

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

TQ DELTA LLC,

Plaintiff,

v.

ADTRAN, INC.,

Defendant.

Civil Action No. 14-954-RGA

MEMORANDUM OPINION

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March 30, 2021

/s/ Richard G. Andrews

ANDREWS, U.S. DISTRICT JUDGE:

Before me are multiple motions submitted by Plaintiff TQ Delta and Defendant Adtran. This memorandum opinion will address Defendant's Motion for Summary Judgment of Invalidity (D.I. 1090) and Plaintiff's two Motions for Summary Judgment of No Invalidity (D.I. 1094, 1100). The matters have been fully briefed. (D.I. 1092, 1095, 1102, 1125, 1127, 1128, 1144, 1150, 1151).

I. BACKGROUND

Plaintiff TQ Delta filed this lawsuit against Defendant Adtran, asserting infringement of numerous U.S. Patents. (D.I. 1). I divided the case into separate trials by patent "Family." (D.I. 369). The motions before me involve the Family 6 patents: U.S. Patent Nos. 8,462,835 ("the '835 patent") and 8,594,162 ("the '162 patent") (collectively, "the Asserted Patents"). Defendant moves for summary judgment of invalidity with respect to claims 8 and 10 of the '835 patent and claims 8 and 9 of the '162 patent (collectively, "the Asserted Claims") on grounds of obviousness under 35 U.S.C. § 103 and lack of written description and enablement under 35 U.S.C. § 112. (D.I. 1090). Plaintiff cross-moves for summary judgment of no invalidity on grounds of obviousness, written description or enablement, and anticipation under 35 U.S.C. § 102. (D.I. 1094, 1100).

The '835 and '162 patents claim apparatuses in the field of data communications that counter the effects of impulse noise, which was a known issue for Digital Subscriber Line (DSL) technology prior to invention. "Impulse noise is a short-term burst of noise that is higher than the normal noise that typically exists in a communication channel." (D.I. 1-21, Ex. 21, '162 Patent at 1:28-30). DSL systems communicate through telephone lines and can experience disruptive impulse noise from a variety of "sources including telephones, AM radio, HAM radio, other

DSL services on the same line or in the same bundle, other equipment in the home, etc.” (*Id.* at 1:32–36). At the time of invention, it was “standard practice for communications systems to use interleaving in combination with Forward Error Correction (FEC) to correct the errors caused by impulse noise.” (*Id.* at 1:36–39).

The invention improves upon this practice by, for example, “determining the impact of impulse noise on a communication system” and having “the capability to determine how the system should be configured to handle the impulse noise event.” (*Id.* at 3:24–27). One way the invention “determines the impact of impulse noise” is “by transmitting and receiving using a plurality of different FEC and interleaving parameter [FIP] settings.” (*Id.* at 3:28–31). When it does so, “the system can transition from one FIP setting to another FIP setting without going through the startup initialization procedure such as the startup initialization sequence utilized in traditional xDSL systems.” (*Id.* at 3:38–42).

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).

B. Obviousness

A patent is invalid as obvious under 35 U.S.C. § 103 if “the claimed invention as a whole would have been obvious to a person of ordinary skill in the art at the time the invention was made.” *Kahn v. Gen. Motors Corp.*, 135 F.3d 1472, 1479 (Fed. Cir. 1998). “Obviousness is a question of law based on underlying factual findings: (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 art; and (4) objective considerations of nonobviousness.” *In re Morsa*, 713 F.3d 104, 109 (Fed. Cir. 2013) (citing *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17–18 (1966)).

To show a patent is obvious, a party “must demonstrate by clear and convincing evidence that a skilled artisan would have been motivated to combine the teachings of the prior art references to achieve the claimed invention, and that the skilled artisan would have had a reasonable expectation of success in doing so.” *InTouch Techs., Inc. v. VGO Commc’ns, Inc.*,

751 F.3d 1327, 1347 (Fed. Cir. 2014) (cleaned up). The overall inquiry into obviousness, though, must be “expansive and flexible.” *KSR Int’l Co. v. Teleflex, Inc.*, 550 U.S. 398, 415 (2007).

C. Written Description and Enablement

The written description requirement contained in 35 U.S.C. § 112, ¶ 1 requires that the specification “clearly allow persons of ordinary skill in the art to recognize that the inventor invented what is claimed.” *Ariad Pharm. Inc., v. Eli Lilly & Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010) (en banc) (cleaned up). “In other words, the test for sufficiency is whether the disclosure of the application relied upon reasonably conveys to those skilled in the art that the inventor had possession of the claimed subject matter as of the filing date.” *Id.* The written description inquiry is a question of fact. *See id.* Although it is a question of fact, “[c]ompliance with the written description requirement . . . is amenable to summary judgment in cases where no reasonable fact finder could return a verdict for the non-moving party.” *PowerOasis, Inc. v. T-Mobile USA, Inc.*, 522 F.3d 1299, 1307 (Fed. Cir. 2008). “A party must prove invalidity for lack of written description by clear and convincing evidence.” *Vasudevan Software, Inc. v. MicroStrategy, Inc.*, 782 F.3d 671, 682 (Fed. Cir. 2015).

The enablement requirement, considered a separate and distinct requirement contained in 35 U.S.C. § 112, ¶ 1, assesses whether “one skilled in the art, after reading the specification, could practice the claimed invention without undue experimentation.” *Sitrick v. Dreamworks, LLC*, 516 F.3d 993, 999 (Fed. Cir. 2008). Because the enablement inquiry takes into account what is known to one skilled in the art, the Federal Circuit has “repeatedly explained that a patent applicant does not need to include in the specification that which is already known to and available to one of ordinary skill in the art.” *Koito Mfg. Co. v. Turn-Key-Tech, LLC*, 381 F.3d 1142, 1156 (Fed. Cir. 2004). “Enablement is a legal question based on underlying factual

determinations.” *Vasudevan Software, Inc. v. MicroStrategy, Inc.*, 782 F.3d 671, 684 (Fed. Cir. 2015). Factors considered in assessing the enablement requirement include:

- (1) the quantity of experimentation necessary, (2) the amount of direction or guidance presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art, and (8) the breadth of the claims.

In re Wands, 858 F.2d 731, 737 (Fed. Cir. 1988). “A party must prove invalidity for lack of enablement by clear and convincing evidence.” *Vasudevan*, 782 F.3d at 684.

D. Anticipation

A patent is invalid as anticipated under 35 U.S.C. § 102 if “the four corners of a single, prior art document describe every element of the claimed invention, either expressly or inherently, such that a person of ordinary skill in the art could practice the invention without undue experimentation.” *Advanced Display Sys., Inc. v. Kent State Univ.*, 212 F.3d 1272, 1282 (Fed. Cir. 2000). “[A]nticipation by inherent disclosure is appropriate only when the reference discloses prior art that must necessarily include the unstated limitation.” *Transclean Corp. v. Bridgewood Servs., Inc.*, 290 F.3d 1364, 1373 (Fed. Cir. 2002). “[A]nticipation is a question of fact, including whether an element is inherent in the prior art.” *In re Gleave*, 560 F.3d 1331, 1334-35 (Fed. Cir. 2009).

III. DISCUSSION

A. Obviousness

1. Combination of G.992.1 and SC-060

Defendant asserts the combination of G.992.1, which “describes ADSL transceiver units that use forward error correction (FEC) and interleaving for data transmission” (D.I. 1092 at 6) (citing D.I. 1108-1, Ex. A at ¶¶ 92–93), and SC-060, which “recognizes known reconfiguration protocols in DSL systems” and can be “used to synchronize the use of the new transmission

parameters at the receiver and transmitter.” (D.I. 1108-1, Ex. A at ¶¶ 104–08). Defendant argues that the combination renders the Asserted Claims obvious because “G.992.1 teaches online reconfiguration in DSL systems of the same forward error correction and interleaver parameters recited in the asserted claims, but instead of a flag signal, it uses a different protocol to coordinate the switch,” and “SC-060 teaches online reconfiguration in DSL systems (explicitly suggesting FEC codeword size may be modified) and uses the same flag signal recited in the Asserted Claims to coordinate the switch.” (D.I. 1092 at 7).

Plaintiff argues that there is insufficient evidence to prove that a person of ordinary skill in the art (POSA) would have had motivation to combine G.992.1 and SC-060. (D.I. 1128 at 10–13). Plaintiff’s expert, Dr. Madisetti, asserts both that “SC-060 recognizes that ‘FEC Codeword size . . . modifications have complex interactions within the ADSL system and are for further study’” and that “the G.992.3 standard . . . moved away from the FEC and interleaver depth reconfiguration described in G.992.1.” (D.I. 1108-2, Ex. B at ¶ 125). A POSA would therefore recognize, Dr. Madisetti argues, that “using a Synch Flag to adapt FEC and interleaver parameter settings during Showtime was not [a] preferred way to implement changes to FEC and interleaver parameter settings.” (*Id.*). Dr. Madisetti additionally argues that because using SC-060’s Synch Flag was not a preferred way to adapt FEC and interleaver parameter settings, a POSA would have been more likely to “use the short initialization procedure already available in G.992.3, as encouraged by G.992.1, to effectuate the change.” (*Id.* at ¶ 126).

Defendant counters that even though there may be “complex interactions” between the ADSL system and modifications to FEC and interleaver parameter settings, “SC-060 encourages a [POSA] by explaining that the issue was ‘for further study.’” (D.I. 1144 at 4) (citing D.I. 1108-2, Ex. B at ¶ 125). Defendant’s expert, Bruce McNair, further argues that use of inverted

synchronization signals, like SC-060’s Synch Flag, “would have been both well known and obvious to a person of ordinary skill in the art” as an “immediately apparent option . . . to synchronize a switch in parameters between multicarrier transceivers.” (D.I. 1108-1, Ex. A at ¶ 172). Defendant also maintains that even if there are advantages to a warm restart (“the short initialization procedure” referenced earlier), it does not need to prove that a “[synch] flag technique would be indisputably preferred over a short initialization technique.” (D.I. 1092 at 14). Moreover, Defendant argues that there is no factual support for Plaintiff’s claim that the warm restart is preferred because the warm restart is used when the system is unreliable; a POSA would therefore want to look for a more reliable way to initialize the system, such as with the Synch Flag. (*Id.* at 14–15).

To show obviousness, a party “must demonstrate by clear and convincing evidence that a skilled artisan would have been motivated to combine the teachings of the prior art references to achieve the claimed invention.” *InTouch Techs., Inc. v. VGO Commc’ns, Inc.*, 751 F.3d at 1347. Because Dr. Madisetti and Mr. McNair disagree whether POSAs would have been motivated to use inverted synchronization signals, like the Synch Flag, to adapt FEC and interleaver parameter settings, there is a genuine dispute of material fact. Given the conflicting expert opinions on this issue, summary judgment is unwarranted.

2. Combination of Cioffi and G.992.3 / Cioffi and SC-060

Plaintiff asserts as prior art U.S. Patent No. 7,428,669 (“Cioffi”), which discloses a technique for “[a]daptive FEC coding” by which “codeword composition ratio may be adjusted in response to variance of a measured transmission error value from a target transmission error value in the system.” (D.I. 1108-4, Ex. D at Abstract). Cioffi recites adjustment of parameters

found in ADSL systems (*id.*), which reference the G.992.1 and G.992.3 standards (D.I. 1108-1, Ex. A at ¶ 84).

Plaintiff argues that despite reference to adapting FIP settings, Cioffi does not teach doing so during “steady state operation” and therefore does not disclose “an apparatus configurable to adapt FIP settings during steady-state communication” recited in claim 8 of the ’835 patent. (D.I. 1-20, Ex. 20 at 21:33–35). Plaintiff further argues that a POSA would not be motivated to modify Cioffi to adapt steady-state modulation of transmission parameters because of the short initialization time already provided by G.992.3 when a connection is lost. (D.I. 1095 at 16) (citing D.I. 1108-2, Ex. B at ¶ 104).

Plaintiff also maintains that the language in claim 8 of the ’162 patent—“change to transmitting using a second interleaver parameter value that is different than the first interleaver parameter value”—requires that the “change” occur during the “steady state operation,” which Cioffi does not disclose. (*Id.* at 14, 16). Because neither G.992.3 nor SC-060 disclose “an apparatus configurable to adapt FIP settings during steady-state communication” or a “change to transmitting using a second interleaver parameter value that is different than the first interleaver parameter value,” Plaintiff argues that no reasonable jury could find that the Asserted Claims are obvious over Cioffi and G.992.3 / SC-060. (*Id.* at 15–16).

Defendant argues that a genuine dispute of material fact exists with regard to whether Cioffi discloses adjustment during “steady state operation.” (D.I. 1128 at 16–20). Mr. McNair argues that the reference to reinitialization in Cioffi is permissive, and Cioffi “explains that ‘in an ADSL2 system, FEC codeword composition can be altered during SHOWTIME using an adjustment to the INP value to force a change to the CCR.’” (D.I. 1108-3, Ex. C at ¶¶ 62–66).

Defendant maintains, therefore, that Cioffi does not exclude changes during “steady state operation” (i.e. Showtime). (D.I. 1128 at 14).

I agree with Defendant. The parties have a genuine dispute of material fact due to the experts’ disagreement whether a POSA would interpret Cioffi to disclose only reinitialization or “steady state operation” as well. I therefore find summary judgment inappropriate.

B. Written Description and Enablement

Defendant maintains that, to the extent Plaintiff asserts in its obviousness arguments that “a [POSA] would be discouraged from performing an online reconfiguration of FIP settings using a flag signal . . . because the prior art references allegedly describe online reconfiguration of FIP settings as complex, difficult, or undesirable,” these same arguments suggest that the Asserted Claims must be invalid for lack of enablement. (D.I. 1092 at 15–16). Mr. McNair further argues, “The Family 6 patents add nothing to the art to resolve these alleged difficulties, complexities, or undesirable results” (D.I. 1108-3, Ex. C at ¶¶ 275–78). Defendant therefore argues that if the teachings in the prior art references do not provide sufficient basis to show a motivation to combine and reasonable expectation of success, then the same teachings in the specification do not enable a POSA to practice the invention without undue experimentation. (D.I. 1092 at 17).

Defendant specifically argues that the Asserted Patents are invalid for written description “because the specification does not provide written description of switching to a second FIP setting *during initialization* where the switching occurs on a pre-defined forward error correction codeword boundary following the flag signal.” (D.I. 1092 at 17) (citing D.I. 1108-1, Ex. A at ¶ 296). “[T]he initialization embodiment uses two signals—the O-P-ISYNCHRO2 or R-P-ISYCHNRO2 signals—to signal that the transceivers should transition to a state where new FIP

settings can be negotiated” (*Id.*) (citing D.I. 1108-1, Ex. A at ¶ 297–300). Defendant argues, however, that because the switching to new settings does not occur on a “pre-defined forward error correction codeword boundary following [transmission of] the flag signal,” as recited by the Asserted Claims, these two signals do not indicate when an updated FIP setting is to be used and accordingly are not flag signals. (*Id.* at 17–18) (internal quotation omitted). Defendant therefore argues that the specification does not provide adequate written description (*Id.*).

Defendant also specifically asserts lack of enablement, arguing that the claim limitation “at least one second FIP value, different than the first FIP value” in the ’835 patent (or “a second interleaver parameter value that is different than the first interleaver parameter value” in the ’162 patent) requires enablement of an embodiment “in which only a single FEC parameter changes.” (D.I. 1128 at 16). Defendant argues that the Asserted Patents only disclose use of “block code, specifically Reed-Solomon coding,” because block codes work by “creating codewords,” which are referenced in the claim language. (D.I. 1092 at 19) (citing 1108-1, Ex. A at ¶ 288–90). Because block codes are composed of three interrelated parameters, Defendant argues, it is impossible to change only one FEC parameter value (D.I. 1108-1, Ex. A at ¶ 291-93), thereby failing to enable an embodiment in which only one FEC parameter changes.

Plaintiff, on the other hand, argues that the Asserted Patents provide written description of “switching during initialization using a flag signal” and enable the embodiment in which a single FEC parameter changes. (D.I. 1128 at 15–16). Dr. Madisetti argues that a POSA would understand that the O-P-ISYNCHRO2 and R-P-ISYNCHRO2 signals are “flag signals” transmitted during initialization because “they indicate that the switch to a new FIP setting will take place when the transceiver enters the subsequent training state.” (*Id.* at 15–16) (citing D.I. 1108-2, Ex. B at ¶ 153). Dr. Madisetti further points to Fig. 2 of the ’835 patent, which he argues

shows “that after transmission of the R-P-ISYNCHRO2 and O-P-ISYNCHRO2 signals, updated FIP settings will be used during the R-P-INPTraining and O-P-INPTraining states. (D.I. 1108-2, Ex. B at ¶ 154) (citing D.I. 1-20, Ex. 20 at Fig. 2). The R-P-ISYNCHRO2 and O-P-ISYNCHRO2 signals indicate “that updated FIP settings should be used upon entering the R-P-INPTraining and O-P-INPTraining states, which Plaintiff argues acts as the “‘pre-defined’ first codeword boundary.” (D.I. 1128 at 16). Plaintiff therefore argues that use of a flag signal when switching FIP parameter values during initialization has written description support. (*Id.*).

Plaintiff also argues that the Asserted Patents are not invalid for lack of enablement because the claim does not require that only one FIP value change. (*Id.*). Plaintiff further asserts that there is no enablement issue because the Family 6 patents already disclose an embodiment in which only one FIP value—the interleaver depth—changes. (*Id.* at 17) (citing D.I. 1-20, Ex. 20, ’835 patent at 13:43–47). Plaintiff points to language in the specification that although certain embodiments are restricted to “changes to a subset of the FIP parameters, they can obviously be extended to cover any combination of the FIP parameters,” including changes to just one of the variables. (*Id.*).

There are two genuine disputes of material fact that preclude summary judgment on written description and enablement. First, with regard to written description, the parties’ experts disagree whether the R-P-ISYNCHRO2 and O-P-ISYNCHRO2 signals indicate when updated FIP settings are to be used. This is a dispute of material fact because the outcome determines whether the patents support disclosure of a “flag signal.” Second, with regard to enablement, the parties dispute whether it is technically possible to change only one FIP value, which is similarly dispositive as to whether the claim language enables all relevant embodiments of the invention.

Because there are genuine disputes of material fact for written description and enablement, summary judgment is inappropriate for these issues.

C. Indefiniteness

Defendant cites arguments made by Mr. McNair that “if the claimed FIP setting need not include all FEC parameter values, but can be arbitrarily comprised of a subset of the FEC parameter values, the claims are indefinite.” (D.I. 1125 at 12) (citing D.I. 1108-1, Ex. A at ¶ 302). Because it is unclear which FEC parameter values would be part of the FIP setting, Defendant argues, whether a “given scenario infringes” would not be clear with reasonable certainty to a POSA. (D.I. 1125 at 13).

Plaintiff, on the other hand, argues that Mr. McNair does not properly apply the Court’s construction of “FIP setting.” (D.I. 1102 at 9). The Court construed “FIP setting” to mean “set including at least one forward error correction parameter value and at least one interleaver parameter value.” (D.I. 446 at 11). Because the construction includes one FEC value and one interleaver parameter value, Plaintiff argues, “[i]f an implementation provides both FEC and interleaving and allows for at least one FEC parameter value to change or at least one interleaver parameter value to change, such that there is a change from using a first FIP setting to using a second FIP setting, the claim is infringed.” (D.I. 1102 at 9). A POSA would therefore recognize “that each set of parameters is a FIP setting and that to the extent there is a difference in either a forward error correction parameter value or an interleaver parameter value between the two FIP settings,” the claims are infringed. (*Id.*).

I agree with Plaintiff. The claim language indicates that the “FIP setting” need not specify which FEC parameter values are part of the “FIP setting.” All that is needed to show infringement is that there has been a *change* between first and second FIP settings, which can be

shown simply by indicating a shift in one FEC value or one interleaver parameter value, regardless of the other FEC parameter values that make up the FIP setting. “[A] patent is invalid for indefiniteness if its claims, read in light of the specification delineating the patent, and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention.” *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 901 (2014). A POSA would be able to determine whether a given implementation infringes the Asserted Claims and, accordingly, the scope of the claimed invention. I therefore grant summary judgment that the Asserted Claims are not invalid as indefinite.

D. Anticipation

Plaintiff moves for no invalidity for anticipation. Defendant, on the other hand, argues that Cioffi anticipates claims 8 and 10 of the ’835 patent and claims 8 and 9 of the ’162 patent. (D.I. 1127 at 13). Claim 10 of the ’835 patent, a dependent claim, recites: “The apparatus of claim 8, wherein a first interleaver parameter value of the first FIP setting is different than a second interleaver parameter value of the second FIP setting.” (D.I. 1-20, Ex. 20 at claim 10). Claim 8, in turn, discloses:

An apparatus configurable to adapt forward error correction and interleaver parameter (FIP) settings during *steady-state communication or initialization* comprising:

a transceiver, including a processor, configurable to:

transmit a signal using a first FIP setting,

transmit a *flag signal*, and

switch to using for transmission, a second FIP setting following transmission of the *flag signal*,

wherein:

the first FIP setting comprises at least one FIP value,

the second FIP setting comprises at least one second FIP value, different than the first FIP value, and

the switching occurs on a pre-defined forward error correction codeword boundary following the flag signal.

(*Id.* at claim 8).

Claim 9 of the '162 patent, a dependent claim, recites: “The device of claim 8, wherein the flag signal is an inverted sync symbol.” (D.I. 1-21, Ex. 21 at claim 9). Claim 8, in turn, discloses:

A device comprising:

an interleaver configured to interleave a plurality of bits; and
a transmitter portion coupled to the interleaver and configured to:
transmit using a first interleaver parameter value;
transmit a *flag signal*; and
change to transmitting using a second interleaver parameter value that is different than the first interleaver parameter value,
wherein the second interleaver parameter value is used for transmission on a *pre-defined forward error correction codeword boundary following transmission of the flag signal.*

(*Id.* at claim 8).

Plaintiff preliminarily argues that Cioffi does not incorporate the G.992.3 standard and therefore does not disclose “flag signal” and any derivative terms. (D.I. 1095 at 4). Plaintiff contests Mr. McNair’s opinion that Cioffi incorporates the G.992.3 standard based on the following language of Cioffi:

The maximum interleaving delay and INP values in the G.992.3/4/5 and G.997.1 standards (which are incorporated herein in their entireties by reference for all purposes) however must be supplied upon initialization of the modem and there is no way to know any error measurements before data transmission.

(D.I. 1108-4, Ex. D at 3:45–48).

Plaintiff argues that only the portions of the “G.992.3/4/5 and G.997.1 standards” relating to “maximum interleaving delay and INP values” are “incorporated herein in their entireties”—not the “G.992.3/4/5 and G.997.1 standards” as a whole. (D.I. 1095 at 6; *see* D.I. 1108-2, Ex. B at ¶¶ 68–70). As further evidence that incorporation of the G.992.3 standard is limited, Plaintiff cites Cioffi’s repeated references to INP and maximum interleaving delay values mentioned in the specification in relation to the G.992.3 standard. (D.I. 1095 at 7) (citing D.I. 1108-4, Ex. D at

4:46–47, 10:14–15, 10:26–29, 16:1–3, 16:10–14). Plaintiff also cites to similar language of incorporation in Cioffi for Fig. 1 of the G.992.1 standard:

FIG. 1 shows an ADSL reference model system from the ADSL 1 standard (G.dmt or G.992.1), which is incorporated herein in its entirety by reference for all purposes. Similar figures could be composed based on one or more DSL standards that may or may not include splitters. . . .

(D.I. 1108-4, Ex. D at 6:60–64).

Use of the phrase “similar figures” in the second sentence, Plaintiff argues, “makes clear that the statement of incorporation of the ‘entirety’ in the prior sentence is incorporating only the entirety of the ADSL reference model described in the G.992.1 standard.” (D.I. 1095 at 8).

Defendant, on the other hand, asserts that Cioffi does incorporate the G.992.3 standard in its entirety. (D.I. 1127 at 13). A plain reading of the relevant text in Cioffi, Defendant argues, finds that “the incorporation language refers directly to the listed standards, not the maximum interleaving delay and INP values.” (*Id.*). Defendant further maintains that because Fig. 1 is already explicitly shown in Cioffi, “There is no need for Cioffi to incorporate the model by reference.” (*Id.* at 14). The most reasonable reading of the incorporation language, Defendant argues, is that it refers to the entire G.992.3 standard. (*Id.*).

I agree with Defendant that the most reasonable interpretation of the incorporation language is that it refers to the standards as a whole. First, to the extent that the language referring to Fig. 1 mirrors the incorporation language referring to the ADSL standards, it makes little sense to incorporate “in its entirety” a model system represented in a figure that is already present in the patent. Second, the most reasonable interpretation of the choice to put the parenthetical phrase of incorporation after “standards” and not after “maximum interleaving delay and INP values” is that the language of incorporation refers to the “standards.”

“To incorporate material by reference, the host document must identify with detailed particularity what specific material it incorporates and clearly indicate where that material is found in the various documents.” *Advanced Display Sys., Inc. v. Kent State Univ.*, 212 F.3d 1272, 1282 (Fed. Cir. 2000). Since the most reasonable reading of the “incorporation” language is that it is referring to the “standards,” and the specification language unambiguously states the reference is “incorporated herein in its entirety,” I agree with Defendant that Cioffi incorporates the G.992.3 standard in its entirety.

Plaintiff’s first substantive argument against anticipation is, “Cioffi does not expressly teach adapting FIP settings during ‘steady state operation.’” (D.I. 1095 at 8). At most, Plaintiff argues, Cioffi teaches a system in which new FEC parameters are generated “when user data is transmitted or received” and implemented at some “mutually agreed to point in time.” (*Id.*) (citing D.I. 1108-4, Ex. D at 11:3–7; D.I. 1108-2, Ex. B at ¶ 59). Plaintiff further argues that Cioffi does not disclose that the “mutually agreed to point in time” occurs during steady-state communication. (*Id.* at 9).

Defendant contends that Plaintiff’s arguments that Cioffi discloses “adapting FEC and interleaving parameter values” only during reinitialization rely on permissive statements that the “adaptation is carried out during a reinitialization,” which does not discount the adaptation occurring during Showtime (i.e. steady-state operation). (D.I. 1127 at 14). Mr. McNair argues that a POSA “would interpret Cioffi as not limited to adapting through reinitialization, but instead adapting during Showtime as well.” (D.I. 1108-3, Ex. C at ¶¶ 62–66). As with the obviousness arguments earlier, there is a genuine dispute of material fact because there are conflicting expert opinions regarding whether a POSA would interpret Cioffi to disclose only

reinitialization or “steady state operation” as well. Given these conflicting expert opinions, I am unable to grant summary judgment for either side.

Plaintiff’s second argument against anticipation is that Cioffi does not expressly disclose the “flag signal” limitations of the claims. (D.I. 1095 at 10). Dr. Madisetti argues that given the Court’s construction of “flag signal” as “signal used to indicate when an updated FIP setting is to be used,” the G.992.3 standard “does not contemplate updating FIP settings,” and “[a]ccordingly, the synchflag described in G.992.3 is not a flag signal.” (D.I. 1108-2, Ex. B at ¶ 70).

Defendant contends that because Cioffi incorporates G.992.3 for all purposes, a POSA “would naturally recall and consider the use of” G.992.3’s “signaling technique” (i.e. “PMD.Synchflag.request primitive”), which is described in the G.992.3 standard as a flag signal “together with Cioffi’s adaptive technique.” (D.I. 1108-1 at ¶¶ 148–49). Indeed, when the Synchflag is “used to coordinate the updating of FIP settings as described in Cioffi,” Defendant argues, the Synchflag is used for the same purpose as a “flag signal” as construed by the Court: “a signal to indicate when an updated FIP setting is to be used.” (D.I. 1127 at 15) (citing D.I. 1108-3, Ex. C at ¶¶ 82–85).

The parties’ experts disagree whether a POSA would find that the Synchflag described in the G.992.3 standard does in fact “contemplate updating FIP settings.” Given these conflicting expert opinions, and the fact that “flag signal” is present in each of the Asserted Claims, summary judgment for either side on anticipation is unwarranted.

CONCLUSION

For these reasons, I will deny Plaintiff’s Motions for Summary Judgment of No Invalidity (D.I. 1094, 1100) except as to summary judgment of no invalidity for indefiniteness, which I will

grant, and deny Defendant's cross-motion for Summary Judgment of Invalidity (D.I. 1090). An Order consistent with this opinion will be entered.

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

TQ DELTA LLC,

Plaintiff,

v.

ADTRAN, INC.,

Defendant.

No. 14-cv-954-RGA

ORDER

For the reasons set forth in the accompanying memorandum opinion, **IT IS HEREBY ORDERED** that Plaintiff's Motion for Summary Judgment of No Invalidity (D.I. 1100) is **GRANTED** as to no invalidity for indefiniteness and otherwise **DENIED**. Plaintiff's Motion for Summary Judgment of No Invalidity (D.I. 1094) as to obviousness and anticipation is **DENIED**. Defendant's motion for Summary Judgment of Invalidity (D.I. 1090) is **DENIED**.

Entered this 30th day of March 2021.

/s/ Richard G. Andrews
United States District Judge