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

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ANDREWS, U.S. DISTRICT JUDGE:

Presently before me are the Parties' Family 3 summary judgment motions: Defendant's Motion for Summary Judgment of Non-Infringement of the Asserted Claims (D.I. 752 (briefing at D.I. 754, 893, 961)); Plaintiff's Motion for Summary Judgment of No Invalidity of Family 3 Patent Claims under 35 U.S.C. § 112 (D.I. 765 (briefing at D.I. 766, 873, 957)); Defendant's Motion for Summary Judgment of Invalidity of Family 3 Patents (D.I. 773 (briefing at D.I. 774, 892, 963)); Plaintiff's Motion for Summary Judgment of No Invalidity of Family 3 Patent Claims Under 35 U.S.C. § 103 (D.I. 777 (briefing at D.I. 778, 879, 972)); and Plaintiff's Motion for Summary Judgment of Infringement of Claim 19 of U.S. Patent No. 8,495,473 (D.I. 790 (briefing at D.I. 791, 880, 973)). The Parties' Family 3 *Daubert* motions and motions to strike are also before me: Defendant's Motion to Strike the Untimely Supplemental Expert Reports of Jonathan Putnam Ph.D. and Reply Report of Dr. Kevin Almeroth (D.I. 737 (briefing at D.I. 738, 862, 913)); Defendant's Motion to Preclude the Expert Testimony of Dr. Todor Cooklev for Family 3 (D.I. 760 (briefing at D.I. 763, 890, 960)); Plaintiff's Motion to Preclude Certain Opinions of Dr. Krista S. Jacobsen For Family 3 Patents (D.I. 779 (briefing at D.I. 780, 874, 952)); Defendant's Motion to Preclude the Testimony and Expert Report of Peter Heller Ph.D. on VDSL2 Chip Design (D.I. 785 (briefing at D.I. 786, 886, 964)); and Plaintiff's Motion in the Alternative, for Leave to Serve Attachment M to The Reply Report of Dr. Kevin Almeroth (D.I. 860 (briefing at D.I. 991)). After consideration of the briefing, the motions are resolved as follows.

I. BACKGROUND

Plaintiff filed suit on November 4, 2013, alleging that Defendant's DSL customer premise equipment infringes several of its patents. (D.I. 1). I split the case into separate trials based on the patent families of the asserted patents. (D.I. 280). Fact discovery closed on

October 1, 2018. (D.I. 513). Expert discovery for Family 3 closed on February 8, 2019. (*Id.*). Trial for Family 3 is scheduled for May 20, 2019. (*Id.*).

The remaining Family 3 patents are U.S. Patent Nos. 7,836,381 ("'381 Patent"), 7,844,882 ("'882 Patent"), 8,276,048 ("'048 Patent"), and 8,495,473 ("'473 Patent").[1] They relate "to memory sharing in communication systems." ('381 Patent at 1:18-19). The Patents share a common specification and have the same drawings. They claim the benefit of an October 12, 2004 provisional patent application, U.S. Provisional Application No. 60/618,269. The asserted claims of the '381 and '882 Patents were altered post-issuance via certificates of correction.

Plaintiff asserts one claim from each of the four patents-in-suit. It asserts claim 5 of the '381 Patent:

> A non-transitory computer-readable information storage media having stored thereon instructions, that if executed by a processor, cause to be performed a method for allocating shared memory in a transceiver comprising:
>
> transmitting or receiving, by the transceiver, a message during initialization specifying a maximum number of bytes of memory that are available to be allocated to a deinterleaver;
>
> determining, at the transceiver, an amount of memory required by the deinterleaver to deinterleave a first plurality of Reed Solomon (RS) coded data bytes within a shared memory;
>
> allocating, in the transceiver, a first number of bytes of the shared memory to the deinterleaver to deinterleave a first plurality of Reed Solomon (RS) coded data bytes for ~~transmission~~ [reception] at a first data rate, wherein the allocated memory for the deinterleaver does not exceed the maximum number of bytes specified in the message;
>
> allocating, in the transceiver, a second number of bytes of the shared memory to an interleaver to interleave a second plurality of RS coded data bytes ~~received~~ [transmitted] at a second data rate; and
>
> deinterleaving the first plurality of RS coded data bytes within the shared memory allocated to the deinterleaver and interleaving the second plurality of RS coded data bytes within the ~~shred~~ [shared] memory allocated to the

[1] U.S. Patent Nos. 7,831,890 and 8,607,126 are no longer asserted.

interleaver, wherein the shared memory allocated to the deinterleaver is used at the same time as the shared memory allocated to the interleaver.

('381 Patent, claim 5 (original language struck; corrected language in brackets)).

Plaintiff asserts claim 13 of the '882 Patent:

A system that allocates shared memory comprising:

a transceiver that performs:

transmitting or receiving a message during initialization specifying a maximum number of bytes of memory that are available to be allocated to a deinterleaver;

determining an amount of memory required by the deinterleaver to deinterleave a first plurality of Reed Solomon (RS) coded data bytes within a shared memory;

allocating a first number of bytes of the shared memory to the deinterleaver to deinterleave a first plurality of Reed Solomon (RS) coded data bytes for ~~transmission~~ [reception] at a first data rate, wherein the allocated memory for the deinterleaver does not exceed the maximum number of bytes specified in the message;

allocating a second number of bytes of the shared memory to an interleaver to interleave a second plurality of RS coded data bytes ~~received~~ [transmitted] at a second data rate; and

deinterleaving the first plurality of RS coded data bytes within the shared memory allocated to the deinterleaver and interleaving the second plurality of RS coded data bytes within the ~~shred~~ [shared] memory allocated to the interleaver, wherein the shared memory allocated to the deinterleaver is used at the same time as the shared memory allocated to the interleaver.

('882 Patent, claim 13 (original language struck; corrected language in brackets)).

Plaintiff asserts claim 1 of the '048 Patent:

A system that allocates shared memory comprising:

a transceiver that is capable of:

transmitting or receiving a message during initialization specifying a maximum number of bytes of memory that are available to be allocated to an interleaver;

determining an amount of memory required by the interleaver to interleave a first plurality of Reed Solomon (RS) coded data bytes within the shared memory;

> allocating a first number of bytes of the shared memory to the interleaver to interleave the first plurality of Reed Solomon (RS) coded data bytes for transmission at a first data rate, wherein the allocated memory for the interleaver does not exceed the maximum number of bytes specified in the message;
>
> allocating a second number of bytes of the shared memory to a deinterleaver to deinterleave a second plurality of RS coded data bytes received at a second data rate; and
>
> interleaving the first plurality of RS coded data bytes within the shared memory allocated to the interleaver and deinterleaving the second plurality of RS coded data bytes within the shared memory allocated to the deinterleaver, wherein the shared memory allocated to the interleaver is used at the same time as the shared memory allocated to the deinterleaver.

('048 Patent, claim 1).

And Plaintiff asserts claim 19 of the '473 Patent:

An apparatus comprising:

> a multicarrier communications transceiver that is configured to perform an interleaving function associated with a first latency path and perform a deinterleaving function associated with a second latency path, the multicarrier communications transceiver being associated with a memory,
>
> wherein the memory is allocated between the interleaving function and the deinterleaving function in accordance with a message received during an initialization of the transceiver and wherein at least a portion of the memory may be allocated to the interleaving function or the deinterleaving function at any one particular time depending on the message.

('473 Patent, claim 19).

I previously construed disputed terms of the asserted patents. (D.I. 454). The Parties have identified certain construed terms that bear most heavily on the pending motions:

> "shared memory" – "common memory used by at least two functions, where a portion of the memory can be used by either one of the functions"
>
> . . .
>
> "the shared memory allocated to the [deinterleaver/interleaver] is used at the same time as the shared memory allocated to the [interleaver/deinterleaver]" – "the deinterleaver reads from, writes to, or holds information for deinterleaving in its respective allocation of the shared memory at the same time as the interleaver reads

from, writes to, or holds information for interleaving in its respective allocation of the shared memory"

"latency path" – "transmit or receive path, wherein each path has a distinct, but not necessarily different, latency or delay"

. . .

"wherein at least a portion of the memory may be allocated to the [first] interleaving function or the [second interleaving/deinterleaving] function at any one particular time depending on the message" – plain meaning

"portion of memory" – plain meaning

"memory is allocated between the [first] interleaving function and the [second interleaving/deinterleaving] function" – "an amount of the memory is allocated to the [first] interleaving function and an amount of memory is allocated to the [second interleaving/deinterleaving] function"

(D.I. 454 at 2).

II. LEGAL STANDARDS

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. 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.

C. Infringement

A patent is infringed when a person "without authority makes, uses, offers to sell, or sells any patented invention, within the United States . . . during the term of the patent . . . ." 35 U.S.C. § 271(a). A two-step analysis is employed in making an infringement determination. *See Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 976 (Fed. Cir. 1995) (en banc), *aff'd*, 517 U.S. 370 (1996). First, the court must construe the asserted claims to ascertain their meaning and scope. *See id.* The trier of fact must then compare the properly construed claims with the accused infringing product. *See id.* at 976. This second step is a question of fact. *See Bai v. L & L Wings, Inc.*, 160 F.3d 1350, 1353 (Fed. Cir. 1998).

"Literal infringement of a claim exists when every limitation recited in the claim is found in the accused device." *Kahn v. Gen. Motors Corp.*, 135 F.3d 1472, 1477 (Fed. Cir. 1998). "If any

claim limitation is absent from the accused device, there is no literal infringement as a matter of law." *Bayer AG v. Elan Pharm. Research Corp.*, 212 F.3d 1241, 1247 (Fed. Cir. 2000). If an accused product does not infringe an independent claim, it also does not infringe any claim depending thereon. *See Wahpeton Canvas Co. v. Frontier, Inc.*, 870 F.2d 1546, 1553 (Fed. Cir. 1989). However, "[o]ne may infringe an independent claim and not infringe a claim dependent on that claim." *Monsanto Co. v. Syngenta Seeds, Inc.*, 503 F.3d 1352, 1359 (Fed. Cir. 2007) (internal quotations omitted). The patent owner has the burden of proving infringement and must meet its burden by a preponderance of the evidence. *See SmithKline Diagnostics, Inc. v. Helena Lab. Corp.*, 859 F.2d 878, 889 (Fed. Cir. 1988) (citations omitted).

When an accused infringer moves for summary judgment of non-infringement, such relief may be granted only if at least one limitation of the claim in question does not read on an element of the accused product, either literally or under the doctrine of equivalents. *See Chimie v. PPG Indus., Inc.*, 402 F.3d 1371, 1376 (Fed. Cir. 2005); *see also TechSearch, L.L.C. v. Intel Corp.*, 286 F.3d 1360, 1369 (Fed. Cir. 2002) ("Summary judgment of noninfringement is . . . appropriate where the patent owner's proof is deficient in meeting an essential part of the legal standard for infringement, because such failure will render all other facts immaterial."). Thus, summary judgment of 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).

D. Written Description

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) (alteration in original) (internal quotation marks omitted). "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).

E. Daubert

Federal Rule of Evidence 702 sets out the requirements for expert witness testimony and states:

> A witness who is qualified as an expert by knowledge, skill, experience, training, or education may testify in the form of an opinion or otherwise if: (a) the expert's scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue; (b) the testimony is based on sufficient facts or data; (c) the testimony is the product of reliable principles and methods; and (d) the expert has reliably applied the principles and methods to the facts of the case.

Fed. R. Evid. 702. The Third Circuit has explained:

> Rule 702 embodies a trilogy of restrictions on expert testimony: qualification, reliability and fit. Qualification refers to the requirement that the witness possess specialized expertise. We have interpreted this requirement liberally, holding that a broad range of knowledge, skills, and training qualify an expert. Secondly, the testimony must be reliable; it must be based on the methods and procedures of science' rather than on 'subjective belief or unsupported speculation; the expert must have good grounds for his or her belief. In sum, *Daubert* holds that an inquiry into the reliability of scientific evidence under Rule 702 requires a determination as to its scientific validity. Finally, Rule 702 requires that the expert testimony must fit the issues in the case. In other

> words, the expert's testimony must be relevant for the purposes of the case and must assist the trier of fact. The Supreme Court explained in *Daubert* that Rule 702's helpfulness standard requires a valid scientific connection to the pertinent inquiry as a precondition to admissibility.
>
> By means of a so-called "*Daubert* hearing," the district court acts as a gatekeeper, preventing opinion testimony that does not meet the requirements of qualification, reliability and fit from reaching the jury. *See Daubert* ("Faced with a proffer of expert scientific testimony, then, the trial judge must determine at the outset, pursuant to Rule 104(a) of the Federal Rules of Evidence whether the expert is proposing to testify to (1) scientific knowledge that (2) will assist the trier of fact to understand or determine a fact in issue.").

Schneider ex rel. Estate of Schneider v. Fried, 320 F.3d 396, 404–05 (3d Cir. 2003) (cleaned up).[1]

F. Motions to Strike

Federal Rule of Civil Procedure 37(c)(1) provides that "[i]f a party fails to provide information . . . as required by Rule 26(a) or (e), the party is not allowed to use that information . . . to supply evidence on a motion, at a hearing, or at trial, unless the failure was substantially justified or is harmless." To determine whether a failure to disclose was harmless, courts in the Third Circuit consider the *Pennypack* factors: (1) the prejudice or surprise to the party against whom the evidence is offered; (2) the possibility of curing the prejudice; (3) the potential disruption of an orderly and efficient trial; (4) the presence of bad faith or willfulness in failing to disclose the evidence; and (5) the importance of the information withheld. *Konstantopoulos v. Westvaco Corp.*, 112 F.3d 710, 719 (3d Cir. 1997) (citing *Meyers v. Pennypack Woods Home Ownership Ass'n*, 559 F.2d 894, 904–05 (3d Cir. 1977)). "[T]he exclusion of critical evidence is an 'extreme' sanction, not normally to be imposed absent a showing of willful deception or 'flagrant disregard' of a court

[1] The Court of Appeals wrote under an earlier version of Rule 702, but the 2011 amendments to it were not intended to make any substantive change.

order by the proponent of the evidence." *Id.* The determination of whether to exclude evidence is within the discretion of the district court. *Id.*

III. SUMMARY JUDGMENT MOTIONS

A. Infringement

Defendant moves for summary judgment of no infringement of the asserted claims of the '048, '381, '882, and '473 Patents. (D.I. 752). It argues that Plaintiff cannot prove infringement of at least one claim element in each patent. (D.I. 754 at 8-18). It further argues that the certificates of correction for the '381 and '882 Patents are invalid. (*Id.* at 18-20). Plaintiff cross-moves for summary judgment of infringement of claim 19 of the '473 Patent. (D.I. 790).

1. "Message During Initialization Specifying a Maximum Number of Bytes of Memory that are Available to be Allocated" Limitation

The Parties dispute whether the accused products send a "message during initialization specifying a maximum number of bytes of memory that are available to be allocated" as is required by the asserted claims of the '048, '381, and '882 Patents.

Defendant's initial argument is that the Rule 30(b)(6) witness from Broadcom, the supplier of the chips that provide the accused DSL functionality, testified that the accused products do not send such a message. (D.I. 754 at 8-9; D.I. 961 at 3-4). It argues that this testimony is undisputed and sufficient to establish noninfringement. (D.I. 754 at 9). Plaintiff responds by noting that the Broadcom witness's response to Defendant's questions about whether the accused products' chips meet the disputed limitation was, "I don't believe so." (D.I. 893 at 11-12; *see also* D.I. 754 at 8-9 (summarizing relevant deposition testimony)). Plaintiff argues that Broadcom's belief is biased and "contradicted by the overwhelming evidence of infringement." (D.I. 893 at 11-12). I agree with Plaintiff that summary judgment on this basis is inappropriate. Broadcom's Rule 30(b)(6) witness's testimony is not concrete, only indicating a

belief rather than actual knowledge. Moreover, Broadcom's potential interest in this case is apparent, as Defendant is its customer. The probative weight of Broadcom's witness's testimony should be determined by a jury. I will not grant Defendant's motion on this basis.

Defendant next argues that Dr. Cooklev's opinion does not establish that the accused products meet the "message during initialization specifying a maximum number of bytes of memory that are available to be allocated" limitation. Dr. Cooklev, Plaintiff's infringement expert, opines that because the accused products comply with the International Telecommunication Union VDSL2[2] standard, they infringe the '048, '381, and '882 Patents. (D.I. 893 at 12-15; *see also id.* at 7-8 (describing undisputed evidence that the accused products comply with VDSL2)). The Parties largely agree on the relevant technical details of the VDSL2 standard. (*See* D.I. 754 at 6-7, D.I. 893 at 4-6). They agree that the accused products send a message during initialization and that the message specifies an amount of memory. (D.I. 754 at 10; D.I. 893 at 12-13). They disagree, however, on whether the amount of memory that is provided for in the initialization message is, in fact, a maximum amount. (D.I. 754 at 11-14; D.I. 893 at 12-15). Defendant argues that it is at least theoretically possible that more memory is available to be allocated and that the VDSL2 standard says it is the *minimum* necessary amount. (D.I. 754 at 13). Plaintiff argues that if, in practice, the product does not use more memory than the amount provided for during initialization, then the memory amount sent is a maximum amount. (D.I. 893 at 13-14).

I agree with Plaintiff. The language of the VDSL2 standard is not dispositive. The infringement inquiry is whether, in practice and within the meaning of the claims, a message specifying the maximum number of available bytes is sent. If, as Plaintiff contends, the message

[2] "VDSL" means "very high speed digital subscriber line."

sent during initialization functions as a maximum then it may meet the requirement of the claim—despite being labeled as a minimum in the standard. Thus, there is a dispute of material fact as to whether the accused products meet the "message during initialization specifying a maximum number of bytes of memory that are available to be allocated" limitation.

Finally, Defendant argues that one of Plaintiff's experts, Dr. Almeroth, conceded during a deposition that the message sent during initialization of the accused products does not specify the maximum amount of available memory. (D.I. 754 at 14-15). This opinion was contrary to the opinion he expressed in his expert report. (*Id.*). Dr. Almeroth's concession is likely valuable fodder for cross-examination but is not sufficient to warrant a grant of summary judgment. I will deny Defendant's motion for summary judgment on this issue.

2. Certificate of Correction

Defendant argues that changes to the asserted claims of the '381 and '882 Patents that the Patentee made via a certificate of correction improperly affected their scope or meaning.[3] (D.I. 754 at 18-20). Certificates of correction are meant to correct mistakes "of a clerical or typographical nature, or of minor character." 35 U.S.C. § 255. If a correction broadens the scope of a patent claim, a certificate of correction may be invalidated. *Superior Fireplace Co. v. Majestic Prod. Co.*, 270 F.3d 1358, 1376 (Fed. Cir. 2001). This "requires proof of two elements: (1) the corrected claims are broader than the original claims; and (2) the presence of the clerical

[3] Plaintiff cursorily argues that Defendant waived this argument by not raising it earlier, during claim construction. Plaintiff does not cite caselaw to support its waiver argument. The law cited by Defendant, however, supports the conclusion that the validity of a certificate of correction is, at a minimum, an appropriate issue for it to raise on summary judgment. *See S.O.I.Tec Silicon On Insulator Techs., S.A. v. MEMC Elec. Materials, Inc.*, 745 F. Supp. 2d 489, 507 (D. Del. 2010). Defendant was not obligated to bring the issue before the Court at some earlier time and, indeed, possibly could have actively addressed the issue for the first time at trial. Thus, I find that Defendant has not waived this issue.

or typographical error, or how to correct that error, is not clearly evident to one of skill in the art." *Cent. Admixture Pharmacy Servs., Inc. v. Advanced Cardiac Sols., P.C.*, 482 F.3d 1347, 1353 (Fed. Cir. 2007). The first element is a question of law, while the second element is a question of fact. *Id.* at 1353-54. The party seeking to invalidate a certificate of correction must meet the clear and convincing evidence standard. *Id.* at 1353.

As to the first element, the Parties appear to agree that the changes in the '381 and '882 Patents broadened the scope of the claims. Specifically, there is no argument that the correction from "transmission" to "reception" and from "received" to "transmitted" did not change the scope of the claims. As to the second element, however, the Parties disagree on whether a POSA would understand the original language as a typographical error with a clearly evident correction. (D.I. 754 at 20; D.I. 893 at 20). Plaintiff notes that Defendant's position throughout this litigation has been that "interleaving is associated with DSL transmission and deinterleaving is associated with DSL reception." (D.I. 893 at 20). It argues that Defendant's position is evidence that a POSA would recognize a typographical error and know how to fix it. (*Id.*). Defendant responds that the patent is not limited to DSL technology. (D.I. 961 at 9). It does not, however, provide any evidence or argument as to why this is important. Thus, it remains an open factual question whether a POSA would understand the error and how to fix it in all relevant technical fields. Defendant has the burden to show, by clear and convincing evidence, "the presence of the clerical or typographical error, or how to correct that error, is not clearly evident to one of skill in the art." It falls short of that standard. I will deny Defendant's motion for summary judgment on this issue.

3. '473 Patent, claim 19

Claim 19 of the '473 Patent claims an apparatus comprising a "multicarrier communications transceiver" that is "associated with a memory." ('473 Patent, claim 19). The "multicarrier communication transceiver" is "configured" to perform certain functions. (*Id.*). The "memory" is "allocated between the interleaving function and the deinterleaving function in accordance with a message received during an initialization." (*Id.*).

Defendant argues that the apparatus infringes, if at all, only after initialization because the memory is not allocated as required by the claim until that point. (D.I. 754 at 17-18). Plaintiff does not dispute that allocation only happens after initialization, but argues that the "configured" language applies to the memory as well as to the multicarrier communications transceiver. I do not agree with Plaintiff's interpretation of the claim. The "multicarrier communication transceiver" clause requires only that the apparatus is configured in a certain way. The "memory" clause, however, requires that the memory has been allocated in accordance with a message received during initialization. A device does not meet every limitation of the claim, and is therefore noninfringing, until that point. It is undisputed that such an allocation does not occur until the accused devices are in the hands of an end user. (D.I. 754 at 18, D.I. 893 at 18-20). Thus, the accused products do not directly infringe claim 19 of the '473 Patent when they are made or sold by Defendant. I will grant Defendant's motion for summary judgment of no direct infringement of claim 19 of the '473 Patent. I will also deny Plaintiff's motion for summary judgment of infringement of claim 19 of the '473 Patent as Plaintiff makes no argument on indirect infringement in its briefing. (*See* D.I. 791, 973).

Defendant's other noninfringement argument, based on claim 19's allocation limitation, is substantively identical to its argument for the '048, '381, and '882 Patents. (D.I. 754 at 16-17). I will deny this portion of Defendant's motion for the reasons discussed in Section III.A.1.

B. Invalidity

Defendant moves for summary judgment of invalidity, arguing that the asserted patents are obvious over the prior art. (D.I. 773). Plaintiff moves for summary judgment of no invalidity under 35 U.S.C. § 103 and § 112. (D.I. 765, 777).

1. Obviousness

Defendant moves for summary judgment of invalidity of the asserted claims of the '048, '381, and '882 Patents in view of Mazzoni in combination with LB-031. (D.I. 774). The Parties do not dispute that this combination discloses all the limitations of the Family 3 claims. (D.I. 963 at 1). Rather, the Parties dispute whether a POSA would be motivated to combine the references. (*See* D.I. 892 at 6-20; D.I. 963).

Plaintiff argues that LB-031 is incompatible with shared memory and that such a combination would be inoperable, arguably defeating Defendant's motivation to combine. (D.I. 778 at 7-10). The Parties have dubbed the underlying issue the "Mazzoni Problem." (D.I. 778 at 10 n.4). It is a memory deficiency problem that occurs with any combination of shared memory of the type disclosed in Mazzoni and the other prior art references. (*Id.* at 12-14). Defendant does not dispute that, if left unmodified, a combination of LB-031 and Mazzoni would result in such a problem. (D.I. 879 at 7-8). It argues, however, that a POSA would understand how to modify the prior art devices to overcome the problem by adding additional memory. (*Id.* at 8). Defendant further argues that a POSA would be motivated to do so because LB-031 and Mazzoni are both VDSL transceivers and both recognize "the desirability of limiting the size of the memory used for interleaving and deinterleaving." (D.I. 774 at 20).

The Parties' disagreement about the teachings of the prior art and their disagreement on how that might impact a POSA's motivation to combine are classic disputes of material fact.

Thus, I will not grant summary judgment on whether the combination of LB-031 and Mazzoni renders the asserted claims of the '048, '381, and '882 Patents obvious.

Defendant also moves for summary judgment of obviousness of claim 19 of the '473 Patent in view of Mazzoni in combination with G.993.1. (D.I. 774 at 5-11). The Parties' arguments on this combination are substantively identical to their arguments on whether the combination of LB-031 and Mazzoni renders the asserted claims of the '048, '381, and '882 Patents obvious. Accordingly, I will also deny summary judgment on whether Mazzoni in combination with G.993.1 renders claim 19 of the '473 Patent obvious.

Plaintiff moves for summary judgment of no obviousness in view of certain prior art combinations. (*See* D.I. 778). Specifically, it argues that any combination of references that does not include Mazzoni fails to disclose, expressly or inherently, "shared memory." (*Id.*). It bases this argument on Dr. Jacobsen's admission during her deposition that the LB-031, Voith, Fadavi-Ardekani, G.993.1, and G.992.2 references do not expressly disclose or necessarily require "shared memory." (D.I. 972 at 5). To establish a feature is inherently present in a reference,

> mere possibility is not enough. Inherency may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient. Rather, a party must show that the natural result flowing from the operation as taught would result in the performance of the questioned function.

Personal Web Techs., LLC v. Apple, Inc., 917 F.3d 1376, 1382 (Fed. Cir. 2019) (cleaned up). If the element that a party relies on does not necessarily exist in a reference, "reliance on inherency for that element in its obviousness analysis [is] improper." *Id.* at 1382-83. Defendant does not directly address Plaintiff's inherency argument and repeatedly admits that Dr. Jacobsen's opinion is that the five references do not necessarily disclose shared memory. (D.I. 879 at 10-11, 16-19). This is insufficient, as a matter of law, to support finding that a combination of the prior art

references could render the asserted claims of the '048, '381,'882, and '473 Patents obvious. Thus, I will grant Plaintiff's motion for summary judgment, except as noted below, that combinations of these five references, without Mazzoni, do not render the patent claims obvious.

The combination of LB-031 with the knowledge of a POSA presents a separate issue. Plaintiff argues that LB-031 does not disclose shared memory and that a POSA's understanding that LB-031's allocated memory can be shared memory is not sufficient to prove obviousness. (D.I. 778 at 7). I do not agree with Plaintiff's assessment. Dr. Jacobsen opines that a POSA would understand LB-031 to contemplate shared memory and would have combined the reference with the well-known concept. (D.I. 879 at 10). Dr. Jacobsen's opinion is sufficient to create at least a dispute of material fact on this issue. Plaintiff also argues the incompatibility issue I address above. I again find that whether a POSA would have been motivated to combine the technology, considering the technologies' differences and limitations, is a disputed question of material fact. I will not grant summary judgment of no obviousness in view of the combination of LB-031 and the knowledge of a POSA.

2. 35 U.S.C. § 112

Plaintiff moves for summary judgment of no invalidity under § 112. (D.I. 765). Specifically, it moves for summary judgment of no lack of enablement, no lack of written description, and, as to claim 19 of the '473 Patent, no indefiniteness. (D.I. 766). Defendant does not dispute enablement. (*See* D.I. 873). Accordingly, I will grant summary judgment on that issue. On indefiniteness, the Parties' arguments clarify that additional claim construction is necessary. Thus, I will not address that portion of Plaintiff's motion in this opinion.

Plaintiff argues that summary judgment that the asserted claims of the '048, '381, and '882 Patents meet the written description requirement is warranted because Dr. Jacobsen's

written description opinion is arguably inconsistent with her opinion during claim construction. (D.I. 766 at 9-10). Defendant responds that Dr. Jacobsen's current opinion is not inconsistent with the opinion she expressed during claim construction. (D.I. 873 at 7-10). It argues that the written description issue stems from the "at the same time" language of the claims, while the dispute during claim construction centered on the term "use." (*Id.* at 8-9). It notes, "[Plaintiff] is free to cross-examine Dr. Jacobsen at trial and to try to use her prior testimony to undermine the credibility of her invalidity opinion. But, that sort of credibility challenge is not a proper basis for summary judgment." (*Id.* at 8-9 n.6). I agree. Dr. Jacobsen's written description opinion is not so clearly inconsistent with her prior opinion that no reasonable jury could give it credit. I will deny Plaintiff's motion for summary judgment on this issue.

Plaintiff next argues that summary judgment that claim 19 of the '473 Patent meets the written description requirement is warranted because Dr. Jacobsen's opinion on this issue is conclusory. (D.I. 766 at 10-11). Her opinion is:

> One of ordinary skill in the art would not have understood the patentee to have been in possession of an apparatus wherein at least a portion of the memory may be allocated to a first interleaving function or a second interleaving function at any one particular time depending on the message. The specification describes ways of allocating shared memory between an interleaving function and a deinterleaving function, but it does not describe to one of ordinary skill in the art how at least a particular portion of the memory can be allocated to one function, and then be allocated to the other function at any one particular time.

(D.I. 767-9 at ¶ 156).

I do not find that Dr. Jacobsen's opinion, based on her review of the specification, is so conclusory that no reasonable jury could rely on it to find that claim 19 of the '473 Patent lacks written description. The Parties' additional arguments on this point focus heavily on competing expert opinions. (*See* D.I. 873 at 10-13, D.I. 957 at 5-7). The credibility of the Parties'

respective experts is a question for the jury. I will deny Plaintiff's motion for summary judgment on this issue.

IV. *DAUBERT* MOTIONS AND MOTIONS TO STRIKE

Defendant moves to exclude Plaintiff's infringement expert's testimony as irrelevant and unsupported and moves to strike an infringement chart from Dr. Kevin Almeroth's reply report, "Attachment M." (D.I. 737, 760). As I explain below, I will deny its motions. It also moves to exclude the testimony of Dr. Peter Heller. (D.I. 785). Dr. Heller's opinions on VDSL2 chip designs relate only to damages. (D.I. 886 at 14). Plaintiff similarly moves to exclude certain damages-related opinions of Dr. Krista Jacobsen. (D.I. 779). Damages will not be addressed at the Family 3 trial. (D.I. 1043). Accordingly, I will dismiss these motions as premature.

A. Dr. Todor Cooklev

Defendant moves to exclude the expert testimony of Plaintiff's infringement expert, Dr. Cooklev. (D.I. 760). Its argument for exclusion is fourfold: (1) Dr. Cooklev is not qualified, (2) Dr. Cooklev's tests confirming that the accused products send and receive messages specified by the VDSL2 standard are irrelevant, (3) Dr. Cooklev's opinions are contrary to the VDSL2 standard, and (4) opinions based on Dr. Heller's testimony should be excluded. I will not address Defendant's fourth argument, as it relates solely to damages which are not at issue in this trial. I also will not readdress Defendant's first argument as to Dr. Cooklev's qualifications to serve as an expert. I have already found "that Dr. Cooklev has sufficient experience with communication systems, including DSL, to offer specialized testimony that would be helpful to the jury." (D.I. 1058 at 22-23).

On Defendant's second argument, Dr. Cooklev's testing is plainly relevant. Evidence is relevant if "it has any tendency to make a fact more or less probable than it would be without the evidence; and the fact is of consequence in determining the action." Fed. R. Evid. 401. An

expert may testify to a relevant fact if it "will help the trier of fact to understand the evidence" and meets the *Daubert* standard. *Id.* at 702. Defendant argues that it is undisputed that the accused products can send and receive messages in accordance with the VDSL2 standard and, thus, that the jury does not need to hear expert testimony on the topic. (D.I. 763 at 10). That a fact is undisputed is not, however, an independent basis to exclude testimony and does not necessarily render testimony irrelevant. Defendant also argues that the testimony is irrelevant because it is not sufficient to prove infringement. (*Id.*). A fact is not rendered irrelevant merely because it is not, by itself, sufficient to establish liability. Accordingly, I will not exclude Dr. Cooklev's testing.

Defendant's third argument appears to be a reprise of Defendant's argument in its noninfringement summary judgment briefing. (*Compare id.* at 11-12, *with* D.I. 754 at 10-14). As I explain in the infringement portion of this opinion, the Parties generally agree on the content of the VDSL2 standard, but disagree on how it relates to the claims. I have reviewed the relevant parts of Dr. Cooklev's report and the VDSL2 standard. (D.I. 788-1 at ¶¶ 99-105 (Dr. Cooklev's opening report); D.I. 795-5 (relevant sections of the VDSL2 standard)). I cannot say that his interpretation of the document is so "dramatically belied by the record" as to warrant exclusion under *Daubert*. *Lava Trading, Inc. v. Hartford Fire Ins. Co.*, 2005 WL 4684238, at *21 (S.D.N.Y. Apr. 11, 2005). Defendant is free to challenge Dr. Cooklev on cross-examination and is able to challenge any incorrect representations of the VDSL2 document during trial. I will not, however, summarily exclude Dr. Cooklev's opinions on the VDSL2 standard at this juncture.

B. Dr. Kevin Almeroth

Defendant moves to strike an infringement chart from Dr. Almeroth's reply report, "Attachment M." (D.I. 737). Defendant received Dr. Almeroth's reply report, along with

Attachment M, on January 18, 2019, four months before trial. (D.I. 738 at 3). Dr. Almeroth was deposed nearly a month after Defendant received the chart, on February 8, 2019. (D.I. 862 at 6). On these facts, the *Pennypack* factors strongly indicate that Plaintiff's late disclosure was harmless. Any surprise Defendant may have had after receiving Attachment M will have worn off long before trial and any prejudice Defendant may have encountered has been cured by Dr. Almeroth's deposition. I will deny defendant's motion to strike, and I will dismiss as moot Plaintiff's motion for leave to serve Attachment M.

V. CONCLUSION

For the foregoing reasons, the Parties' motions are resolved as follows:

1. Defendant's Motion for Summary Judgment of Non-Infringement of the Asserted Claims (D.I. 752) is **GRANTED-IN-PART** and **DENIED-IN-PART**. There is no genuine issue of material fact that Defendant's accused products do not directly infringe claim 19 of the '473 Patent.
2. Plaintiff's Motion for Summary Judgment of No Invalidity of Family 3 Patent Claims under 35 U.S.C. § 112 (D.I. 765) is **GRANTED-IN-PART**, **DENIED-IN-PART**, and unresolved as to indefiniteness. The Parties do not dispute that there is no genuine issue of material fact that Plaintiff's asserted patents are not invalid as not enabled under 35 U.S.C. § 112 ¶ 1.
3. Defendant's Motion for Summary Judgment of Invalidity of Family 3 Patents (D.I. 773) is **DENIED**.
4. Plaintiff's Motion for Summary Judgment of No Invalidity of Family 3 Patent Claims Under 35 U.S.C. § 103 (D.I. 777) is **GRANTED-IN-PART** and **DENIED-IN-PART**. There is no genuine issue of material fact that the asserted claims of the '048, '381, '882, and '473 Patents are not obvious under 35 U.S.C. § 103 over LB-031 in combination with

Voith, Voith in Combination with G.993.1, Fadavi-Ardekani in combination with G.993.1, or Fadavi-Ardekani in combination with G.992.2.

5. Plaintiff's Motion for Summary Judgment of Infringement of Claim 19 of U.S. Patent No. 8,495,473 (D.I. 790) is **DENIED**.
6. Defendant's Motion to Strike the Untimely Supplemental Expert Reports of Jonathan Putnam Ph.D. and Reply Report of Dr. Kevin Almeroth (D.I. 737) is **DENIED**.
7. Defendant's Motion to Preclude the Expert Testimony of Dr. Todor Cooklev for Family 3 (D.I. 760) is **DENIED-IN-PART** and **DISMISSED-IN-PART** as premature.
8. Plaintiff's Motion to Preclude Certain Opinions of Dr. Krista S. Jacobsen For Family 3 Patents (D.I. 779) is **DISMISSED** as premature.
9. Defendant's Motion to Preclude the Testimony and Expert Report of Peter Heller Ph.D. on VDSL2 Chip Design (D.I. 785) is **DISMISSED** as premature.
10. Plaintiff's Motion in the Alternative, for Leave to Serve Attachment M to the Reply Report of Dr. Kevin Almeroth (D.I. 860) is **DISMISSED** as **MOOT**.