). The Parties now disagree on the meaning of those constructions. (D.I. 686 at 1-4). Specifically, the Parties dispute whether the “data variable” that “comprises an array representing Signal to Noise ratio per subchannel during Showtime” must be measured during Showtime within the meaning of the claim. (D.I. 686 at 1). I ordered supplemental briefing to assist my resolution of this claim construction issue. (D.I. 811, 824, 870, 902). For the reasons set out below, I find that the claimed “array representing Signal to Noise ratio per subchannel during Showtime” (“Array”) is not limited to an Array that is *measured* during Showtime.

The plain language of claim 1 supports 2Wire’s position that there is no temporal limitation during which the Array must be measured. Defendant argues that the claim requires that the Array is “representative” of the signal to noise ratio (“SNR”) that exists during Showtime. (D.I. 686 at 2). It notes, “The claim is silent as to how or when the values are

gathered or transmitted.” (*Id.*). Plaintiff disagrees. It focuses on the claim term “during” as supporting its position that measurements must be made once Showtime is reached. (D.I. 824 at 6). I agree with Defendant’s understanding of the claim term. Plaintiff’s proposed construction ignores the “representing” language of the claim. The claim clearly states, however, that the array *represents* “Signal to Noise ratio per subchannel during Showtime information.” “During” in that clause modifies the nature of the “Signal to Noise ratio per subchannel” with which the claim is concerned. The “representing” language, however, indicates that the Array need not be actual SNR information measured during Showtime. Rather, based on the plain language of the claim, if the SNR information is representative of the SNR per subchannel that exists during Showtime, that information meets the claim limitation. The claim provides no guidance on how or when that information comes to be representative. Thus, I find that the plain language of the claim does not support a temporal measurement limitation.

The specification provides almost no guidance on the proper construction of this claim term. Plaintiff’s specification-based argument focuses on a distinction between Showtime and Training. It says, “blur[ring] the bright line between Showtime and Training is not a reasonable reading of the claim.” (D.I. 824 at 7). Plaintiff roots this argument in a list of “exemplary message variables” where “Signal to Noise during Training” and “Signal to Noise during Showtime” are listed separately. (’784 Patent at 3:57-4:17 (“Table 1”)). It does not, however, explain why interpreting the limitation as Defendant proposes is inconsistent with understanding “Signal to Noise during Training” as having a distinct meaning. (*See* D.I. 824 at 6-8). Furthermore, it does not cite intrinsic evidence or expert testimony that might support its conclusion that a “bright line” actually exists between the SNR during Training versus Showtime. Accordingly, as the intrinsic evidence is equally lacking as to the bounds of both

terms, I do not find the two items in Table 1, a twenty-three-item list, useful to the construction of this claim term. Plaintiff's attorney argument does not fill in the gaps. Thus, I do not find Plaintiff's position persuasive.

Defendant's specification-based argument is no more persuasive. It argues that the specification focuses on the pre-Showtime period, and that this renders it more likely that a POSA would understand the claim to cover measurements made before Showtime that are representative of the SNR during Showtime. (D.I. 870 at 2-4). It further argues that the '784 Patent's provisional application focuses exclusively on the pre-Showtime period. (*Id.* at 4-5). Plaintiff responds by identifying passages in the specification that discuss systems that achieve Showtime, and it argues that the provisional application is minimally probative. (D.I. 902 at 2-4). I agree with Plaintiff that the specification provides at least some support for a device entering the diagnostic link mode¹ at some point after successfully achieving Showtime. (D.I. 902 at 3-4). I also agree with Plaintiff that the content of the provisional application is unhelpful. Thus, I find that Defendant's argument is unpersuasive.

Having exhausted the limited information as to the meaning of this limitation in the intrinsic record, the Parties focus a great deal of discussion on extrinsic evidence.

Defendant notes that one of the co-inventors of the '784 Patent, Robert Pizzano, testified that all the information listed in Table 1 is gathered during training. (D.I. 870 at 5-6). Mr. Pizzano further testified, essentially, that he did not know or remember the significance of SNR per subchannel during Showtime. (*Id.*). Plaintiff notes, correctly, that this is of limited probative value because the testimony only clearly supports the proposition that Mr. Pizzano does not

¹ The "diagnostic link mode" is the mode in which diagnostic and test information is communicated. This mode occurs outside of Showtime. ('784 Patent at 2:4-9).

remember relevant information. (D.I. 902 at 4). Plaintiff also notes that the other named inventor, David Krinsky, remembers more details. (*Id.*). This discussion is not helpful to the claim construction analysis. Mr. Pizzano does not remember the critical information and Mr. Krinsky only describes, in broad terms, the components of the system. I do not give this testimony any weight.

The Parties also dispute how the variability in the SNR per subchannel over time would impact a POSA's understanding of the claim. Plaintiff argues, without technical expert support, that the variability renders the SNR per subchannel that exists during training nonrepresentative of the SNR per subchannel that exists during Showtime. (D.I. 824 at 3-5, 7). Defendant responds with the testimony of its expert, Dr. Krista Jacobsen, where she explains that the SNR per subchannel measured during initialization procedures may be representative of the SNR per subchannel that exists during Showtime. (D.I. 870 at 6-8). She explains:

[T]he subcarrier SNRs determined during the initialization procedure are “representative of the signal to noise ratio of respective subchannels during the state of the transceiver reached after all initialization and training is completed, in which user data is transmitted or received” for at least the following reasons. First, . . . the ADSL standards in existence on the '784 patent's priority date rely on the subcarrier SNRs determined during initialization being “representative of the signal to noise ratio of respective subchannels during the state of the transceiver reached after all initialization and training is completed, in which user data is transmitted or received” because the bit loading determined during initialization, using the SNRs that were estimated during initialization, is used when Showtime begins. If those subcarrier SNRs were not “representative of the signal to noise ratio of respective subchannels during the state of the transceiver reached after all initialization and training is completed, in which user data is transmitted or received,” the experts who defined the ADSL standards would not have specified their use in determining the Showtime bit loading.

Second, if the channel and noise at some or all subcarrier frequencies are stable during Showtime, the SNRs of those subcarriers determined during the initialization procedure do not change during Showtime. Thus, those subcarrier SNRs, which were estimated during the initialization procedure and are not updated by the receiver, are also “representative of the signal to noise ratio of respective subchannels during the state of the transceiver reached after all initialization and training is completed, in which user data is transmitted or received.”

(D.I. 872 at ¶¶ 18-19). Dr. Jacobsen’s testimony supports the conclusion that, as a technical matter, an SNR that is representative of the SNR during Showtime may be measured prior to Showtime. This is true, as she says, because pre-Showtime SNRs are used to determine Showtime bit loading, and because when subcarrier frequencies are stable during Showtime they do not change from the SNRs determined during the initialization procedure. Thus, SNRs measured prior to Showtime may be “representative” of those that exist during Showtime within the meaning of the claim.

Plaintiff responds by attempting to debunk or discredit Dr. Jacobsen’s position—again without the aid of expert testimony. (D.I. 902 at 5). It notes that Dr. Jacobsen has admitted that the SNR per subchannel fluctuates over time. (*Id.*). Plaintiff argues that this indicates that an SNR measured prior to Showtime cannot be representative of the SNR that exists during Showtime. This attempt to discredit Dr. Jacobsen falls flat, however, as Dr. Jacobsen readily admits that SNR per subchannel varies over time. (D.I. 872 at ¶ 14). I do not view Dr. Jacobsen’s admission as inconsistent with her position that an SNR measured outside of Showtime may be representative of an SNR during Showtime. Rather, Dr. Jacobsen persuasively explains how, despite normal fluctuations in SNR per subchannel, an SNR per subchannel measured prior to Showtime may be representative of the SNR during Showtime, at least initially.

The plain language of claim 1 supports Defendant’s position that “an array representing Signal to Noise ratio per subchannel during Showtime” need not be *measured* during Showtime. The remainder of the intrinsic record does not provide useful insight into the meaning of this claim term or indicate that the claim should be read as having a “measurement” limitation. Since the intrinsic record does not fully clarify the proper construction, I consider extrinsic evidence of

the term's meaning. The extrinsic evidence supports the plain language of claim 1 because, as a technical matter, an SNR per subchannel measured prior to Showtime may represent an SNR per subchannel during Showtime. Thus, considering the plain language of the claim and expert testimony on the technology, I find that the claimed "array representing Signal to Noise ratio per subchannel" is not limited to those that are measured during Showtime. This limitation limits the claim only in that the array must be *representative* of the SNR per subchannel during Showtime. Accordingly, I will not construe "array representing Signal to Noise ratio per subchannel during Showtime information" to contain a temporal limitation defining when measurement of the SNR occurs.

B. Obviousness in View of Milbrandt, Hwang and T1.413-1995

The Parties do not dispute that the combination of Milbrandt, Hwang, and T1.413-1995 disclose all but the final limitation of claim 1. (D.I. 609 at 9-10). The only dispute is whether this combination discloses the "wherein at least one data variable of the one or more data variables comprises an array representing Signal to Noise ratio per subchannel during Showtime information" element of claim 1. (D.I. 664 at 10-14). Plaintiff's primary argument, much like its claim construction argument, is that the combination does not teach measuring SNR per subchannel during Showtime. (*Id.*) I have rejected Plaintiff's claim construction position. The claim does not contain a temporal measurement limitation. Thus, as Plaintiff does not identify any other missing claim limitation, it is undisputed that this combination discloses every limitation of claim 1.

Plaintiff's only other argument is that the references' failure to disclose measurement of the SNR per subchannel during Showtime defeats Defendant's proposed motivation to combine. (*Id.* at 12-13). Plaintiff does not, however, disagree with Defendant's argument that a POSA would be motivated to combine the prior art references under Defendant's understanding of the

claim, (*see id.*)—the understanding that I find to be correct. Thus, under the correct construction, Plaintiff has not identified a disputed material fact on the issue of motivation to combine.

Plaintiff has not identified a dispute of material fact as to either the content of the prior art references or the motivation of a POSA to combine those references. It has not identified any other disputed fact that would prevent a summary judgment finding of obviousness. Thus, I will grant Defendant’s motion for summary judgment of invalidity based on the obviousness of claim 1 of the ’784 Patent in view of Milbrandt, Hwang and T1.413-1995.

C. Anticipation by Wiese

The Parties do not dispute that Wiese discloses all but the final limitation of claim 1. (D.I. 609 at 13-15). The only dispute is whether Wiese discloses the “wherein at least one data variable of the one or more data variables comprises an array representing Signal to Noise ratio per subchannel during Showtime information” element of claim 1. (D.I. 664 at 14-15). Plaintiff’s sole argument is that Wiese does not teach measuring SNR per subchannel during Showtime. (*Id.*). I have rejected Plaintiff’s claim construction position that would require measurement of SNR per subchannel at a particular time. Thus, as Plaintiff does not identify any other missing claim limitations, it is undisputed that Wiese discloses every limitation of claim 1. Therefore, it is undisputed the Wiese anticipates claim 1 of the ’784 Patent. I will grant Defendant’s motion for summary judgment of invalidity on this additional ground.

D. Anticipation by Ryckebusch

The Parties do not dispute that Ryckebusch discloses all but the final limitation of claim 1. (D.I. 609 at 16-19). The only dispute is whether Ryckebusch discloses the “wherein at least one data variable of the one or more data variables comprises an array representing Signal to Noise ratio per subchannel during Showtime information” element of claim 1. (D.I. 664 at 15-18). Plaintiff’s sole response to Defendant’s argument is that Ryckebusch does not teach

measuring SNR per subchannel during Showtime. (*Id.*). I have rejected Plaintiff's claim construction position. Claim 1 does not contain a temporal measurement limitation. Thus, as Plaintiff does not identify any other missing claim limitations, it is undisputed that Ryckebusch discloses every limitation of claim 1. Therefore, it is undisputed the Ryckebusch anticipates claim 1 of the '784 Patent. I will grant Defendant's motion for summary judgment of invalidity on this additional ground.

E. Alternative Obviousness Theories

Defendant argues that claim 1 of the '784 Patent is obvious over two additional prior art combinations: Wiese in combination with the knowledge of one of ordinary skill in the art and Wiese in combination with Ryckebusch. (D.I. 609 at 19). Plaintiff argues that Defendant has not established a motivation to modify or combine these references. (D.I. 664 at 18-20). Defendant responds that Plaintiff's argument is based, at least in part, on its incorrect understanding of the claim. (D.I. 686 at 10). Having found that both Wiese and Ryckebusch independently anticipate claim 1, I need not resolve whether some combination of those references would render claim 1 obvious.

F. Other Outstanding Motions

It is my understanding that claim 1 is the last remaining claim in the Family 1 portion of this suit. (D.I. 609 at 2). Thus, I will dismiss the other outstanding Family 1 motions as moot. (D.I. 597, 615, 618, 620).

IV. CONCLUSION

Claim 1 of the '784 Patent is invalid as obvious over the combination of Milbrandt, Hwang and T1.413-1995 and is invalid as anticipated by both Wiese and Ryckebusch. Thus, I will grant Defendant's Motion for Summary Judgment of Invalidity of Claim 1 of U.S. Patent No. 7,899,784. (D.I. 608). A separate order will be entered.