IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF WISCONSIN

- -

SANDISK CORP.,

Plaintiff,

v.

KINGSTON TECHNOLOGY CO., INC. and
KINGSTON TECHNOLOGY CORP.,

Defendants.

OPINION AND ORDER

10-cv-243-bbc

- -

Plaintiff SanDisk Corp. sued defendants Kingston Technology Co., Inc. and Kingston Technology Corp. for infringement of plaintiff's patents related to flash memory technology. Defendants filed counterclaims seeking injunctive relief and alleging violations of Sections 1 and 2 of the Sherman Act and antitrust provisions of Wisconsin and California state law. The infringement claims have been resolved; on August 12, 2011, I granted summary judgment of non-infringement in favor of defendants. The case is now before the court on plaintiff's motion for summary judgment on defendants' antitrust counterclaims, dkt. #157, and defendants' motion to strike plaintiff's answer to those counterclaims. Dkt. #137.

According to defendants, plaintiff has violated the Sherman Act by coercing industry participants into licensing agreements for its flash memory patents that sustain its monopoly in the flash memory technology market; attempting to obtain a monopoly in the USB flash drive market; and unreasonably restraining trade in both markets. Defendants seek to enjoin plaintiff from entering into similar licenses.

I will deny defendants' motion to strike plaintiff's answer. It was error for plaintiff not to file a timely answer to defendants' counterclaims and, when it did file, not request leave to file an untimely answer but these two oversights did not prejudice defendants in any significant way. Striking plaintiff's answers would be a disproportionate response. I am granting plaintiff's motion for summary judgment on the counterclaims brought under § 2 of the Sherman Act because defendants have not adduced evidence that (1) plaintiff's licenses have any impermissible effects on the market for flash memory technology or that (2) plaintiff is likely to obtain a monopoly in the market for flash USB flash drives. I am denying plaintiff's motion for summary judgment on defendants' counterclaim brought under § 1 because a genuine dispute exists about whether plaintiff's licensing terms unreasonably restrain competition in the USB flash drive market.

I. DEFENDANTS' MOTIONS TO STRIKE AND FILE A SURREPLY

A. Motoin to Strike

Before proceeding to the summary judgment motion, I must dispose of two preliminary motions. Defendants have moved to strike plaintiff's answer in its entirety, because plaintiff filed its answer three months late without requesting leave of court to file an untimely answer and without demonstrating that its failure resulted from "excusable neglect." Fed. R. Civ. P. 6(b)(1)(B). The court denied plaintiff's motion to dismiss the counterclaims on November 15, 2010, which meant plaintiff's deadline to answer the counterclaims was November 29, 2010. Fed. R. Civ. P. 12(a)(4)(A). Plaintiff filed its answer on March 17, 2011, more than three months late.

Plaintiff's only explanation is that it failed to notice the deadline and the missing answer. Plaintiff's counsel tries to shift blame onto their administrative staff, saying the firm's Calendar Coordinators neglected to enter the answer deadline into their calendaring system. As a result, the deadline did not appear in counsel's subsequent calendar reports. Distracted by discovery and trial preparation in two related actions, plaintiff's counsel failed to notice they had not filed an answer in the present matter.

Despite the absence of an answer, the parties pursued the case without interruption. They received and responded to discovery requests relating to the counterclaims, filed opening and rebuttal briefs for claims construction and participated in the claims construction hearing. In December, defendants proposed revision of the deadline for interrogatories and expert reports on the antitrust counterclaims. Negotiations to modify the schedule continued through early 2011. In late February 2011, the parties met and conferred on discovery and scheduling, discussing defendants' opinions about the time needed for discovery on the antitrust counterclaims.

On March 14, 2011, plaintiff's counsel noticed the omission and began drafting an answer. On March 16, 2011, plaintiff's counsel asked for defendants' consent to a late filing. After receiving a non-committal response, plaintiff filed its answer on March 17, 2011. Dkt. # 137. To this date, plaintiff has not filed a motion for an extension. The parties' negotiations about the schedule continued until March 22, 2011, six days after plaintiff notified defendants and several days after it filed the answer; no one referred to the untimely answer during these negotiations. They agreed to a revised scheduled that was subsequently filed with the court. Dkt. #139. On the day they agreed on this revised schedule, defendants filed the present motion to strike plaintiff's answer.

A court may grant an extension after the deadline has passed "on motion made" if "the party failed to act because of excusable neglect." Fed. R. Civ. P. 6(b)(1)(B). The question whether neglect was excusable "is at bottom an equitable one, taking into account all relevant circumstances," which may "include the danger of prejudice to the non-moving party, the length of the delay and its potential impact on judicial proceedings, the reason for the delay, including whether it was within the reasonable control of the movant, and whether the movant acted in good faith." Pioneer Investment Services Co. v. Brunswick Associates, 507 U.S. 380, 395 (1993). See also McCarty v. Astrue, 528 F.3d 541, 544 (7th Cir. 2008).

As an initial matter, defendants argue that plaintiff has no right to an extension because it filed the answer without moving for leave of court. It is troubling that plaintiff chose to simply file its answer, apparently hoping that defendants would not object. Even if the inadvertent failure to file the answer is excusable, it is difficult to understand why plaintiff did not file a Rule 6(b)(2) motion immediately after realizing it had not filed the answer. Nevertheless, I will treat plaintiffs' reply brief as a motion for an extension of time.

The prejudice to the defendants is minimal and the judicial proceedings were not delayed. The parties proceeded as if plaintiff had denied all of the counterclaims, as was predictable given its arguments in support of the motion to dismiss the counterclaims. They engaged in discovery on the counterclaims and pursued claims construction. The only prejudice defendants identify is the loss of three months to prepare their response to plaintiff's fourteen affirmative defenses, but even this is disingenuous because they were aware of plaintiff's defenses. Most of the pleadings labeled "affirmative defenses" simply deny elements of defendants' antitrust counterclaims or rehash arguments raised in the motion to dismiss or other stages of this litigation (only the inadequately pleaded statute of limitations defense is new to this case and it has not been pursued). Moreover, six months of discovery remained after plaintiff filed its answer. The deadline for antitrust expert reports was four months away. It is telling that defendants did not ask to extend these deadlines in their revised schedule. Defendants' vague assertions of prejudice are not persuasive.

On the other hand, the cause of the delay was entirely within plaintiff's control, and plaintiff offers little to excuse their mistake. Experienced litigators should not simply forget to answer counterclaims, regardless whether they receive automated reminders. The definitive factor, however, is the impact that granting defendants' motion to strike would have on this proceeding. Striking plaintiff's answer would necessitate a default judgment against plaintiff on all counterclaims. A default judgment should be entered "only in extreme situations, or when other less drastic sanctions have proven unavailing. . . . [I]t is a weapon of last resort, appropriate only when a party willfully disregards pending litigation." Sun v. Board of Trustees of University of Illinois, 473 F.3d 799, 811 (7th Cir. 2007). Default judgment "may be used to bring recalcitrant litigants to heel or penalize tactics designed to cause substantial prejudice to the adversary." Mommaerts v. Hartford Life & Accident Insurance Co., 472 F.3d 967, 968 (7th Cir. 2007). Plaintiff's failure to file the answer was inadvertent, not a deliberate attempt to stall or gain a strategic advantage. Otherwise, plaintiff pursued the case diligently.

Defendants cite several cases in which courts have found inexcusable delay when an experienced litigator inadvertently missed an appellate filing deadline, despite the fact that the appellee suffered no prejudice. See, e.g., McCarty, 528 F.3d at 545. However, they cite no case in which a court entered default judgment for a late-filed answer in similar circumstances. In contrast, the Seventh Circuit twice upheld a district court's decision to let a case proceed, despite an untimely answer, when the neglectful party pursued the case actively and in good faith. Mommaerts, 472 F.3d at 968 (defendant misunderstood effective date for service of process and filed answer 16 days late); Isby v. Clark, 100 F.3d 502, 504 (7th Cir. 1996) (failure to answer amended complaint discovered on second day of trial, several months late). In the circumstances of this case, entry of a default judgment would be an extreme and inappropriate sanction. Therefore, I will deny defendants' motion to strike plaintiffs' answer.

B. Motion for Leave to File Surreply

Defendants have moved for leave to file a surreply to plaintiff's reply brief on summary judgment, dkt. # 305, saying that plaintiff's reply misconstrues their claims and the law. Defendants' proposed surreply fails to identify any disputes not discussed amply in the prior briefing. I will deny their motion.

II. MOTION FOR SUMMARY JUDGMENT

Plaintiff moved for summary judgment on defendants' antitrust counterclaims and on defendants' implied license affirmative defense, but it is not necessary to address the second issue in light of the grant of summary judgment of non-infringement in favor of defendants. Dkt. #312. The motion for summary judgment on defendants' affirmative defense is moot.

UNDISPUTED FACTS

From the facts proposed by the parties, I find that the following facts are material and undisputed. Where appropriate, I note those facts that are contested.

A. Flash Memory Technology

Flash memory is a solid-state, nonvolatile memory technology that can be electrically erased and reprogrammed. "Nonvolatile" means it retains stored information even when not powered. Flash memory products are sold in many different formats, including CompactFlash®, Secure Digital™, MultiMediaCard and USB flash memory. Each flash memory product contains a flash memory system, usually comprising one or more flash memory chips, a controller, firmware or software and a circuit board. Flash memory chips contain memory cells that store one or more bits of electronic information. The term "flash" refers to the ability to erase blocks of memory cells on the chip instead of one at a time. Flash memory chips (or "devices") are not functional unless conjoined with a controller, either on the same card or in the host system, which acts as an intermediary between the chip and the host computer to receive and process the host's read and write commands. Some controllers also perform tasks to optimize the performance of the flash memory chips.

The cost of flash memory systems and products varies significantly according to their memory capacity, which is primarily a function of the size and number of flash memory chips. Only a few semiconductor companies in the world manufacture the chips, which adds to their cost. On average, defendants pay around $.42 per controller, only 6.3% of a system's overall costs. In some cases, the same controller can handle either one or two flash memory chips. Consequently, the cost of the controller relative to the cost of the overall flash memory product decreases as the product's storage capacity and price increases.

B. Parties

Plaintiff is a vertically integrated corporation that designs, manufactures and markets flash memory chips, controllers, systems and consumer products and sells these products worldwide. In 1995, plaintiff held 30 patents in the United States related to flash memory technology and had 36 pending U.S. patent applications and several pending foreign patent applications. By 2010, plaintiff held 1,700 patents in the United States and had 1,100 pending applications. Plaintiff also held 1,000 foreign patents, including patents in China, France, Germany, Italy, Japan, the Netherlands, Taiwan and the United Kingdom.

In addition to manufacturing flash memory products, plaintiff licenses its patents to other flash memory manufacturers. Since entering its first cross-license agreement in 1995, plaintiff has licensed its flash memory technology to more than 25 companies. Plaintiff licenses flash memory chip and system technology to other vertically-integrated firms that manufacture chips and systems, including Intel (1995), Samsung (1997), Toshiba (1997) and Hynix (2007, chip technology only).

Plaintiff also licenses flash memory system technology to flash memory technology aggregators, including PNY Technologies, Ritek, Silicon Technology, Inc., TDK Corporation, Trek and Welldone Technoloy, Inc. Defendants are aggregators, purchasing flash memory components (such as chips and controllers) on the wholesale market and combining them to make flash memory systems and consumer products. They do not research, develop or manufacture flash memory chips or controllers. They assemble flash memory chips purchased from large manufacturers like Samsung and Toshiba and controllers purchased from specialized manufacturers like Phison and Skymedi. Defendants manufacture their flash memory systems and USB flash drives primarily in Taiwan and sell them worldwide.

C. Plaintiff's Licensing Agreements

As an initial matter, defendants repeatedly assert in their proposed findings of facts that plaintiff "forces" aggregators to accept its "standard" card licensing agreements. Defendants offer little support for these characterizations. They cite several agreements with the same terms but offer no evidence that these represent plaintiff's "standard" terms or that plaintiff adopted an entrenched negotiating position. For the purposes of this motion, I find that this standard initial offer constitutes plaintiff's standard licensing agreement, unless plaintiff has specifically identified licensing contracts with different terms.

Plaintiff's standard licensing agreement for flash memory chip or system technology is a world-wide and non-exclusive cross-license for its entire portfolio for use within certain restricted "fields of use." Plaintiff does not license its patents individually or in limited bundles; all of its licenses cover its entire patent portfolio. Licensees receive the right to use all of plaintiff's patents for a specified field of use, or none at all. The royalty rates do not vary according to the number of patents used by the licensee's product; they remain the same whether the licensee uses one or many of plaintiff's patents. Plaintiff's express policy is not to license manufacturers to sell controllers individually. This policy has been in effect since plaintiff altered its licensing agreement with Hitachi in 2003. When licensees obtain the right to manufacture controllers for use in their own flash memory systems, the agreements prohibit the licensee expressly from selling excess controllers separately.

Plaintiff's licensing strategy is to obtain non-exclusive cross-licenses with grantbacks that allow each party to the license to use all of the other's existing patents and any new patents on flash memory technology acquired during the term of the cross-license. In addition, each party remains free to license any existing and newly acquired patents to third parties. Access to the licensee's patent portfolio and subsequent patents is compensation for plaintiff's license, because it permits plaintiff to design products without fear of infringement and to avoid future hold-ups when the licensees patent improvements of plaintiff's patents.

(The parties dispute whether plaintiff varies the terms of its licenses according to the strength of the licensee's portfolio. Plaintiff denies having a standard aggregator license but admits having a standard offer and describes its features. This standard initial offer does not vary according to the licensee's portfolio, the extent of its research and development or the risk of hold-up. Plaintiff's Chief Intellectual Property Counsel asserts that licensees with strong patent portfolios receive favorable royalty rates, Thompson Declaration, dkt. #166, at ¶ 63, but neither he nor plaintiff identifies agreements that varied the aggregator's royalty on the basis of its cross-licensed portfolio, any valuations of licensee's portfolios or any process for evaluating portfolios. Plaintiff does not charge Toshiba royalties as part of their joint manufacturing venture but has never analyzed the value of Toshiba's patent portfolio.)

Licensees receive the right to use any of plaintiff's flash memory patents for one or both of two "fields of use:" (1) flash memory chips or (2) flash memory systems. Plaintiff's licenses calculate royalties for these "fields of use" differently for aggregators and vertically-integrated manufacturers. An aggregator that assembles a system using licensed flash memory chips pays a 4% royalty on sales price of the product under the systems-level field of use. If it uses unlicensed chips, it pays a royalty of 4% of the cost of the chip under the chip-level field of use and a royalty of 4% on the sales price of the system under the system-level field of use. In contrast, plaintiff's licenses with vertically-integrated manufacturers insure that the licensees pay a single royalty on the percentage of the final sale.

The licensing agreements that plaintiff submitted to the court exhibit these standard features. On June 30, 2007, plaintiff entered into a patent licensing agreement with Ritek, a flash memory systems aggregator. In addition to a $970,000 lump sum payment, Ritek pays plaintiff a 4% royalty on the sales price of each licensed flash memory system up to four dollars a unit (4.5% in the first year with no maximum) and an additional 4% royalty on the purchase price of each unlicensed memory chip (8% for multi-level cell technology). In December 5, 2007, plaintiff entered a cross-license agreement with Trek in connection with settlement of plaintiff's infringement action. Trek pays a 3% royalty on its worldwide sales of the USB flash memory drives (4% on any other licensed products) and an additional royalty of 4% of the price or fair value of any unlicensed chips (8% for multi-level cell technology). Trek pays no royalty on its first $30 million of sales in the first three years, $40 million in the fourth year and $50 million in the fifth year.

Plaintiff's licenses for vertically-integrated manufacturers charge only a single rate for both fields of use. Plaintiff entered into cross-licensing agreements with Toshiba and Samsung in 2007. These licenses define "flash memory device" (chip) and "flash memory system" similarly to the aggregator licenses but use the terms differently. Toshiba and Samsung pay royalties on net sales of devices and systems; however, when they build a flash memory system using chips they manufacture, they pay a single royalty based on the sales price of the card (the system). Unlike aggregators, they do not pay one royalty for their cost of the chip and a second royalty based on the sales price of the system. Similarly, under a 2009 cross-license agreement with plaintiff, Samsung pays a 2.5% royalty on the net sales of licensed "Flash Memory Products," which is defined to include any "Flash Memory System" and "Flash Memory Device." Some of plaintiff's licensing agreements with vertical manufacturers do not even distinguish between the chip and systems fields of use. Plaintiff's cross-licenses with Toshiba in 2000 and 2004 provide that, if the contracts were terminated, Toshiba would pay a 5% royalty on final sales only, whether it sold flash memory chips separately or embedded in a system. (Plaintiff assert that defendants misread its contracts, but does not explain what was erroneous about the reading.)

In its licenses with aggregators and vertically-integrated manufacturers, plaintiff calculates payment of royalties on worldwide sales, regardless whether plaintiff has a patent in the nation of sale or manufacture. (The two exceptions are a joint venture that has no royalty and one license entered into in connection with a settlement.) The royalty rate does not vary by the percentage of the licensee's sales in the United States. Consequently, licensees pay royalties on sales in regions in which plaintiff holds no patents, such as Latin America, or in which it never alleged patent infringement, such as in Asia. Before July 2008, plaintiff had never enforced its patents outside the United States. (It subsequently obtained a border detention order in the United Kingdom.)

Despite requests by several licensees, plaintiff does not grant licenses specifically for sales in the United States. Defendants requested a license limited to the United States. During their negotiations, plaintiff's representative was not authorized to offer a geographically limited license, and his superiors do not recall discussing with him the defendants' request for a license only for the United States.

Typically, plaintiff's licensing agreements last five years, although some last seven years and one is for the life of the covered patents. Plaintiff's standard initial licensing offer and the two agreements it submitted are for five years, while its license with Samsung lasts seven; its Toshiba license is for ten years and its Intel license is for the life of the patent. Plaintiff's Chief Intellectual Property Counsel believes that five years for aggregators "has proven a good point . . . to reassess the relative positions of each party to reflect the up to date positions of the parties." Thompson Declaration, dkt. #166, at ¶ 71.

Finally, plaintiff's licenses do not place any restrictions on the quantity of the licensee's flash memory chip or systems output (although they do restrict the sale of controllers) or set a minimum or a maximum sales price. They do not require licensees to use plaintiff's technology or to purchase any other goods or services from plaintiff. (Two licensing agreements give plaintiff an option to buy a portion of the licensee's output.)

D. The Flash Memory Technology Market

In 2010, six manufacturers earned 99% of the worldwide revenue from sales of flash memory chips, up from 95% in 2007. Of these six manufacturers, only Micron was not a Sandisk licensee and it held only an 8-10% market share in 2010. Together, plaintiff and its licensees accounted for 89% of worldwide revenue from flash memory chips in 2010. In its 2008 investor report, plaintiff asserts that it licenses around 85% of NAND flash memory chip output. Both plaintiff's Vice President of Corporate Development and its Chief Intellectual Property Counsel stated they are unaware of any non-infringing flash memory chips or products being sold in the United States or even in existence. Chernicoff, Dep., dkt. #231-8, at 149-50; Thompson Dep., dkt. #256, at 25. (Plaintiff's objection that these witnesses lacked expertise on this matter is not well taken, because plaintiff relies on the same witnesses in its proposed findings.) The number of manufacturers is limited by high fixed costs for flash memory chip manufacturing. A fabrication facility capable of a monthly production of 200,000 wafers takes several years to build and may cost up to $8 billion.

Plaintiff's share of revenue from the sale of flash memory chips was around 15% in 2010, although it entered agreements that provide it with a larger capacity. Through its partnership with Toshiba, plaintiff co-owns fabricating facilities and holds the right to purchase 20% of Toshiba's output of flash memory chips. In its 2002 Purchase Agreement with Samsung, plaintiff had the option to purchase up to 10% of Samsung's flash memory chips and 20% of its MLC flash memory chips.

Flash memory technology has improved significantly in recent years and output has increased steadily. In addition to vast increases in memory chip capacity, flash memory systems have shown increases in performance and reliability. In 2003, the majority of flash memory products had memory capacities of 16 to 256 megabytes; by 2009, the majority of flash memory products had capacities of 1,024 to 4,096 megabytes (one to four gigabytes). These technological improvements coincided with and contributed to expanded output and falling prices. From 2000 to 2010, world-wide output of one-gigabyte equivalent NAND flash memory chips (the type used in USB flash drives) increased by a compound annual growth rate of more than 125%. Over the same period, the average worldwide sales price of one-gigabyte equivalent NAND flash memory chips decreased by a compound annual rate of over 56.5%. During a dramatic decline in the price of flash memory products between

2007 and 2008, plaintiff's gross profit margin decreased 37.5%. Aggregators like defendants contributed to the decline in the price of flash memory products by buying surplus chips cheaply from vertical manufactures with excess capacity. (Plaintiff disputes the evidence for this conclusion, but it is supported by an expert report and plaintiff's own executives.)

E. The Market for Flash Memory Products

Plaintiff and defendants compete for the top spot in the USB flash drive market, both nationally and internationally. The NPD Group market research firm estimates plaintiff's share of the United States market for USB flash drives at 34.77% in 2004, declining to 33.83% in 2006, 29.3% in 2008 and 21.52% in 2010. Using data not available to the market research firms, plaintiff estimates its adjusted share of revenue as 40% in 2009, 37% in 2010 and 34% in 2011. (Neither side offers adjusted data prior to 2009.) Plaintiff's position in the worldwide market is weaker. Its worldwide market share peaked at 34% in 2006 when it purchased M-Systems (then its third largest competitor) and then declined to 19% in 2008 and 18% in 2010.

In contrast, defendants' share of the worldwide market is rising. Defendants did not begin selling USB flash drives until 2002, but by 2006 they had achieved 6% of worldwide USB sales revenue. In 2007 they became the worldwide leaders, and their market share continued rising to 28% in 2008 and 31% in 2010. Defendants' share of the U.S. market is smaller. After climbing steadily from 5.82% in 2004 to 13.56% in 2008, it fell back to 9% in 2009 and 2010. Between 2007 and 2010, defendants' USB flash drive sales in the United

States represented 10.3% of their worldwide sales. That figure dropped from 10.8% in 2008 to 8.5% in 2009 and 7.4% in 2010.

Between 2006 and 2010, a number of large firms decreased their sales of USB flash drives in the United States. Three firms that sold more than $1 million of USB flash drives in 2006 saw a 90% reduction in sales by 2010. Memorex's sales fell from $86 million in 2006 (12.37% market share) to$ 310,000, and Imation's U.S. sales decreased from $11 million to $613,000. Six firms that sold more than $250,000 but less than $1 million in 2006 (.03% and 1.4% market share) have left the market entirely. Despite these notable reductions, the overall number of market participants seems roughly stable. Including defendants, four companies held market shares of between 7% and 14% in 2010. This number of intermediate-size firms stayed about the same between 2004 and 2010. The number of small firms also appears to be increasing. The total percentage of sales from firms with less than a 1% market share rose from 6.82% in 2004, to 16.51% in 2007 and 34.98% in 2010, according to the undisputed tables presented by plaintiff.

Throughout this period, the average price of flash memory systems and products has decreased steadily despite increases in demand and memory capacity. Improvements in flash memory chip technology are at least partially responsible for these increases in capacity and decreases in price. The presence of aggregators also contributed to the decreasing prices. However, since 2005, the average price of aggregator USB flash drives has increased relative to plaintiff's prices for USB flash drives. In 2005, the average price charged by aggregators for a one-gigabyte USB 2.0 flash drive was 20% lower than plaintiff's price. Their prices leveled out in 2007; by 2008, aggregators' prices were 7% higher. Similar changes occurred in the relative prices for two gigabyte drives. In 2008, the aggregators' average price was almost 25% lower than plaintiff's price. The prices became slightly higher in 2009 and 5% higher in 2010. (Defendants proposed as fact several graphs and tables based on market tracking data. Defendants simply cited a massive spreadsheet without referring to expert reports or indicating the methods for constructing these charts. Plaintiff disputes the legal inferences that defendants draw from the charts but do not question the accuracy of defendants' summary or the faithfulness of the graphical representations. In other words, *the data analysis* in these representations is undisputed.) Defendants again note the correlation but do not connect their increased *relative* prices to plaintiff's licenses or lawsuits or discount other possible causes.

Defendants assert that plaintiff's patent litigation caused Buffalo and Renesas to exit the flash memory products markets. Plaintiff's previous infringement actions in this court (07-cv-605 and 07-cv-607) named Buffalo as a defendant. On March 25, 2008, the United States International Court of Trade entered a Consent Order requiring Buffalo to "immediately cease and desist from selling for importation, importing into the United States and/or selling in the United States after importation USB drives, CompactFlash® and MultiMedia cards or products containing the same, except . . . those . . . purchased and/or licensed from SanDisk or its licensees." On April 26, 2010, Sandisk filed for voluntary dismissal of cases Nos. 07-cv-605 and 07-cv-607 against Buffalo on the ground that Buffalo that substantially complied with the ITC's Consent Order and would continue to do so.

Plaintiff did not enter into any agreement to release Buffalo in exchange for leaving the relevant United States markets. (Defendants do not allege the existence of any such agreement, but merely assert that the litigation conduct drove Buffalo out).

OPINION

A. § 2: Monopolization

Section 2 of the Sherman Act makes it a crime to "monopolize, or attempt to monopolize, . . . any part of the trade or commerce among the several States." 15 U.S.C. § 2. A defendant violates § 2 by monopolization if it (1) possesses monopoly power in the relevant markets and (2) willfully acquired or maintained that power by predatory or anticompetitive conduct rather than superior product, business acumen or historic accident. Verizon Communications Inc. v. Trinko, LLP, 540 U.S. 398, 407 (2004) (citations omitted). Monopoly power is "the power to exclude competition or to control price." Indiana Grocery, Inc. v. Super Valu Stores, Inc., 864 F.2d 1409, 1414 (7th Cir. 1989). Contending that plaintiff has violated § 2, defendants offer two theories of liability: (1) plaintiff unlawfully maintains its monopoly on flash memory technology and (2) it is attempting to monopolize the market for flash memory products. For purposes of the motion for summary judgment only, plaintiff assumes the validity of defendants' identified markets: the nationwide markets for flash memory technology and for USB flash drives. Plt.'s Br. in Supp., dkt. #160, at 24.

1. Plaintiff's maintenance of its technology monopoly

Defendants' first argument is that plaintiff possesses a monopoly on flash memory technology and maintains it unlawfully by imposing licensing terms that prevent the development of substitute technology. To succeed on this argument, defendants must first establish that plaintiff possesses monopoly power in the market for flash memory technology. Plaintiff holds 1,700 patents relating to flash memory technology, but patents alone do not create a presumption of monopoly power that would relieve the aggrieved party of its burden of production. Illinois Tool Works, Inc. v. Independent Ink, Inc., 547 U.S. 28, 45 (2006).

Instead, defendants rely on market share and the lack of substitutes to establish that plaintiff holds monopoly power in the market for flash memory technology. Plaintiff and its licensees received 89% of worldwide revenue from sales of flash memory chips in 2010, and plaintiff claims to license approximately 85% of industry-wide output. (A party's power in a technology market can be measured in the downstream market for this type of technology. U.S. Dept. of Justice and FTC Antitrust Guidelines for the Licensing of Intellectual Property, § 3.2.1) Defendants also assert that plaintiff's executives believe all flash memory products in the United States practice plaintiff's technology patents, if only because the executives cannot identify any existing flash memory products that do not use their patents. Although this is weak evidence, their beliefs do tend to show the lack of substitutes in the market for flash memory technology.

Defendants produced no evidence about plaintiff's market power with respect to flash memory controller or systems technology or about any technology market specific to the

United States. (Defendants assert that plaintiff controls the supply and price of flash memory chips, because it holds an option to purchase up to 20% of Samsung and Toshiba's flash memory chip output and receives information about licensees' output through reporting and auditing requirements. This evidence is irrelevant, as it does not tend to show monopoly power in the technology market).

Plaintiff has three arguments in support of its position that it cannot possess monopoly power, none of which are persuasive. First, plaintiff asserts that it cannot possess monopoly power, because defendants allege in their counterclaim that "on information and belief, alternative designs exist that do not infringe some of [plaintiff's] patents." Dkt. #41, at ¶ 122. Although the availability of substitutes affects a monopolist's ability to control output and price, plaintiff does not identify any of the supposed substitute technologies but simply relies on defendants' pleading. Its argument is undercut by the assumption of its executives and its patent litigation strategy that all commercial flash memory products in the United States use *some of* plaintiff's patents. In any case, the mere existence of potential substitutes does not preclude a finding of monopoly power, even when they are clearly identified. United States v. Microsoft Corp., 253 F.3d 34, 55-56, 57 (D.C. Cir. 2001) (rejecting Microsoft's proposal that existence of middleware, handheld operating systems or portal websites expanded market to preclude monopoly power).

Second, plaintiff asserts that its executives' subjective beliefs are not probative of actual market power. Plaintiff relies misleadingly on two district court cases that found a monopolist's subjective beliefs insufficient to meet the antitrust plaintiff's burden of production. Tele Atlas N.V. v. NAVTEQ Corp., 2008 U.S. Dist. LEXIS 111866 (N.D. Cal. Oct. 20, 2008) ("[I]t is clear that intent alone cannot satisfy a plaintiff's burden of production."); Texas Instruments v. Hyundai Electronics Industries, 49 F. Supp. 2d 893, 916 (E.D. Tex. 1999). Although these courts found the monopolist's beliefs were insufficient, they acknowledged that the beliefs may be relevant, especially if those beliefs explained allegedly anti-competitive conduct. Id. Moreover, defendants do not rely entirely on plaintiff's beliefs about the lack of substitutes; they have presented independent evidence of plaintiff's market share.

Last, plaintiff argues it does not possess monopoly power, because it "licensed away any power it may have possessed to control flash memory technology output or price" when it granted numerous multi-year licenses with fixed royalties. Plt.'s Br. in Supp., dkt. #160, at 28. Plaintiff again relies on Tele Atlas, citing its holding that the antitrust defendant could not control the price or output in the technology market because it entered into licenses that did not expire until the last of its covered patents expired. Tele Atlas, 2008 U.S. Dist. LEXIS 111866 at *52. In the present case, plaintiff's licenses last only five or seven years (except for one license with Intel). Even if these licenses prevent plaintiff from controlling the output or price of flash memory *chips*, plaintiff retains control over the royalties and licensing conditions and thus market power over the flash memory *technology*. Therefore, I conclude that a jury could reasonably infer that plaintiff holds monopoly power in the market for flash memory chip technology.

2. Anticompetitive conduct

"The second element of a § 2 claim is the use of monopoly power 'to foreclose competition, to gain a competitive advantage, or to destroy a competitor.' " Eastman Kodak Co. v. Image Technology Services, 504 U.S. 451, 482-83 (1992) (quoting United States v. Griffith, 334 U.S. 100, 107 (1948)). Plaintiff may possess a monopoly on flash memory technology without violating § 2, as long as its conduct does not have objectively anti-competitive effects. Verizon Communications Inc. v. Law Offices of Curtis Trinko, LLP, 540 U.S. 398, 407 (2004). Actions violate § 2 only if they "harm the competitive process and thereby harm consumers. In contrast, harm to one or more competitors will not suffice." Microsoft, 253 F.3d at 58. Once an antitrust plaintiff meets its burden to identify conduct with anticompetitive effects, the monopolist may offer "valid business reasons" to justify its conduct. Eastman Kodak, 504 U.S. at 483. The antitrust plaintiff must then demonstrate that the anticompetitive effect outweighs the procompetitive benefits. Microsoft, 253 F.3d at 59.

According to defendants, plaintiff maintains its monopoly on flash memory technology by imposing licensing terms on aggregators that hinder the development of substitute technologies. I conclude that defendants have not adduced sufficient evidence of anti-competitive effects in the flash memory technology market to prevail on this claim, but I will discuss the defendants' theories in some depth here, because the attempted monopolization and unreasonable restraint counterclaims rely on similar conduct.

a. Plaintiff's licenses reduce aggregator's incentive to innovate

First, defendants assert that plaintiff uses its portfolio cross-licenses to reduce the incentive of licensed aggregators to innovate. Because plaintiff licenses only its entire portfolio, a licensed aggregator pays the same royalty on the final sales price of a flash memory product whether it uses one or many of plaintiff's patents. As a result, a licensee has little incentive to design around one or several of plaintiff's technology patents. Even if it develops an alternative technology, the aggregator still pays the full 4% royalty for the chip and for the system, unless the product can be shown to use none of plaintiff's 1700 patents. The cross-license further diminishes aggregators' incentives to innovate. If an investment in research leads to new technology, it still pays the same royalty to plaintiff, while plaintiff may use the aggregator's new technology royalty-free.

Plaintiff's expert on patent misuse, Dr. Lauren Stiroh, suggests that licensees have other incentives to innovate. Improved products shift the demand curve outward, increasing the quantity and price of sales. The licensee shares this increased demand with plaintiff, but at the end of the licensing period, it owns the improved technology and will be in a better bargaining position. On the other hand, the licensee's improved bargaining position matters little if, as defendants plausibly maintain, plaintiff refuses to negotiate its royalty rate or licensing conditions according to the strength of the licensee's patent portfolio. A reasonable jury might conclude that plaintiff's licenses reduce an aggregator's incentive to innovate.

However, that fact alone is not enough to show, or even suggest, that plaintiff's actions reduce the level of innovation in the field of flash memory technology. Aggregators do not manufacture their own chips and thus are unlikely to invest in chip technology (the only market for which defendants have established that plaintiff possesses a monopoly). Defendants offer no evidence that any of the licensed aggregators have any interest in investing in flash memory chip technology or have expressed any desire to license one or a few patents. Defendants do not expend significant funds on research or even maintain a research budget. Showing that plaintiff's licenses inhibit innovation and therefore have an anticompetitive effect, requires a showing that the licenses inhibit innovation by potential innovators, not self-described aggregators. Because defendants have not met their burden to establish that plaintiff's cross-licenses have anticompetitive effects, I need not consider plaintiff's business justification for the portfolio cross-licenses.

b. Plaintiff's licenses eliminate aggregators as a path to market for other innovators

Defendants' second argument is that plaintiff raises barriers to new technology by eliminating aggregators who provide a low-cost path to market for competing flash memory technology. Aggregators are less tied to specific types of flash memory chips or systems, because they do not rely on specific patents or invest in fabrication facilities. According to defendants, these characteristics enable aggregators to adapt quickly to new technologies and suppliers who might challenge plaintiff's technology. Thus, defendants argue that plaintiff seeks to protect its monopoly by either (1) binding aggregators to manufacturers that use plaintiff's technology or (2) excluding aggregators from selling in the United States. If plaintiff succeeds, a path to market for competing technologies will be diminished, reducing the incentive of firms to innovate and thus reducing competition.

Defendants do not make it clear how plaintiff "binds" aggregators to licensed manufacturers. Plaintiff's licenses are non-exclusive and do not require licensees to purchase any products from plaintiff. Defendants' assertion that plaintiff forces aggregators to become customers of plaintiff is meritless, because it is based only on the language in the settlement releases stating that the former defendants became plaintiff's "customers." Defendants identify no evidence of explicit or implicit agreements or of force employed by plaintiff to make former defendants become customers.

Defendants insist that plaintiff's licenses make it economically irrational for aggregators to deal with new or competing technologies. This is far from "binding." Nevertheless, for reasons similar to those described above, plaintiff's aggregator licenses reduce the aggregator's incentive to use new or competing suppliers of flash memory technology. Adopting competing technology will only increase the aggregator's costs, because under the portfolio licenses it pays the same royalty to plaintiff whether it uses one or many of plaintiff's patents and would have to pay a second royalty to the third-party innovator.

In addition, defendants assert that plaintiff attempts to exclude aggregators by imposing discriminatory licensing terms that raise aggregators' prices. The average price charged by aggregators increased relative to plaintiff's price between 2005 and 2010, but this change is not sufficient to establish a material dispute even if plaintiff's licenses caused it. A monopolist may sell its products to competitors at different prices, even for anticompetitive purposes. Pacific Bell Telephone Co. v. Linkline Communications, Inc., 129 S. Ct. 1109, 1119 (2009) (no Sherman Act violation when dominant wholesale and retail company charged high wholesale prices to retail competitors and sold at low prices in the retail market, creating a "price squeeze" to protect its monopoly in the wholesale market and expand its retail market share); USM Corp. V. SPS Technologies, 694 F.2d 505, 512 (7th Cir. 1982) ("[T]here is no antitrust prohibition against a patent owner's using price discrimination to maximize his income from the patent.") A patentee may maintain its monopoly lawfully by simply refusing to license effective competitors and may do so by charging effective competitors a higher royalty.

On the other hand, as I discussed at length in the opinion denying plaintiff's motion to dismiss, dkt. #100, at 13-15, the monopoly of a patent holder that enables it to impose anti-competitive terms is limited. A monopolist may "impose anticompetitive terms on competitors when those terms would have the same effect as if the monopolist exercised its right to refuse to deal with the competitors." Id. at 15. However, "a patentee is free to assert its patent to threaten competition within the areas protected by the patent, but no further." Id. at 18. See also Zenith Radio Corp. v. Hazeltine Research, Inc., 395 U.S. 100, 135-36, 139-41 (1969); Microsoft, 253 F.3d at 62. Recognizing these limits, defendants argue that plaintiff's standard aggregator license extends beyond its patents in two ways: (1) plaintiff extracts an improper "double-royalty" for the same flash memory chip patents, by requiring aggregators to pay a second royalty for an "illusory" flash memory systems-level "field of use"; and (2) plaintiff increases royalty costs for flash product sales in the United

States by requiring licensees to pay royalties on worldwide sales even in countries in which plaintiff has no patents.

To support their contention that the system level "field of use" is an improper double-royalty on the chip technology, defendants argue that discrepancies between plaintiff's licensing agreements with aggregators and vertically-integrated manufacturers suggest the systems level field of use is illusory. Plaintiff's licensing agreement with Samsung does not even mention a systems-level field of use. When a vertical manufacturer's license does mention these fields of use, the manufacturer still pays a single royalty. If it fabricates and sells a chip, it pays a royalty based on the chip's price, but if it assembles that chip into a system, then it pays the same percentage on the price of the whole system. The effective base for the system-level royalty is the portion of price attributable to the system, excluding the price of the chip.

In contrast, aggregators pay royalties on both the chip and the system levels. If an aggregator uses unlicensed chips, then it pays a royalty of 4% of the cost of the chip and a royalty of 4% of the product's sales price. If it uses chips from licensed manufacturers, then it pays a royalty of 4% of the product's sales price. In each case, the systems-level royalty is assessed on the total price of the product, although the cost of the chips are a large portion of the overall cost and plaintiff has already received a royalty on the chip technology from either the fabricator or the aggregator. It remains disputed whether the systems-level royalty includes a second royalty on the chip. Unlike vertically-integrated manufacturers, aggregators pay this second royalty because plaintiff does not license individual controllers or base its systems-level royalty on the marginal price of the system.

Plaintiff's aggregator-royalty structure is also in tension with the facts about flash memory products. The systems-level royalty remains the same fixed percentage of the sales price of the product irrespective of its memory capacity; yet the portion of the cost attributable to the controller or system diminishes as the products' memory capacity and price increase. The cost of the flash memory product increases as the size or number of flash memory chips increases, but the cost of the controller remains relatively stable. The average cost of the controller is only 7% of defendants' cost for producing flash memory products, yet plaintiff's licenses require a royalty of 4% of the total sales price. (Defendants also dwell on a remark by Eli Harari, plaintiff's founder and former CEO, that licensing controllers and chips would "basically license the card" and not allow plaintiff to "double" the royalty. This isolated remark is ambiguous, because plaintiff might have a right to royalties for system patents distinct from the chip and controller. Defendants also refer to a provision in the Samsung license that prevents "Double Dipping," but that provision is irrelevant. It prohibits paying royalties on SD Card technology under the agreement and any consortia.) From these facts, it would be reasonable for a jury to infer the systems-level field of use in plaintiff's aggregator licenses includes double royalties for the same patents on the flash memory chips.

Defendants' second argument relates to the world-wide licenses. With the exception of one license entered into as part of a settlement, plaintiff calculates royalties for its licenses on a worldwide basis. To obtain the right to sell licensed products in the United States, an aggregator must pay royalties on worldwide sales regardless whether plaintiff has patents in the nations in which the aggregator sells its products. Plaintiff does not maintain that it has any right to insist on royalties for sales in these countries (though it says it holds patents in China and Taiwan, where defendants manufacture their products).

By demanding worldwide licenses, plaintiff increases the cost for established foreign aggregators to enter the United States markets. The worldwide royalty base disproportionately affects competitors with a larger number or proportion of foreign sales. An aggregator with $10 million of foreign sales would pay plaintiff a royalty of $400,000 to begin selling in the United States (assuming it used licensed chips). The more successful a competitor is in foreign markets, the more difficult it becomes to enter and compete in United States markets. After foreign aggregators Apacer and Transcend entered into licenses with plaintiff, they essentially exited the United States market. Defendants say that they will likely be the next firms "forced" to exit United States markets rather than pay the royalties demanded by plaintiff. Around 10.3% of defendants' sales are in the United States. If defendants had paid royalties under plaintiff's initial licensing offer from 2007 to 2010, the royalty payments would have constituted 39% of their net sales in the United States. Their average profitability from domestic sales would have dropped from 1.6% to -20.9%. Their entry into the United States would have dragged their average global profitability down from 3.2% to .7%.

Drawing reasonable inferences in plaintiff's favor, a jury might conclude that plaintiff's licenses reduce aggregators' incentives to use new or competing technology, the double-royalties raise aggregators' prices for flash memory systems and the world-wide royalty base deters foreign aggregators from selling flash memory products in the United States. Again, however, these conclusions are insufficient to establish a genuine issue. Defendants must also (1) establish that reducing markets for a possible substitute technology and thereby the incentive to innovate is anti-competitive conduct and (2) provide evidence that eliminating aggregators substantially forecloses markets for new and competing flash memory technology.

Defendant relies on Microsoft, 253 F.3d 34, and United States v. Dentsply International, Inc., 399 F.3d 181 (3d Cir. 2005), to support its theory that a monopolist may violate § 2 by conduct designed to reduce the probability that substitute technology may emerge. In Microsoft, Microsoft foreclosed the only effective distribution channels for rival internet browsers, by entering into exclusive contracts that required hardware manufacturers and internet access providers to use only Microsoft's browser (among other things). Microsoft wanted to prevent Netscape from receiving enough users to attract software developers to write applications on Netscape's platform and thus prevent Netscape from becoming a viable substitute for Windows. The Court of Appeals for the D.C. Circuit noted that such exclusionary contracts implicate antitrust statutes only if their "probable effect is to 'foreclose competitors from a substantial share of the line of commerce'" in a clearly defined market. Id., at 69 (quoting Tampa Electric Co. v. Nashville Coal Co., 365 U.S. 320, 327 (1961)). Although the court recognized that anticompetitive effects may occur "when exclusionary conduct is aimed at producers of nascent competitive technologies as well as when it is aimed at producers of established substitutes," it also acknowledged the significant difficulty of "reconstruct[ing] a product's hypothetical technological development in a world absent the defendants' exclusionary conduct." Id. at 79. Accordingly, the court said it would infer causation only if (1) "the exclusion of nascent threats is the type of conduct that is reasonably capable of contributing significantly to a defendant's continued monopoly power" and (2) the existing technologies "reasonably constituted nascent threats at the time [the defendant] engaged in the anticompetitive conduct at issue." Id.

The defendant in Dentsply, 399 F.3d 181, a manufacturer of artificial teeth, used similar exclusionary contracts with distributors that prohibited them from carrying competing products. The Court of Appeals for the Third Circuit found that Dentsply violated § 2 by using its dealer network as a gateway to keep sales for any competitors "below the critical level necessary to pose a real threat." Id. at 191-196. These dealers posed a "critical link to end-users," so the exclusive contracts "effectively choked off the market for artificial teeth, leaving only a small sliver for competitors." Id. at 196.

Defendants' reliance on Microsoft and Dentsply is misplaced. Defendants never suggest that excluding aggregators forecloses a substantial share of the effective paths to market for new flash memory technology or that aggregators are a crucial link in the market for competing flash memory technology. In an effort to establish that plaintiff's licenses foreclose a substantial portion of the distribution channels for flash memory technology, defendants identify 18 firms that reduced their sales of USB flash drives in the United States since 2006. This evidence is suggestive at best. Defendants offer no evidence that the exit of these firms reduced the overall number of aggregators or their total output of flash products. On the contrary, it appears that the overall number and size of firms has remained roughly the same. More important, this evidence misses the point. Defendants offer no evidence suggesting that aggregators represent a substantial line of commerce for new flash memory technology or that the presence of aggregators in the USB flash drive market increases the incentive of other firms to invest in flash memory chip technology. Without this evidence, even unambiguous evidence that plaintiff excludes aggregators from the USB flash drive market cannot establish a genuine dispute that plaintiff maintained its monopoly in flash memory technology unlawfully. (Defendants also fail to identify any reasonably established nascent threats to plaintiff's technology, but I do not rely on this difference because plaintiff did not raise it.)

Moreover, defendants offer no direct evidence about the level of innovation or research on flash memory technology or potential substitutes. Contrary to defendants' assertions about the likely effect of plaintiff's conduct, the undisputed facts demonstrate significant technological progress in flash memory chips and systems. Between 2003 and 2009, the average capacity of flash memory chips increased from 16 to 256 megabytes to one to four gigabytes. Defendants admit that technological innovation in chip technology contributed to expanding output and falling prices. From 2000 to 2010, world-wide output of one-gigabyte chips increased annually by more than 125% while prices decreased annually by more than 56%. Defendants protest that plaintiff has not shown that its research or its licenses led to this progress, but that is irrelevant. Defendants need evidence to support *their* *theory* that plaintiff's actions hinder innovation or, at least, reduce plaintiff's competitors' incentive to innovate. The speed and extent of innovation in flash memory technology provides some evidence to rebut defendants' theory, and they offer no direct evidence to support it. Reasonable inferences must be drawn in favor of the non-moving party, but it must identify "specific facts showing there is a genuine issue for trial." Fed. Rule Civ. Proc. 56(e); Zenith Radio Corp., 475 U.S. 574, 587 (1986). Defendants have not met their burden to identify specific facts to imply that plaintiff's licenses reduce the level of innovation in flash memory technology and thereby maintain plaintiff's monopoly on flash memory technology.

B. § 2: Attempted Monopolization

Defendants' second argument is that plaintiff is attempting to monopolize the U.S. market for USB flash drives by using its technology licenses to exclude aggregators from competing in the USB flash drive market. According to defendants, plaintiff's licenses exclude aggregators in three ways: (1) restricting sales of flash memory controllers so aggregators cannot take advantage of an oversupply of flash memory chips to produce cheaper USB flash drives; (2) raising aggregators' prices by charging a double royalty on the flash memory chip technology; and (3) insisting on a worldwide royalty base to exclude foreign competitors. (Contrary to plaintiff's portrayal, defendants do not claim that plaintiff "leveraged" its technology monopoly to gain an "unfair" advantage in the market for USB flash drives, which would be the kind of leveraging scheme frequently decried as economically irrational. E.g., Schor v. Abbott Laboratories, 457 F.3d 608 (7th Cir. 2006). As a technology monopolist, plaintiff does have an incentive to increase the output of USB flash drives and thus its royalties, but that incentive is tempered by the additional benefit plaintiff could receive from a second monopoly in the USB flash drive market.)

To prove attempted monopolization in violation of § 2 of the Sherman Act, a plaintiff must establish "(1) that the defendant engaged in predatory or anticompetitive conduct with (2) a specific intent to monopolize and (3) a dangerous probability of achieving monopoly power." Spectrum Sports, Inc. v. McQuillan, 506 U.S. 447, 456 (1993). "In order to determine whether there is a dangerous probability of monopolization," it is "necessary to consider the relevant market and the defendant's ability to lessen or destroy competition in that market." Id. at 455-56. An antitrust plaintiff may demonstrate power to destroy competition either by direct evidence of anticompetitive effects, such as restricted output or super-competitive prices, or by circumstantial evidence about the structure of the market, such as a substantial share in a market with significant entry barriers. Toys "R" Us v. FTC, 221 F.3d 928, 937 (7th Cir. 2000) (citing FTC v. Indiana Federation of Dentists, 476 U.S. 447, 460-61 (1986)). See also Rebel Oil Co. v. Atlantic Richfield Co., 51 F.3d 1421, 1434 (9th Cir. 1995). "The ultimate inquiry in any attempted monopolization case remains whether the defendant has or reasonably might come close to having the ability to control total market output and prices." Indiana Grocery, Inc. v. Super Valu Stores, Inc., 864 F.2d 1409, 1414 (7th Cir. 1989).

Defendants' § 2 claim fails, because no reasonable jury could conclude that a dangerous probability exists that plaintiff will monopolize the United States market for USB flash drives. Plaintiff's share of market in the United States for USB flash drive sales peaked at 40% in 2009 and then declined to 37% in 2010 and 34% in 2011 (or peaked at 34% in 2004 and declined to 21.5% by 2010). Although 16 firms reduced their USB flash drive sales in the United States while plaintiff's purportedly anticompetitive conduct occurred, defendants offer no evidence, other than the rough correlation, to link plaintiff's licenses or lawsuits to these particular declines. Given recent changes in flash memory technology and the decreasing prices in flash memory markets, alternative explanations exist. Moreover, defendants adduced no evidence to show that this situation improved plaintiff's market position or made the market less competitive. On the contrary, plaintiff's market share declined six percent. The number of small and intermediate firms selling USB flash drives in the United States appears relatively stable. Overall output of USB flash drives steadily increased and prices steadily decreased.

Defendants maintain that a market share around 40% is sufficient to establish a dangerous probability of monopolization, at least if the record includes evidence of actual anticompetitive effect and anticompetitive intent. The case law does not specify a clear threshold of market share for a dangerous probability of monopolization, although the apparent trend is to consider a 30% to 50% market share sufficient only if the market includes significant barriers to entry or the conduct has a high likelihood of success. E.g., Indiana Grocery, 864 F.2d at 1414 (finding 35% overall share and 50% share of sub-markets insufficient, because grocer lacked power to control significant percentage of market's productive assets and thus could not restrict output). See generally 3B Areeda & Hovenkamp, Antitrust Law ¶ 807d n.57 (collecting cases). Defendants identify several cases in which courts found antitrust violations when the defendant held less than a 50% market share, but in each case the market had significant entry barriers and competitors lacked the ability to increase their output. E.g., Rebel Oil Co., 51 F.3d at 1438 ("a market share of 44% is sufficient as a matter of law to support a finding of market power, if entry barriers are high and competitors are unable to expand their output in response to supercompetitive pricing"); Nobody in Particular Presents, Inc. v. Clear Channel Communications., Inc., 311 F. Supp. 2d 1048, 1099-1101 (D. Colo. 2004) (significant entry barriers in rock concert industry allowed defendant to charge super-competitive prices). The only entry barrier for the USB flash drive market that defendants identify is the worldwide royalty base, the conduct itself. They offer no evidence that plaintiff has restricted output or charged super-competitive prices or that its competitors would be unable to increase USB flash drive output in response to such conduct. Despite the alleged conduct, the number of firms in the market remained similar, market output rose and prices fell.

To supplement its market share evidence, defendants assert that plaintiff uses its technology monopoly to exclude aggregators and thereby influence the price and output in the USB flash drive market. These claims simply repeat the conduct element without offering additional evidence about plaintiff's ability to monopolize the USB flash drive market. Defendants rely on Toys "R" Us, 221 F.3d 928, to show that they do not need to provide a detailed market analysis. In Toys "R" Us, The Seventh Circuit upheld the FTC's findings that Toys "R" Us had market power although it possessed only 20% of the national toy market and 49% in some local markets. Id. at 937. The record in Toys "R" Us included numerous internal documents revealing how Toys "R" Us orchestrated a scheme among ten major toy manufacturers to restrict their sales to wholesale clubs and arranged an agreement among the manufacturers to police free-riders. The record was also "chock full" of statistics demonstrating the negative effect of the boycott on sales by wholesale clubs. Id. at 933. Defendants adduced no similar evidence of unambiguously anticompetitive conduct or any direct evidence of anticompetitive effects. Instead, they want the court to infer that plaintiff can control price and output in the USB flash drive market by raising costs for specific competitors, despite undisputed facts indicating that the market remains competitive. On these facts, no reasonable jury could conclude that plaintiff poses a dangerous probability of monopolizing the United States market for USB flash drives.

C. § 1: Restraint on Trade

Section 1 of the Sherman Act prohibits acts of "conspiracy in restraint of trade or commerce." 15 U.S.C. § 1. "[T]o establish liability under Section 1 of the Sherman Act, a plaintiff must demonstrate that the defendants conspired to achieve an unlawful objective and that the resulting restraint of trade was unreasonable." Bi-Rite Oil Co. v. Indiana Farm Bureau Cooperative Association, 908 F.2d 200, 202 (7th Cir. 1990) (citations omitted). Claims under §§ 1 and 2 often "closely overlap" and "the same kind of predatory practices may show violations" of both. Maryland and Virginia Milk Producers Association v. United States, 362 U.S. 458, 463 (1960).

Defendants do not allege that plaintiff engaged in *per se* unreasonable restraints, so plaintiff's licensing and settlement agreements are evaluated under the rule of reason. Leegin Creative Leather Products v. PSKS, Inc., 551 U.S. 877, 886 (2007); County Materials Corp. v. Allan Block Corp., 502 F.3d 730, 736 (7th Cir. 2007) (applying rule of reason in patent misuse case). Under rule of reason analysis, the antitrust "plaintiff must show that the challenged restraint has an adverse impact on competition in the relevant market." Bi-Rite Oil, 908 F.2d at 203 (citation omitted). Unlike § 2 claims, a claim brought under § 1 of the Sherman Act does not require proof of monopoly power or a dangerous probability of a monopoly; nevertheless, to survive summary judgment, plaintiff must produce "some evidence tending to show an adverse effect in an economically sound relevant market." Id.

Plaintiff largely ignores defendants' § 1 claim in its opening brief. It argues only that its patent infringement settlements cannot be restraints on competition. As Judge Posner remarked, "[t]he general policy of the law is to favor the settlement of litigation, and the policy extends to the settlement of patent infringement suits." Asahi Glass Co. v. Pentech Pharmaceuticals, Inc., 289 F. Supp. 2d 986, 992 (N.D. Ill. 2003). Thus, if "there is nothing suspicious about the circumstances of a patent settlement, then to prevent a cloud from being cast over the settlement process a third party should not be permitted to haul the parties to the settlement over the hot coals of antitrust litigation." Id. Three circuits have held that patent settlements may support subsequent antitrust claims only if they restrict competition beyond the exclusionary scope of the patents and that courts should not reconsider the validity of the patents absent evidence of sham litigation or fraud before the United States Patent Office. Arkansas Carpenters Health & Welfare Fund v. Bayer AG, 544 F.3d 1323, 1336 (Fed. Cir. 2008) (surveying cases).

Defendants reply that their § 1 claim is premised on all of plaintiff's licensing agreements, of which the settlement agreements are only one component. Thus, they assert, plaintiff waived summary judgment on the § 1 claim. However, defendants' § 1 counterclaim relies on much of the same conduct as its §§ 1 and 2 claims. Therefore, plaintiff's opening arguments that the licensing provisions enhance competition remain applicable, but I will not consider any additional arguments that plaintiff raised for the first time in its reply brief. Edwards v. Honeywell, Inc., 960 F.2d 673, 674 (7th Cir. 1992) ("[T]he court erred by granting summary judgment on grounds [first raised in a supplemental brief and] to which [the nonmoving party] was given either an inadequate opportunity or no opportunity to respond.")

Defendants suggest three anticompetitive effects: (1) plaintiff's portfolio cross-licenses limit aggregators' incentive to innovate in flash memory technology and raise entry barriers by reducing aggregators' incentives to deal with new entrants; (2) its licensing terms sustain oligopoly prices for flash memory chips by excluding aggregators that would otherwise sustain high output by buying excess chips in times of weak demand for products; and (3) plaintiff's double royalties and worldwide royalty base exclude aggregators and thereby restrict output and increase prices for USB flash drives. The first argument fails for the same reason identified above: insufficient evidence that the portfolio cross-licenses reduce investment in flash memory technology.

The second argument lacks legal or factual support. Defendants deny that their counterclaim rests on a horizontal conspiracy or tacit coordination; their theory is that the vertical restraints in plaintiff's licenses reduce horizontal competition among chip manufacturers. Defs.' Br. in Opp., dkt. # 226, at 36, n. 22. Yet they cite only one case for their assertion that unilateral conduct to support oligopoly prices constitutes an unreasonable restraint on competition, and that case is not on point. Allied Tube & Conduit Corp. v. Indian Head, Inc., 486 U.S. 492, 500 (1988) (private standard-setting associations "whose members have horizontal and vertical business relations" might sustain oligopolistic prices by excluding rivals or easing price-monitoring costs). On the contrary, unilateral conduct to facilitate oligopolistic prices will not sustain a § 1 claim, even if several firms deliberately engage in parallel behavior. In re High Fructose Corn Syrup Antitrust Litigation, 295 F.3d 651, 661 (7th Cir. 2002) (citing Zenith Radio Corp., 475 U.S. at 588). In addition, defendants adduce no evidence that plaintiff's conduct sustains oligopolistic output or prices for flash memory chips. Indeed, they offer no facts about the output or price in the flash memory chip market apart from (1) the concession in their proposed findings of fact that output of chips has steadily increased while prices have steadily decreased and (2) excess supply led to aggressive price competition that reduced prices significantly between 2006 and 2008. (It is unclear whether plaintiff would benefit from oligopolistic prices in the flash memory chip market; higher prices would increase its revenue from memory chip sales but reduce its revenue from royalties.)

However, as described above, defendants did offer evidence that plaintiff's licenses exclude aggregators by requiring double royalties and raise entry barriers for foreign aggregators by requiring royalties on worldwide sales. Requiring a licensee to pay royalties on unpatented products is beyond the scope of the patent privilege. Zenith, 395 U.S. at 138. At least one district court has found that collecting two royalties on the same patents for the same product constitutes patent misuse and an unreasonable restraint on trade. PSC, Inc. v. Symbol Technologies, Inc., 26 F. Supp. 2d 505, 509-11 (W.D. N.Y. 1998) (granting summary judgment for plaintiff on patent misuse). If plaintiff can offer a procompetitive justification for the system level royalty or the worldwide royalty base, then defendants must establish that the anticompetitive effects outweigh the procompetitive benefits. Eastman Kodak, 504 U.S. at 483; Microsoft, 253 F.3d at 59.

Plaintiff asserts that the fields of use include different patents relating to chips and for systems technology and cover different uses for some overlapping patents. Plaintiff holds distinct patents relating to flash memory chips and systems. It notes, correctly, that a patentee may drive a hard bargain to charge whatever royalties the market may bear, and there can be no antitrust dispute about whether these royalties are cost justified. Schor v. Abbott Laboratories, 457 F.3d 608, 610 (7th Cir. 2006); Ball Memorial Hospital, Inc. v. Mutual Hospital Insurance, Inc., 784 F.2d 1325, 1340 (7th Cir. 1986). A thin line separates the monitoring of patent prices from determining the existence of a double royalty, especially when the putative second royalty on the chips is actually a percentage of a valid royalty claimed on the systems. However, this remains a genuine dispute of fact that cannot be resolved based on the summary judgment briefs.

Defendants also offer a plausible argument that plaintiff uses the worldwide base to exclude foreign aggregators from domestic markets. At least one district court has found after a trial that world-wide portfolio cross-licenses similar to plaintiff's enhanced rather than restrained competition. Texas Instruments v. Hyundai Electronics Industries, 49 F. Supp. 2d 893, 901 (E.D. Tex. 1999). It reasoned that "[t]he portfolio license is widely used in the semiconductor industry because it is almost impossible on a patent-by-patent, country-by-country, product-by-product basis to determine whether someone is using a company's patents in a given country and provide protection for patents not yet issued." Id. Plaintiff patterns its business justification on Texas Instruments. Flash memory products are manufactured and sold worldwide. Analyzing infringement and royalties for each product and each patent in every country would be complex, time-consuming and cost-prohibitive. Plaintiff and licensees would have to hire technical experts to analyze the products and foreign lawyers to interpret plaintiff's patents under each nation's laws. Moreover, the parties would have to track and audit all product shipments and sales in various worldwide jurisdictions. A licensee that manufactures products overseas under a country-specific license would have to track all distributors to prevent them from importing products into the United States. In its attempts to track imports, plaintiff might bring enforcement actions against apparently unlicensed imports that were actually purchased or assembled from products of overseas manufacturers with United States licenses. The worldwide license gives each party freedom to operate with the reassurance that the other will not sue it wherever it manufactures or sells covered products. Therefore, plaintiff asserts, its worldwide royalty base increases output by promoting the dissemination of technology and reducing transaction and monitoring costs.

Plaintiff points to three pieces of evidence to support its argument, although defendants contest their probative value: (1) the declaration of its Chief Intellectual Property Counsel that plaintiff and its licensees recognize these purposes; (2) the explicit statement that worldwide royalties avoid the difficulty of tracking licensed products that is found in plaintiff's licensing agreements with Samsung and Toshiba, which were entered almost ten years prior to the alleged licensing scheme, suggesting the rationale is not pretextual; (3) the acknowledgment by defendants of the difficulty of tracking worldwide sales by country in one of its own licenses. In April of 2005, defendants entered into a non-exclusive portfolio cross-license with Skymedi, a Taiwanese corporation. Skymedi pays defendants a 2% royalty on net worldwide sales. The agreement justifies the world-wide royalty base as follows:

> Kingston and Skymedi agree that because it is too difficult to track the manufacture, use and sale of Skymedi Licensed Products in all countries in which Kingston may hold a patent applicable to such products, in exchange for an overall reduced royalty rate, Kingston and Skymedi agree that royalties hereunder shall be based on worldwide Net Sales of all Skymedi Licensed Products.

Dkt. #164-A, at 8. The names are different, but otherwise this is the same language used in plaintiff's licenses with Samsung and Toshiba.

Nevertheless, defendants contest the asserted benefits of worldwide licenses. Plaintiff offers no direct evidence about the difficulty of tracking sales or the extent of unlicensed imports, except the unsupported declaration of its Chief IP Officer, who admitted that he was unaware of any studies about the cost or difficulty of tracking sales. Plaintiff's expert on patent misuse, Dr. Stiroh, admitted that she was unaware of any quantitative analysis performed by plaintiff about the extent of gray market sales in the United States. Past behavior of plaintiff and other firms suggest that tracking sales may not be unduly burdensome. Plaintiff, defendants and other aggregators such as Transcend and Phison track sales by country and may even be required to track sales for tax and other reporting obligations. Plaintiff's current licensees must report quarterly sales of licensed products and must determine which products are subject to plaintiff's patents and track their quantity. Defendants respond correctly that these arguments do not support the accuracy of self-reported tracking or the cost and difficulty of auditing licensees, but defendants' arguments are no weaker than plaintiff's unsupported declaration.

Second, plaintiff may desire to avoid separate enforcement in foreign countries but it cannot deny that it lacks the same patent holdings in some foreign countries and so lacks an enforceable right to royalties for those sales. The unsupported assertion that licensees want worldwide licenses assumes that plaintiff has enforceable foreign patents; otherwise, why would licensees desire or need a worldwide license to operate freely? Again, aside from an unsupported declaration by its Chief IP Officer, plaintiff offers no evidence that licensees prefer worldwide to geographically specific licenses. Last, defendants strain to explain the

Skymedi license. All of Skymedi's production occurred in Taiwan and all the relevant patents were Taiwanese patents; therefore, defendants patents covered all of Skymedi's products irrespective of their destination, which makes the worldwide base equivalent to one limited to Taiwan. Although this is a strained interpretation of the license and the quoted passage, it does not undermine defendants claim. In conclusion, I am persuaded that defendants have demonstrated the existence of genuine disputes of material fact about whether plaintiff unreasonably restrains trade by demanding double royalties and a worldwide royalty base. Thus, I will deny plaintiff's motion for summary judgment on defendants' § 1 counterclaims based on the double royalty and the worldwide royalty base.

D. Violation of Wis. Stat. § 133.03

Defendants have brought a separate counterclaim, asserting that plaintiff engaged in "monopolization or attempted monopolization" in violation of Wis. Stat. § 133.03(2). Defendants did not allege an analogous claim for unreasonable restraint of trade. Wis. Stat. § 133.03 was intended as a reenactment of §§ 1 and 2 of the Sherman Antitrust Act, except that it applies to anticompetitive activity affecting Wisconsin consumers. Grams v. Boss, 97 Wis. 2d 332, 346, 294 N.W.2d 473 (1980). The Wisconsin Supreme Court has repeatedly and "pointedly declared that 'the construction of sec 133.01(1) [presently 133.03] is controlled by federal decisions under the Sherman Act." Conley Publishing Group, Ltd. v. Journal Communications, Inc., 2003 WI 119 at ¶ 17, 265 Wis. 2d 128, 665 N.W.2d 879 (2003) (quotations omitted) (overruled on other grounds). Although defendants assert vaguely that Olstad v. Microsoft Corp., 2005 WI 121, 284 Wis. 2d 224, 700 N.W.2d 139 (2005), indicates that the standards may differ, they identify no differences that would preclude a grant of summary judgment on this claim. This is not surprising. In Conley, 2003 WI 119 at ¶ 17, the Wisconsin Supreme Court confessed that, after nearly a century of interpretations, it could not locate "*any* Wisconsin appellate decision applying Wisconsin antitrust law that has deviated from following a clear federal standard on similar antitrust matters." Accordingly, summary judgment on count XXVI is appropriate.

E. California Unfair Competition Statute

The California Unfair Competition Law ("UCL") prohibits "unfair competition," which it defines as "any unlawful, unfair or fraudulent business act or practice and unfair, deceptive, untrue or misleading advertising and any act prohibited by [the California false advertising statute]." Cal. Bus. & Prof. Code § 17200. Federal antitrust law may be persuasive authority when interpreting § 17200, but it is not controlling. Cel-Tech Communications, Inc. v. Los Angeles Cellular Telephone Co., 20 Cal. 4th 163, 186 n.11 (Cal. 1999). Written in the disjunctive, the statute "establishes three varieties of unfair competition—acts or practices which are unlawful, or unfair, or fraudulent." People ex rel. Harris v. Pac Anchor Transp., Inc., 125 Cal. Rptr. 3d 709, 715 (Cal. App. 2 Dist. 2011). "By proscribing 'any unlawful' business practice, § 17200 borrows violations of other laws and treats them as unlawful practices that the unfair competition law makes independently actionable." Cel-Tech, 20 Cal. 4th at 180 (quotations omitted). The UCL also prohibits "unfair" business practices, that is, "conduct that threatens an incipient violation of an antitrust law, or violates the policy or spirit of one of those laws because its effects are comparable to or the same as a violation of the law, or otherwise significantly threatens or harms competition." Id. at 186. Last, the UCL prohibits fraudulent business practices. Unlike common law fraud or deception, "a violation [of the UCL] can be shown even if no one was actually deceived, relied upon the fraudulent practice, or sustained any damage. Instead, it is only necessary to show that members of the public are likely to be deceived." In re Tobacco II Cases, 46 Cal. 4th 298, 312 (Cal. 2009) (citing Kasky v. Nike, Inc., 27 Cal. 4th 939, 951 (Cal. 2002) (citing Committee on Children's Television, Inc. v. General Foods Corp., 35 Cal. 3d 197, 210 (1983) (superseded by statute on other grounds)).

In their counterclaim, defendants allege broadly that plaintiff engaged in "unfair, unlawful and fraudulent business actions," but defendants do not specify the variety of unfair competition in any of their briefs on either the motion to dismiss or the motion for summary judgment. A fair reading of the counterclaim is that defendants rely on an "unlawful practices" claim. They allege that "[plaintiff] threatens an incipient violation of the antitrust laws, including §§ 1 and 2 of the Sherman Act as described above" and that "[plaintiff's] licensing conduct violates the policy and spirit of the antirust laws, including Sections 1 and 2 of the Sherman Act, because its effects significantly threaten competition." Dkt. #41 at ¶¶ 207, 208. Defendants describe how plaintiff's conduct harms competitors through "higher costs of business" and harms California consumers by "reducing competition" and leading to higher prices. Id. at ¶¶ 211, 212. Plaintiff assumed reasonably that defendants were borrowing the underlying unlawful act from their Sherman Act claims. According, plaintiff argued in its opening brief that the UCL claims fell along with the underlying Sherman Act claims. Plaintiff is correct that an "unlawful practice" claim must have an underlying regulatory, statutory or constitutional basis. Schnall v. Hertz Corp. 78 Cal. App. 4th 1144 (Cal. App. 1 Dist. 2000). Because defendants do not identify any other unlawful acts, their claim for unlawful practices fails except insofar as it is grounded on the alleged violations of § 1.

Defendants also note correctly that unfair competition claims may be grounded on unfair or fraudulent practices, even if the practices are not unlawful. They allege in a conclusory fashion that plaintiff engaged in unfair and fraudulent practices. However, defendants have not explained the legal or factual basis for the unfair or fraudulent practices, and I doubt their ability to do so. They have pleaded no facts indicating that California consumers were misled or deceived. Although conduct may be "unfair" without violating antitrust laws, defendants' allegations all relate to antitrust injuries. This seems to undermine their unfair practices claim, because "[i]f the same conduct is alleged to be both an antitrust violation and an 'unfair' business act or practice for the same reason—because it unreasonably restrains competition and harms consumers—the determination that the conduct is not an unreasonable restraint of trade necessarily implies that the conduct is not 'unfair' toward consumers." Chavez v. Whirlpool Corp., 93 Cal. App. 4th 363, 375 (2d Dist. 2001). Nevertheless, plaintiff did not raise this issue in its opening brief and thus it would be an inappropriate ground on which to grant summary judgment. Plaintiff's motion for summary judgment on count XXV must be denied.

ORDER

IT IS ORDERED that

1. The motion by defendants Kingston Technology Co. and Kingston Technology Corp. to strike plaintiff's Reply to Counterclaim, dkt. #137, is DENIED.

2. The motion by defendants to file a surreply to plaintiff's reply brief on summary judgment, dkt. #305, is DENIED.

3. Plaintiff Sandisk's motion for summary judgment, dkt. #157, on defendants' Third Affirmative Defense (implied or express license) is DENIED as moot.

4. Plaintiff's motion for summary judgment, dkt. #157, on counts XXII (monopolization), XXIII (attempted monopolization) and XXVI (Wis. Stat. §133.03(2)) is GRANTED.

5. Plaintiff's motion for summary judgment, dkt. #157, on counts XXIV (Sherman Act § 1) and XXV (Cal. Bus. & Prof. Code §17200) is GRANTED IN PART AND DENIED IN PART. The only remaining claims relate to defendants argument that plaintiff's licenses unreasonably restrain competition in United States USB Flash drive

market by demanding double royalties and a worldwide royalty base.

Entered this 13th day of October, 2011.

BY THE COURT:
/s/
BARBARA B. CRABB
District Judge