UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

INTELLECTUAL VENTURES II LLC, Plaintiff, v. JP MORGAN CHASE & CO., JPMORGAN CHASE BANK, NATIONAL ASSOCIATION, CHASE BANK USA, NATIONAL ASSOCIATION, CHASE PAYMENTECH SOLUTIONS LLC, and PAYMENTECH LLC, Defendants.	:	**ORDER AND OPINION DENYING MOTION FOR SUMMARY JUDGMENT BASED UPON NON-INFRINGEMENT** 13-cv-3777 (AKH)

ALVIN K. HELLERSTEIN, U.S.D.J.:

Intellectual Ventures II LLC ("IV") brought this lawsuit against defendants for infringement of five patents related to the use of IBM Crypto Cards, cryptoprocessors that assist with and protect the encryption of sensitive information. Defendant J.P. Morgan Chase & Co. ("JPMC") moves for summary judgment to dismiss the one remaining patent in this case, U.S. patent number 7,634,666, on the ground that JPMC's accused product does not infringe IV's patent. The issue is whether JPMC's accused product infringes an element of claim four of the Patent, relating to a "sign inversion unit." That element of the patent had an agreed definition, as provided in the Markman order.

JPMC argues that technical discovery has shown that the computer chips at issue do not include a "sign inversion unit" as that term was described by the parties and by the *Markman* Order. *See* Order Regarding Claim Construction and Patent Summaries, ECF No. 82, at 12 (March 18, 2014). However, the motion is denied. JPMC's argument has merit, a fuller

understanding of the context of the claim is necessary properly to determine the issue of non-infringement.

Background

Intellectual Ventures ("IV") brought this action against several banks in June 2013, alleging infringement of five patents. *See* Complaint, Dkt. No. 1 (June 4, 2013). The asserted infringing products are various versions of IBM Crypto Cards,[1] which defendants employ as part of their cyber-security systems. Defendants answered and filed counterclaims seeking a declaratory judgment as to invalidity and noninfringement of the patents. As discovery progressed, JPMC moved for a stay pending review by the U.S. Patent and Trademark Office ("PTO"). *See* ECF No. 128. I denied the stay, principally because the delay inherent in patent office review of only some of the issues before me was not acceptable. *See Intellectual Ventures II L.L.C. v. JP Morgan Chase & Co.*, No. 13 CIV. 3777 (AKH), 2014 WL 10919562, at *5 (S.D.N.Y. Aug. 11, 2014) (ECF No. 154), *appeal dismissed sub nom. Intellectual Ventures II LLC v. JPMorgan Chase & Co.*, 781 F.3d 1372 (Fed. Cir. 2015).

As discovery continued, JPMC regularly complained about the opaque nature of plaintiffs' infringement contentions and interrogatory responses. JPMC filed several motions to compel, and finally a motion to strike IV's infringement contentions, which I ultimately denied. *See* Order Denying Defendants' Motion to Strike Plaintiffs' Infringement Contentions and Granting in Part and Denying in Part Plaintiffs' and Defendants' Motions to Compel, ECF No. 296 (Nov. 5, 2015). However, I noted that "IV's initial infringement contentions were inadequate" under *Yama Capital LLC v. Canon Inc.*, No. 12 Civ. 7159, 2013 WL 6588589

[1] The accused products are the IBM 4765 PCIe Cryptographic Coprocessor or Y4 Cryptographic Coprocessor (IBM Crypto Cards 3 and 4), and the 4767 PCIe Cryptogrpahic Coprocessor or Sentry Cryptographic Coprocessor (IBM Crypto Card 5).

(S.D.N.Y. Dec. 13, 2013), but that on the record then before me, it was "unclear whether IV has improvidently expanded the scope of its case or simply added detail to its initial infringement contentions." *Id.*

On April 28, 2015, I granted partial summary judgment pursuant to 35 U.S.C. § 101 for JPMC with respect to three of the patents, on the basis that they claimed patent-ineligible subject matter. *See Intellectual Ventures II LLC v. JP Morgan Chase & Co.*, No. 13-CV-3777 AKH, 2015 WL 1941331, at *1 (S.D.N.Y. Apr. 28, 2015) (dismissing Counts 2, 3, and 4 of the Complaint, relating to the '694 Patent, the '084 Patent, and the '409 Patent). A fourth patent, number 5,745,574, was withdrawn on consent. (ECF No. 519, Sept. 17, 2015).

Only one patent remains at issue in the case, U.S. Patent No. 7,634,666 ("'666 Patent"). The '666 Patent claims a physical co-processor, referred to as a "crypto-engine," used to assist a host processor, such as a personal or network computer, with the encryption of data. JPMC previously moved for summary judgment as to noninfringement in May of 2015, prior to the completion of the deposition phase of discovery. *See* Defendant's Motion for Summary Judgment, Dkt. No. 388 (May 12, 2015). I denied the motion, finding that IV raised triable issues of fact as to whether the IBM Crypto Card had the capability of executing both ECC and RSA encryption algorithms, as required by Claim 4 of the '666 Patent. *See* Order and Opinion Denying Motion for Summary Judgment Based Upon Noninfringement, Dkt. No. 449 (June 30, 2015).

Discovery continued through the fall of 2015. JPMC then filed its motion for summary judgment, and its motion to strike the infringement contentions (thus terminating the case as a sanction for discovery abuse). I heard argument on the motions,and to aid my disposition of the motion gave leave to plaintiffs to file a motion for rehearing of the Markman

order definition of the term "sign inversion unit." Plaintiffs so moved on June 29, 2016 (ECF Doc. Nos. 556, 557), and defendants opposed on July 14, 2016 (ECF Doc. Nos. 560, 561, 562). By separate order, I denied the motion to change the construction of the definition from the conjunctive "and" to "and/or." *See Order Denying Motion to Reconsider Definition of the Claim Term "Sign Inversion Unit*," ECF Doc. No. 568 (July 20, 2016).

Summary of Motion

JPMC claims that the plaintiff's infringement contentions show that the claimed arithmetic unit of any IBM Crypto Card "can only accept an input value that is positive, and cannot accept an input value that is negative." Thus, JPMC claims it cannot and does not infringe, because the unit does not change both positive numbers to negative numbers and negative numbers to positive numbers, for that was the definition agreed to by the parties for the term in Claim 4 of the '666 Patent. The relevant section of Claim 4 reads as follows:

> A crypto-engine for cryptographic processing of data comprising an arithmetic unit operable as a co-processor for a host processor and an interface controller for managing communications between the arithmetic unit and host processor, the arithmetic unit including: a memory unit for storing and loading data; a multiplication unit, an addition unit and a ***sign inversion unit*** *for performing arithmetic operations on said data, the multiplication unit, addition unit and sign inversion unit each having an output . . .*

U.S. Patent No. 7,634,666 (emphasis added).

I held a *Markman* hearing on March 5, 2014. In discussing how to construe the sign inversion unit, the parties engaged in the following exchange:

> THE COURT: What is sign inversion?
> MR. LIM: Simply inverts a sign of a number, your Honor. . . .
> MR. LIM: Positive number to negative number, negative number to positive number. Inverting the sign of the number.
> THE COURT: How about say a unit that changes positive numbers into negative numbers and negative numbers into positive numbers?
> MR. LIM: We are okay with that.
> MR. ADAMO: That's acceptable to JP Morgan Chase.
> THE COURT: That's acceptable to Mr. Adamo.

Transcript, Markman Hearing, ECF No. 78, at 80–81 (March 5, 2014). Consistent with the agreed definition provided by the parties, I defined "sign inversion unit" as "a unit that changes positive numbers to negative numbers and changes negative numbers to positive numbers." Order Regarding Claim Construction and Patent Summaries, ECF No. 82, at 12 (March 18, 2014).

Standard of Review

The standard for summary judgment in a patent case is the same as in any other case. *See Desper Prods., Inc. v. QSound Labs, Inc.*, 157 F.3d 1325, 1332 (Fed. Cir. 1998); *Union Carbide Corp. v. Am. Can Co.*, 724 F.2d 1567, 1571 (Fed. Cir. 1984). Summary judgment is appropriate "if the pleadings, the discovery and disclosure materials on file, and any affidavits show that there is no genuine issue as to any material fact and that the movant is entitled to judgment as a matter of law." Fed. R. Civ. P. 56(c); *Celotex Corp. v. Catrett*, 477 U.S. 317, 322 (1986). A genuine issue of material fact exists "if the evidence is such that a reasonable jury could return a verdict for the nonmoving party." *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 248 (1986). "Where the record taken as a whole could not lead a rational trier of fact to find for the non-moving party, there is no genuine issue for trial." *Matsushita Elec. Indus. Co., Ltd. v. Zenith Radio Corp.*, 475 U.S. 574, 587 (1986) (citation and internal quotation marks omitted).

Summary judgment of noninfringement can be granted only 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. *See Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1304 (Fed. Cir. 1999). 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 determination as to whether a party infringes a patent requires a two-step process. *See Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 976 (Fed. Cir. 1995). First, the court must construe the asserted claims to ascertain their meaning and scope. *Id.* The trier of fact then must compare the properly construed claims with the accused infringing product. *Id.* An accused infringer is entitled to summary judgment of non-infringement 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.[2] *See Chimie v. PPG Indus. Inc.*, 402 F.3d 1371, 1376 (Fed. Cir. 2005); *see also Deering Precision Instruments, L.L.C. v. Vector Distribution Sys., Inc.*, 347 F.3d 1314, 1324 (Fed. Cir. 2003). "Direct infringement requires a party to perform or use each and every step or element of a claimed method or product." *BMC Res., Inc. v. Paymentech, L.P.*, 498 F.3d 1373, 1378 (Fed. Cir. 2007), *overruled on other grounds by Akamai Technologies, Inc. v. Limelight Networks, Inc.*, 692 F.3d 1301 (Fed. Cir. 2012) (*en banc*). "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).

Discussion

JPMC argues that because technical discovery shows that the sign inversion unit accepts only inputs that are greater than zero, IV is unable to show infringement as a matter of law, because the unit does not both change positive numbers to negative numbers and change negative numbers to positive numbers. IV, and its expert, Dr. Wolfe, respond that the IBM technical discovery should not be read to limit the inputs to positive numbers. First, IV argues

[2] IV has asserted only direct infringement in its latest infringement contentions, and has waived any contentions under the doctrine of equivalents. *See* Plaintiff's Mem. of Law in Opp'n, Dkt. No. 539, at 9; Trans. of Argument, Dkt. No. 550, at 43–45.

that the sign inversion unit, by virtue of its operation that involves executing a "two's complement function," is *capable* of converting negative to positive numbers, and so infringes even if the product currently performs the function only with positive-number inputs. Second, they argue that I did not intend to require conversion in both directions when I construed Claim 4 of the Patent, and that I should revise my construction. Finally, IV argues on the basis of an expert declaration that JPMC cannot show that the claimed sign inversion unit in the IBM Crypto Cards requires the use of, and uses, only positive inputs, because the Crypto Card uses a modulo number system. Plaintiff's Rule 56.1 Statement in Support of Opposition, Dkt. No. 540, at 2-3, citing Lim Dec., Ex. 22 (Decl. of Andrew Wolfe, at ¶ 39), Dkt. No. 541. IV's expert submits that numbers in a modular mathematics system are arranged and a loop, and defined only in relation to each other, whether positive or negative or both. Thus, IV argues that the technical documents for the IBM Crypto Cards' sign inversion units, even if they use only inputs greater than zero, do not necessarily mean that the sign inversion units use only "positive" inputs.

1. Intellectual Ventures' Capability Argument

JPMC's capability argument is irrelevant, and inconsistent with the Markman order. *See, e.g.*, *Fujitsu Ltd. v. Netgear Inc.*, 620 F.3d 1321, 1329 (Fed. Cir. 2010) ("Unless the claim language only requires the capacity to perform a particular element, we have held that it is not enough to simply show that a product is capable of infringement."). IV argues that the crypto cards' sign inversion unit performs the "two's complement" function on any given input. Two's complement is a well-known and simple mathematical operation frequently employed in encryption devices, to switch the sign of a number, from positive to negative, and negative to positive, achieving the same result as can be accomplished by pushing the +/- sign on a standard calculator. *Id.* at 20.

However, the IBM cards are programmed to operate only with positive inputs. *See* Ex. J, K, L, and M to Ray Decl. in Support of JPMC's Motion, Dkt. No. 532. This significant difference, JPMC argues, cannot be subsumed of the Markman order definition of "sign inversion unit" for the term is defined to mean "a unit that changes positive numbers to negative numbers and negative numbers to positive numbers."

IV argues that because the sign inversion unit performs its operations by executing the two's complement function on an input, and because two's complement *can* accept negative or positive inputs, the Crypto Cards are thus "capable" of infringing. Mere capability, however, is not sufficient to prove infringement where the claim and its construction make no reference to capability. Furthermore, IV presents no evidence beyond counsel's bare assertion that the IBM Crypto Cards are "capable of performing the recited function without modification." *Typhoon Touch Technologies, Inc. v. Dell, Inc.*, 659 F.3d 1376, 1380 (Fed. Cir. 2011). JPMC has produced copious evidence showing that the sign inversion units contained in the IBM Crypto Cards are not designed or programmed to, and are not capable of, converting negative numbers into positive ones. The source code, functional specifications in IBM technical documents, and the physical evidence (showing that the IBM Crypto Card and the Figaro arithmetic unit contained therein could not be altered without disabling their functionality) show that the IBM Crypto Card is not "capable of performing the recited function." *Microprocessor Enhancement Corp. v. Texas Instruments, Inc.*, 520 F.3d 1367, 1375 (Fed. Cir. 2008).

2. Intellectual Ventures Has Not Shown Good Cause to Change the Definition of a "Sign Inversion Unit"

IV argues that the definition of sign inversion unit in Claim 4 of the '666 Patent should be changed to include sign changes in either or both directions: positive to

negative, or negative to positive, or both. Plaintiff's Mem. of Law in Opp'n, Dkt. No. 539, at 34–35. IV has moved for a rehearing to elicit such an order. By separate order, I denied the motion. *Order Denying Motion to Reconsider Definition of the Claim Term "Sign Inversion Unit,"* ECF Doc. No. 568 (July 20, 2016). The parties agreed to the definition in the Markman order; IV had advocated that definition in other cases in other courts, and there had been no newly-found understanding of the patent suggesting such a definitional change. *See Nuance Comm'cns, Inc. v. ABBYY USA Software House, Inc.*, 813 F.3d 1368, 1373–4 (Fed. Cir. 2016). IV never before objected to the Markman definition, either in this case or in other cases. *See, e.g.*, Joint Claim Construction Statement, *Intellectual Ventures v. Citigroup, et al.*, 14-cv-4638, ECF No. 65, at 2 (March 11, 2015). In *Citigroup*, where Claim 4 of the '666 patent is also at issue, the parties submitted a joint claim construction statement, and while Citi sought specification that the sign inversion unit "solely" "changed positive numbers to negative numbers and negative numbers to positive numbers," both parties in that case submitted the conjunctive "and" version, and included both the "positive to negative" direction of inversion, and the "negative to positive." *Id.* *See also Intellectual Ventures v. Suntrust Banks*, Plaintiff's Opening Claim Construction Brief, at 87–88, 1:13-cv-02454(WSD), ECF No. 93, (N.D. Ga. March 19, 2014) ("Again, the Southern District of New York rejected the inclusion of the word 'solely,' and construed the 'addition unit' to be 'a unit that performs addition' and the 'sign inversion unit' to be 'a unit that changes positive numbers to negative numbers and changes negative numbers to positive numbers.' To the extent the Court is inclined to adopt the Southern District of New York's constructions, IV agrees.").

IV's sole reason to change the Markman order is its regret, in opposing JPMC's motion for summary judgment for noninfringement. Regret is not a legal excuse. Thus, I denied

IV's motion for rehearing. *Order Denying Motion to Reconsider Definition of the Claim Term "Sign Inversion Unit,"* ECF Doc. No. 568 (July 20, 2016).

3. The Materiality of a Variance Between an Accused Product and One of Many Components of a Claim Required Better Understanding that this Summary Judgment Record Permits

IV insists that "in the context of the modulo mathematics used by both the '666 patent and the IBM Crypto Cards," a distinction between positive and negative numbers is immaterial. Plaintiff's Rule 56.1 Statement in Support of Opposition, ECF No. 540, at 2-3, citing Lim Dec., Ex. 22 (Decl. of Andrew Wolfe, at ¶ 39), ECF No. 541. The technical discovery developed so far, as presented in the record of this motion, does not persuade beyond counter-argument that the arithmetic unit "can only accept an input value that is positive, and cannot accept an input value that is negative," or that it makes a difference. *See* Lim Dec., Ex. 22 (Decl. of Andrew Wolfe, at ¶ 27), Dkt. No. 541. Dr. Wolfe, IV's expert, writes that,

> While it is common to talk about the modulo numbers described in the patent as all having positive values, this is only a notational convenience and not pertinent to the actual mathematics. The same sign-inversion concept is present and is performed by the identical method using identical structure . . . Thus the disclosed sign inversion unit performs the claimed sign inversion function as construed by the Court.

IBM's technical documents, including functional specifications for the products and source code, posit the use of all positive numbers, between 0 and 2^{2048}. Def. Mem. of Law in Support, Dkt. No. 531 at 21–22, quoting Exs. K, L, M to Ray Decl. in Support of JPMC's Motion, Dkt. No. 532 (Y4 Cryptographic Coprocessor Functional Specification; Sentry Cryptographic Coprocessor Functional Specification; Otello Source Code). IV argues that the numbers just as easily can be negative inputs, in whole or in part, for the numbers are modular and in a loop. Lim Dec., Ex. 22 (Decl. of Andrew Wolfe, at ¶ 39), Dkt. No. 541. IV and its expert contend, "[t]he two's complement circuit in the accused systems has neither the need to

know the sign of its input nor any reason to know. It performs the same mathematical operation no matter the input," and that for this reason "[t]he circuit is capable of changing positive numbers to negative numbers and negative numbers to positive numbers." *Id.* at ¶ 24.

I cannot resolve the issue in the context of a motion for summary judgment. IV's arguments appear not to be persuasive and may constitute "solely an expert's unsupported conclusion on the ultimate issue of infringement," *Dynacore Holdings Corp. v. U.S. Phillips Corp.*, 363 F.3d 1263, 1277-78 (Fed. Cir. 2004). JPMC's contention that the sign inversion unit in the accused Cryptocards processes only positive numbers, between 0 and 2^{2048}, is persuasive. I realize infringement cases do not import a concept of overall materiality, *see e.g.*, *Planet Bingo, LLC v. GameTech Int'l, Inc.*, 472 F.3d 1338, 1343 (Fed. Cir. 2006); *Bayer AG v. Elan Pharm. Research Corp.*, 212 F.3d 1241, 1247 (Fed. Cir. 2000), but I cannot determine as a matter of law that the product does not infringe without considering the context of the technology and in relation to the claim language of the Patent, and this I cannot do on the record currently before me.

Conclusion

For the foregoing reasons, JPMC's motion for summary judgment is denied. JPMC's motion to strike IV's infringement contentions is severed and covered by separate order. The motions to seal are granted. The Clerk shall mark the motions (Doc. Nos. 534, 536, 544, 546) terminated, with Doc. No. 530 remaining open as to the motion to strike IV's infringement contentions.

SO ORDERED.

Dated: New York, New York
July 21, 2016

ALVIN K. HELLERSTEIN
United States District Judge