IN THE UNITED STATES DISTRICT COURT

FOR THE DISTRICT OF DELAWARE

BOSTON SCIENTIFIC CORPORATION and BOSTON SCIENTIFIC SCIMED, INC.,	)	
Plaintiffs,	)	
v.	)	Civ. No. 10-315-SLR
CORDIS CORPORATION,	)	
Defendant.	)	

Karen L. Pascale, Esquire of Young Conaway Stargatt & Taylor LLP, Wilmington, Delaware. Counsel for Plaintiffs. Of Counsel: Paul A. Bondor, Esquire of Desmarais LLP; Young J. Park, Esquire of Fish & Richardson; and Jeanne M. Heffernan, Esquire of Kirkland & Ellis LLP.

Steven J. Balick, Esquire, Tiffany Geyer Lydon, Esquire and Andrew C. Mayo, Esquire of Ashby & Geddes, Wilmington, Delaware. Counsel for Defendant. Of Counsel: Gregory L. Diskant, Esquire, Eugene M. Gelernter, Esquire, Michael Buchanan, Esquire, Kathleen M. Crotty, Esquire and Poopak Banky, Esquire of Patterson Belknap Webb & Tyler LLP.

MEMORANDUM OPINION

Dated: March 13, 2012
Wilmington, Delaware

ROBINSON, District Judge

I. INTRODUCTION

This is a patent dispute involving cardiovascular stents. Boston Scientific Corporation and Boston Scientific Scimed, Inc. (collectively, "BSC") filed this patent infringement action in the United States District Court for the District of Minnesota against Cordis Corporation ("Cordis") on December 4, 2009, alleging infringement of claim 36 of U.S. Patent No. 5,922,021 ("the '021 patent"). (D.I. 1) The District of Minnesota transferred the case to this court in April 2010. (D.I. 46) As discussed in more detail *supra*, infringement having been resolved in favor of BSC, a trial on willfulness and damages was held between May 5 and 11, 2011. Currently before the court is Cordis's renewed motion for judgment as a matter of law ("JMOL") on the unavailability of lost profits damages. (D.I. 204) Also before the court are several motions filed by BSC: BSC's motion for attorney fees (D.I. 199); BSC's motion to amend the judgment (D.I. 206); BSC's motion for enhanced damages (D.I. 208); and BSC's motion for ongoing damages in lieu of a permanent injunction (D.I. 210).

II. BACKGROUND

A. Procedural History

On January 13, 2003, Johnson & Johnson, Inc. ("J&J") and Cordis filed a patent infringement action against BSC and BSC counterclaimed, alleging that the Cordis Cypher and BX Velocity stents infringed claim 36 of the '021 patent. (Civ. No. 03-27) The jury in that case found that Cordis's Cypher and BX Velocity coronary stents each infringed claim 36 under the doctrine of equivalents, which claim was not invalid. (Civ. No. 03-27, D.I. 381) The court upheld the jury verdict on September 24, 2007 and

entered judgment in favor of BSC. (*Id.*, D.I. 437)

The Federal Circuit affirmed the judgment in Civ. No. 03-27 in March 2009, and this court scheduled a jury trial on damages and willfulness in that case. (*Id.*, D.I. 436, 454[1]) The matter resolved the day of trial, resulting in a highly-publicized $1.725 billion consent judgment payable to Cordis from BSC. (*Id.*, D.I. 551) The payment to Cordis resulted from a multi-faceted agreement, whereby BSC: (1) granted Cordis and J&J fully paid-up, retroactive, perpetual, and irrevocable licenses to eleven stent patents,[2] including the '021 patent which Cordis infringed; (2) stipulated to entry of judgment in Civ. No. 03-027 and a second suit[3] in favor of J&J[4] and paid $1.75 billion; and (3) released all pending claims against Cordis and J&J in Civ. No. 03-027 for infringement of any of the (Jang) patents at issue, including the '021 patent. (Civ. No. 10-681, D.I. 47, ex. C at § 6.1) Cordis and J&J granted BSC: (1) fully paid-up, retroactive, perpetual, and irrevocable licenses to the "Gray" stent patents owned by Cordis and J&J;[5] (2) fully paid-up, retroactive, perpetual, and irrevocable licenses to the "Palmaz" stent patents;[6] and (3) a release of any pending claims for infringement of these patents

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[1]*See Cordis Corp. v. Boston Scientific Corp.*, 561 F.3d 1319 (Fed. Cir. 2009).

[2]United States Patent Nos.: 5,922,021; 5,954,743; 6,039,756; 6,152,957; 6,235,053; 6,241,760; 6,409,761; 6,770,088; 6,783,543; 7,081,130; 7,326,241 (collectively, the "Jang" patents).

[3]On October 17, 2008, Cordis filed a second suit against BSC for infringement of U.S. Patent No. 5,895,406 ("the Gray '406 patent"), Civ. No. 08-779.

[4]Cordis was bought by J&J in 1996 and remains its subsidiary.

[5]United States Patent Nos.: 5,895,406; 5,938,682; 5,980,553; and 6,162,243.

[6]United States Patent Nos.: 4,733,665; 4,739,762; 4,776,337; 5,102,417; 5,195,984; and 5,902,332. (D.I. 47, ex. C at § 1.5)

in both Civ. Nos. 03-027 and 08-779. (*Id.* at § 6.2)

The FDA approved Cordis's smaller, 2.25 mm version of its Cypher stent in September 2009. In response to Cordis's launch, the instant litigation was filed by BSC against Cordis on December 4, 2009. (D.I. 1 at ¶ 13) On April 13, 2011, the court denied Cordis's motion to stay trial pending reexamination, granted BSC's motion for summary judgment of infringement, and granted summary judgment for BSC regarding the date of the hypothetical negotiation for damages purposes. (D.I. 161) The court stated as follows:

> In the case at bar, it is undisputed that the 2.25 mm Cypher stent infringes claim 36 of the '021 patent for the same reasons that the Cypher and BX Velocity stents were found to infringe claim 36. However, the evidence overwhelmingly indicates that the 2.25 mm Cypher stent is distinct from the Cypher and BX Velocity stents previously marketed by Cordis. Specifically, BSC presented evidence in the form of FDA approval procedures, market structure for small vessel stents and expert testimony to show that sales of the 2.25 mm Cypher stent constituted a separate act of infringement. (D.I. 130, Ex. C at 8, Ex. D at 19, Ex. F at 49:14 - 50:3, Ex. G at 4-7, Ex. H at 35:20 - 36:9, Ex. L, Ex. N at ¶¶ 33, 40, Ex. P at 126:3-11) Based on the evidence presented by BSC and Federal Circuit precedent, the court concludes that no genuine issues of material fact exist and, as a matter of law, the infringement caused by the 2.25 mm Cypher stent is separate and distinct from the infringement caused by the Cypher and BX Velocity stents previously marketed by Cordis.

(*Id.* at 14-15) The court also concluded that the date of first infringement by the 2.25 mm Cypher stent must be September 2009, the date of first sale, as a matter of law. (*Id.* at 16) The date of the hypothetical negotiation was held to be September 2009. (*Id.*)

At that time, the court resolved several *Daubert* motions, including Cordis's motion to exclude testimony by BSC's damages expert, Mary Woodford ("Woodford"). The court declined to exclude Woodford's testimony, as she

> looked to factor 13 of the *Georgia-Pacific* factors[7] to determine the impact of the judgment in the 03-027 case, concluding that the judgment strengthened BSC's bargaining position in the hypothetical negotiation and demonstrated the business need and market niche for the 2.25 mm Cypher stent. . . [and] based her hypothetical negotiations analysis on a September 2009 date, which was accepted by this court as a matter of law.

(*Id.* at 19)

A trial on willfulness and damages was held between May 5 and 11, 2011. The jury awarded BSC $18,531,022 in lost profits damages and $1,000,470 in reasonable royalties based on Cordis's infringement. (D.I. 132) On January 10, 2012, the United States Patent and Trademark Office ("PTO") confirmed the patentability of claim 36 in the copending reexamination.[8] (D.I. 263)

B. 2.25 mm DES

A cardiovascular stent functions as scaffolding that is placed into a blocked artery in a crimped state on a balloon catheter. ('021 patent at col. 1:42-52, 3:13-20) The stent is then expanded by the balloon to either reopen the blocked artery or maintain the lumen of an artery that has previously been reopened by a balloon angioplasty procedure. (*Id.*) In the past, cardiovascular stenting procedures were performed with stents made of bare metal without any drug-polymer coating. Drug-eluting stents, which are bare metal stents with a drug-polymer coating intended to inhibit the re-growth of cells in the reopened vessel passageway, improved treatment dramatically by reducing

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[7]"The portion of the realizable profit that should be credited to the invention as distinguished from non-patented elements, the manufacturing process, business risks, or significant features or improvements added by the infringer." *Georgia-Pacific*, 318 F. Supp. at 1120.

[8]The court subsequently terminated Cordis's motion to stay (filed in October 2011).

the need for patients to receive repeated stenting procedures.

In September of 2008, BSC received FDA approval for the world's first 2.25 mm stent: the Taxus Liberté Atom (hereinafter, the "Taxus Atom"). (D.I. 267 at 231:15-19) The "2.25 mm" (or 2.5 mm, 3 mm, etc.) designation of a stent refers to the balloons upon which the stents are mounted, which is larger in the 2.5 mm than the 2.25 mm version. (D.I. 269 at 794:16-21) The Taxus Atom is a drug-eluting stent (or "DES"). DESs have a drug coating that delivers a drug to the vessel at the site of the stent, which advantageously blunts the formation of thick scar tissue during the healing process, and reduces instances of scar tissue blocking the troubled vessel. (D.I. 267 at 217:5-23) The Taxus Atom delivers a drug called paclitaxel. (D.I. 268 at 285:3-6)

Cordis received FDA approval to sell its 2.25 mm Cypher stent in September 2009. (BSX-620) Cypher stents are a DES built on the BX Velocity (bare metal) platform; the drug used is sirolimus. (D.I. 269 at 718:18-20) That is, the BX Velocity stents do not have a drug-polymer coating, while the Cypher stents deliver a drug known as sirolimus. (D.I. 268 at 438:5-6; 447:11-13) The 2.25 mm Cypher stent is identical to larger Cypher stents except for the balloon size. (D.I. 269 at 794:10-795:1)

The parties' 2.25 mm DESs are indicated for the treatment of small vessel disease, or blockages in small coronary vessels. (D.I. 267 at 233:7-11; BSX-620) Small vessels have been associated with an increased risk of restenosis (or re-blockage) after stent implantation; the smaller the artery, the more regrowth of cells within a stent. (BSX-620) Prior to the launch of smaller stents, DESs had proven to be effective in reducing the incidence of restenosis. (D.I. 268 at 361:1-5)

III. STANDARD

To prevail on a renewed motion for judgment as a matter of law following a jury trial under Federal Rule of Civil Procedure 50(b), the moving party "must establish that the jury's actual or inferred factual findings were not supported by substantial evidence, or that the evidence was not sufficient to support the findings and conclusions necessarily drawn by the jury on the way to its verdict." *Spectralytics, Inc. v. Cordis Corp.*, 649 F.3d 1336, 1342 (Fed. Cir. 2011) (citing *Applied Med. Res. Corp. v. United States Surgical Corp.*, 147 F.3d 1374, 1376 (Fed. Cir. 1998)). Substantial evidence is "evidence relevant to the matter at hand that a reasonable mind might accept as adequate to support a conclusion." *Minks v. Polaris Indus., Inc.*, 546 F.3d 1364, 1377 (Fed. Cir. 2008) (citing *Odetics, Inc. v. Storage Tech. Corp.*, 185 F.3d 1259, 1269 (Fed. Cir. 1999) (substantial evidence is "that minimum quantum of evidence from which a jury might reasonably afford relief").

"A party challenging a jury damages verdict must show that the award is, in view of all of the evidence, either so outrageously high or so outrageously low as to be supportable as an estimation of a reasonable royalty." *Spectralytics*, 649 F.3d at 1345 (citing *Rite-Hite Corp. v Kelley Co.*, 56 F.3d 1538, 1554 (Fed. Cir. 1995) (en banc) (internal quotation omitted). This court must "scrutinize the evidence carefully to ensure that the 'substantial evidence' standard is satisfied, while keeping in mind that a reasonable royalty analysis necessarily involves an element of approximation and uncertainty." *Id.* (citation and internal quotation omitted).

In assessing the sufficiency of the evidence, the court must "view[ ] the evidence in the light most favorable to the nonmovant and giv[e] it the advantage of every fair and reasonable inference." *Cordance Corp. v. Amazon.com, Inc.*, 658 F.3d 1330, 1333

(Fed. Cir. 2011) (citing *Lightning Lube, Inc. v. Witco Corp.*, 4 F.3d 1153, 1166 (3d Cir. 1993)). Thus, "[i]t is only on rare instances that a jury's verdict in a civil case should be overturned." *Cordance Corp.*, 658 F.3d at 1333 (quoting *Pitts v. Delaware*, 646 F.3d 151, 152 (3d Cir. 2011)).

IV. DISCUSSION

A. Cordis's Renewed JMOL Motion

As noted previously, the jury awarded BSC $18,531,022 in lost profits and $1,000,472 in reasonable royalty damages. The parties agree that implied in the verdict is a determination by the jury to award lost profits on 44% of the 2.25 mm Cypher stents sold (14,824 of the total 33,647 units) using BSC's profit margin on Taxus Atom ($1,250 per unit). (D.I. 205 at 26; D.I. 231 at 2, 13) Cordis argues that this award is not supported by substantial evidence, as BSC has not proven that the introduction of the 2.25 mm Cypher stent was the but-for cause of the decline in Taxus Atom sales.[9] Cordis asks the court to grant JMOL on lost profits and to apply the reasonable royalty rate implied in the jury verdict (2.95%) to all sales of the 2.5 mm Cypher stent. (D.I. 205 at 26, 39)

1. Standards for lost profits damages

"[T]he amount of damages for patent infringement is a question of fact on which the patent owner bears the burden of proof." *BIC Leisure Prods., Inc. v. Windsurfing Intern., Inc.*, 1 F.3d 1214, 1217 (Fed. Cir. 1993) (citing *SmithKline Diagnostics, Inc. v. Helena Labs. Corp.*, 926 F.2d 1161, 1164 (Fed. Cir. 1991).

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[9]As will be explained in more detail *infra*, Cordis does not dispute the jury's royalty award. (D.I. 205 at 27)

> To recover lost profits as opposed to royalties, a patent owner must prove a causal relation between the infringement and its loss of profits. The patent owner must show that "but for" the infringement, it would have made the infringer's sales. An award of lost profits may not be speculative. Rather[,] the patent owner must show a reasonable probability that, absent the infringement, it would have made the infringer's sales.

Id. (internal citations omitted). In general, causation-in-fact requires proof of: "(1) a demand for the patented product; (2) an absence of acceptable noninfringing substitutes; (3) the manufacturing and marketing capability to exploit the demand; and (4) the amount of profit the patent owner would have made." *Siemens Medical Solutions USA, Inc. v. Saint-Gobain Ceramics & Plastics, Inc.*, 637 F.3d 1269, 1287 (Fed. Cir. 2011) (citing *Cohesive Techs., Inc. v. Waters Corp.*, 543 F.3d 1351, 1373 (Fed. Cir. 2008) and *Panduit Corp. v. Stahlin Bros. Fibre Works, Inc.*, 575 F.2d 1152, 1156 (6th Cir. 1978)). Only the first two of these ("*Panduit*") factors are at issue on Cordis's motion.

2. Cordis's evidence

Cordis advances several arguments in support for its motion for JMOL. First, Cordis argues that BSC did not prove but-for causation because the record established that Taxus Atom sales declined after September 2009 because of data presented at the Cardiovascular Research Foundation's 2009 Transcather Cardiovascular Therapeutics conference ("TCT 2009"), not because of Cordis's launch of the 2.25 mm Cypher stent. The TCT conference is the largest annual meeting of interventional cardiologists in the United States. (D.I. 269 at 598:20-23) It was undisputed that the TCT 2009 was held the same week that Cordis received FDA approval and launched the 2.25 mm Cypher stent.

a. The COMPARE and SPIRIT IV studies

The COMPARE study evaluated everolimus and paclitaxel-eluting stents with bare metal stents in 1797 patients undergoing percutaneous coronary intervention at one site.[10] (DTX-319) In the study, everolimus-eluting stents in diameters of 2.25 mm, 2.5 mm, 3.5 mm and 4.0 mm and in lengths of 8 mm, 12 mm, 15 mm, 18 mm, 23 mm and 28mm were used; paclitaxel-eluting stents were available in the same diameters and lengths of 8 mm, 12 mm, 16 mm, 20 mm, 24 mm, 28 mm and 32 mm. (*Id.* at 202) The report states that Abbott's Xience V everolimus-eluting stents were used as were BSC's Taxus Liberté paclitaxel-eluting stents. (*Id.*) The results were that the primary endpoint (non-fatal myocardial infarction, and target vessel revascularisation within 12 months) occurred in fewer patients in the everolimus-eluting stent group than the paclitaxel-eluting stent group. (*Id.* at 205) The main secondary end point (a composite of major adverse cardiac events) was also reached in fewer cases with everolimus-eluting stents. (*Id.*) The researchers stated that the use of second-generation everolimus-eluting stents, compared with paclitaxel-eluting stents, was associated with "a significant reduction in the risk of major adverse cardiac events at 1 year," that use of paclitaxel-eluting stents was associated with a higher rate of early stent thrombosis, and [a]s with safety, a significant difference in efficacy was also noted with the everolimus-eluting stent." (*Id.* at 206-07) They concluded that

> the everolimus-eluting Xience V stent is better than the second-generation paclitaxel-eluting Taxus Liberté stent in treatment of patients in real-life practice

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[10]Elvin Kedhi et al., "Second-generation everolimus-eluting and paclitaxel-sluting stents in real life practice (COMPARE): a randomised trial," 375 THE LANCET 201 (Jan. 26, 2010). The study was published online on January 8, 2010. (DTX-319).

> in terms of safety and efficacy. On the basis of our results, **we suggest that paclitaxel-eluting stents should no longer be used in everyday clinical practice.**

(*Id.* at 208) (emphasis added)

The SPIRIT IV study was similar to COMPARE, in that it evaluated 3687 patients receiving everolimus and paclitaxel-eluting stents for primary endpoints at one year.[11] (DTX-640) The researchers found that everolimus-eluting stents resulted in reduced rates of target-lesion failure at 1 year, as were the 1-year rates of myocardial infarction and stent thrombosis. (*Id.* at 1663)

Prior to publication, the COMPARE and SPIRIT IV studies were first discussed at TCT 2009. Dr. Dan Simon ("Simon"), an interventional cardiologist, Chief of Cardiovascular Medicine and a Director of the Heart and Vascular Institute at University Hospital's Case Medical Center in Cleveland, Ohio, testified for Cordis at trial. (D.I. 269 at 748:19-22) According to Dr. Simon, the COMPARE and SPIRIT IV studies were the "talk of the meeting" at TCT 2009. The "power of the trials was that these two trials had very consistent results." (*Id.* at 763:19-20) "Doctors weren't talking about how well Taxus performed[, specifically, but] [d]octors were talking about how well everolimus performed." (*Id.* at 764:13-15) Dr. Campbell Rogers ("Rogers"), a college friend of Dr. Simon's and Chief Scientific Officer and Chief Medical Officer at Cordis, testified that he was also at TCT 2009 and discussed the COMPARE and SPIRIT IV studies with doctors there. (*Id.* at 788:18-25; 803:6-16) Dr. Rogers testified that, "in physicians' minds as they told us, [the studies were] a devastating blow for Taxus," as they showed

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[11]Gregg W. Stone, M.D. et al., *Everolimus-Eluting versus Paclitaxel-Eluting Stents in Coronary Artery Disease*, 362 N. ENG. MED. J. 1663 (May 6, 2010).

"much, much worse outcomes" and were large studies published in the world's two foremost medical journals. (*Id.* at 803:18-804:1)

Accordingly, it is Cordis's position that Taxus Atom sales declined because of the studies presented at TCT 2009, not as a result of the launch of BSC's 2.25 mm Cypher stent. Dr. Simon testified that, after the SPIRIT IV trials, all-sizes of "Taxus stents were taken off the shelf in our cath lab" as doctors in his hospital "felt there was no need to use paclitaxel to treat patients anymore" in view of the safer and more effective everolimus-eluting stents. (*Id.* at 766:15-767:2) Kevin Ballinger, Vice President and general manager of group program management for BSC's cardiology, rhythm and vascular business unit, stated that the COMPARE study had a "very inflammatory conclusion" that "caused a ripple effect through the medical community." (D.I. 267 at 199:8-11; D.I. 268 at 311:13-17) It is his opinion, however, that this conclusion is refuted by subsequent data, as do the FDA approval studies on Taxus stents. (D.I. 268 at 311:18-312:7)

b. BSC's characterizations

Cordis also admitted evidence that BSC told the public that Taxus sales declined because of the studies presented at TCT 2009. BSC's "Q4 2009 Earnings Call Transcript" contains remarks by Jeff Capello, Senior Vice President and Chief Accounting Officer and Corporate Controller, as follows:

> We were very pleased with our total DES market share position that we were able to carry into 2009 from 2008. As a result, our market share was stable throughout 2009 until data released at TCT in September caused it to lose some TAXUS share in the fourth quarter. This TAXUS share loss will continue to impact our year-over-year growth rates throughout the first three quarters of this year, until it anniversaries out of our comparative base in Q4.

(DTX-217 at 19; D.I. 268 at 314:1-10)[12] Mr. Capello stated during BSC's Q1 2010 Earnings Call that "US DES sales were down 10% versus last year driven by Taxus share loss following the results of [the] COMPARE trial, the impact of which is expect[ed] to anniversary by the end of Q3 2010." (DTX-813 at 2) During the 2Q call, Mr. Capello stated that "[t]he decline in market share year-over-year [totaling three points compared to 2Q 2009] is consistent with our expectations given the results of the [COMPARE] study which [was] released in September of last year." (DTX-814 at 2) The same statement was reiterated during the 3Q call. (DTX-810 at 2-3) Additionally, BSC's Form 10-K, filed February 26, 2010 (for the period ending December 31, 2009), states that

> recently published data from a single-center, non-double blinded, underpowered study sponsored by one of our competitors have negatively affected, and may continue to have a negative impact on, physician and patient confidence in our technology and net sales of our TAXUS paclitaxel-eluting coronary stent systems.

(DTX-292 at 22) BSC's 10-K filed in February 2011 similarly provided that the 9% decline in the US DES market between 2009 and 2010 was "due primarily to lower sales of our TAXUS drug-eluting stent systems, which we believe was due to customer perceptions of data from a single-center, non-double-blinder, underpowered study sponsored by one of our competitors." (DTX-805 at 83; D.I. 269 at 625:8-19) As Cordis points out, BSC did not tell investors or the SEC that Taxus Atom sales declined because of the introduction of the 2.25 mm Cypher stent. (D.I. 205 at 29)

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[12]The transcript is dated February 11, 2010; it is not clear from the face of the transcript whether the Q4 2009 Earnings Call occurred on this date, or if this is the date the transcript was made available.

c. Doctors' preferences

Cordis also stresses that BSC acknowledged that some cardiologists will only use everolimus-eluting stents. In its "Cypher Mini Stent (2.25 mm) Launch Plan," dated August 2009, BSC stated that it would focus on "limit[ing] the utilization of the Cypher Mini Stent to physicians who refuse to use the TAXUS Liberté Atom Stent." (DTX-793 at BSC-ATOM00019176) BSC assumed that "Cordis will launch [to] current Cypher Stent 'loyalist[s]' first, and then olimus loving accounts second[.]" (*Id.* at BSC-ATOM00019178) Seth Fischer, current Company Group Chairman of Cordis whose decision it was to launch the Cypher 2.25 mm stent, testified that Cordis targeted hospitals that were already using Cypher stents. (D.I. 268 at 450:14-16; D.I. 269 at 723:4-5, 723:22-25) Cypher stents are only good for three months after manufacture, and so it did not make sense to sell the 2.25 mm Cypher stent to other than high-volume Cypher hospitals (and physicians who were already using the 2.5 mm version), in order to reduce Cordis's "scrap rate" for expired stents.[13] (D.I. 269 at 724:5-725:6)

d. Noninfringing alternatives

Cordis also argues that BSC's proof of "but-for" causation is lacking because doctors who do not want to use a paclitaxel-eluting stent have several other medically acceptable treatment options besides the 2.25 mm Cypher everolimus-eluting stent. (D.I. 205 at 31-32) A BSC presentation on the Taxus Atom stent describes several "small vessel[14] treatment options," as represented in the following graphic.

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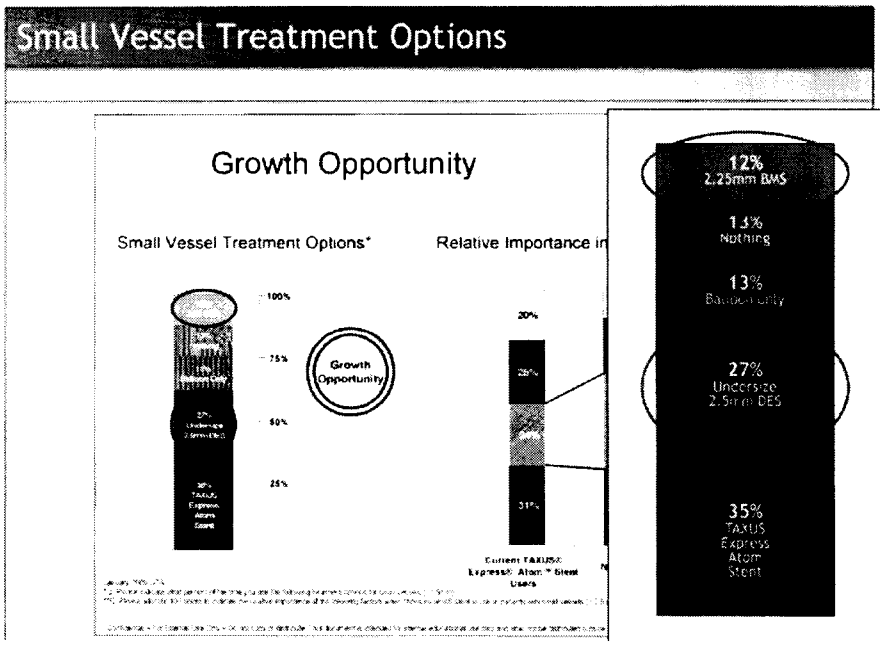
[13]For every Cypher stent made, one is scrapped. (D.I. 269 at 725:1-2)

[14]"Small vessels" being defined as "<2.5 mm." (DTX-231 at BSC-ATOM00018887)



(DTX-231 at BSC-ATOM00018887)

With respect to the "undersize" option, BSC's medical expert, Dr. Steven Goldberg ("Goldberg"), a cardiologist at the University of Washington Medical Center in Seattle, testified on cross-examination that he prefers to use the "largest stent that [he] could possibly safely get into [the] blood vessel," which is "typically" a 2.5 mm stent for a 2.25 mm vessel.[15] (D.I. 268 at 408:1-25) ("[M]ost of the time, that's the appropriately-sized stent.") Cordis's expert, Dr. Simon, testified that cardiologists were "comfortable using the 2.5 mm stent" in vessels as small as 2.1-2.3 mm. (D.I. 269 at 754:3-11) Dr. Rogers confirmed that using a 2.5 mm stent in a 2.25 mm vessel was "a safe and effective practice" that is instructed-for during fellowship training. (*Id.* at 799:3-11)

[15]Dr. Goldberg explained, however, that "[a] lot of times arteries are larger than they appear [ ] on the angiogram." (D.I. 268 at 376:25-377:16) Thus, a 2.25 mm measurement on an angiogram may actually be indicative of a 2.5 mm vessel. (*Id.* at 423:19-424:1)

With respect to the 2.25 mm bare-metal stent alternative, Cordis points out that Dr. Goldberg only uses drug-eluting stents in two-thirds to three-quarters of his procedures (D.I. 268 at 366:18-23), and the COMPARE and SPIRIT IV studies provided additional motivation for doctors to avoid paclitaxel-eluting stents. (D.I. 205 at 11) Dr. Rogers explained that, while bare-metal stents require patients to take strong blood-thinning drugs or anti-platelet agents and present a risk of restenosis, some doctors prefer this to the risk of bleeding and risk of stent thrombosis with a Taxus stent in a small vessel. (D.I. 269 at 800:2-22) In other cases, given the high restenosis risk using a bare metal stent in a small vessel, a doctor may decide to use just a balloon, and go back in with a stent in a second procedure if the balloon is unsuccessful. (*Id.*)

e. Woodford's testimony

Finally, Cordis argues that BSC's damages expert, Woodford, ignored the impact of TCT 2009 in her analysis and offered nothing to rebut the argument that TCT 2009 caused the decline in Taxus Atom sales. (D.I. 205 at 33-34) As Cordis points out, Woodford testified that when she initially performed her calculations, she had not seen the earnings call transcripts. (D.I. 269 at 639:3-10) Woodford made clear, however, that she had since seen the transcripts and still felt comfortable with her conclusions and that she took all pertinent facts into account. (*Id.* at 638:23-639:2) Cordis presented Woodford with a hypothetical during cross examination, whereby she was asked whether a brake scare for the Toyota Prius, resulting in increased sales by the Ford Fusion, would render the decline in Prius sales attributable to Ford. While Cordis stresses that the analogy fits the facts of this case (D.I. 205 at 34), Woodford stressed during her testimony that she did not agree. (D.I. 269 at 628:19-629:19)

3. BSC's evidence

a. Doctors' preference for 2.25 mm DESs

The jury heard from Dr. Goldberg that small vessel disease is more difficult to treat than large vessel disease because it is harder to place a stent given the vessel obstruction, and the restenosis rate is higher. (D.I. 268 at 372:11-17) Dr. Rogers, Cordis's expert, confirmed that the development of the first 2.25 mm (small vessel) everolimus-eluting stent was a "significant benefit for patients and practitioners." Dr. Rogers testified that, prior to the 2.25 mm Cypher launch, doctors chose not to use a DES in patients with small vessels; providing a 2.25 mm everolimus DES "would allow patients to be treated with a truly optimum therapy." (D.I. 269 at 802:9-803:2) Dr. Rogers agreed that the 2.25 mm Cypher provided doctors with a "new tool" for treatment of small artery disease. (D.I. 270 at 856:5-857:3) DESs had previously proven to be advantageous in preventing restenosis as compared to balloon angioplasty alone (30-50% re-obstruction rate) or bare metal stents (10-30% re-obstruction rate). (D.I. 268 at 358:3-6, 359:1-9; BSX-620).

According to Dr. Goldberg, the availability of 2.25 mm DESs affected his practice insofar as the smaller stents have an easier deliverability, and can also be used to treat a vessel tear or smaller vessel branch in conjunction with a larger part of the vessel. (D.I. 268 at 375:17-376:8) Doctors "try and choose the appropriate size, the largest size stent that [they] can get safely to that part of the artery." (*Id.* at 377:9-12) Dr. Simon, Cordis's witness, agreed that generally, interventional cardiologists spend a lot of time trying to match the vessels and stents for the size of the arteries they treat. (D.I. 269 at 781:15-19) The risk of using a stent that is too big for the vessel is causing a tear in the

blood vessel, which could lead to a heart attack and even death. (D.I. 268 at 377:17-20, 378:17-379:4) In contrast, restenosis does not typically cause heart attack or death. (*Id.* at 379:7-10) Due to these safety concerns, experts for both parties agree that certain cases require a 2.25 mm stent. (*Id.* at 370:3-22, 380:7-12; D.I. 269 at 783:4-14 ("In certain circumstances, a 2.25-[mm] stent is better than using a 2.5"), 762:25-763:12 (using a 2.25 mm stent renders certain procedures "simpler and faster"))

b. Immediate impact

While Cordis emphasizes that there were several alternatives to utilizing a 2.25 mm DES available to physicians, BSC stresses that, once a physician decided to use a 2.25 mm DES, the only such stents available on the market were BSC's Taxus Express Atom, Taxus Liberte Atom and Cordis's 2.25 mm Cypher. (D.I. 268 at 446:1-20, 484:22-485:2; D.I. 270 at 859:5-7) It is not legal to market a 2.5 mm stent for use in smaller than 2.5 mm vessels, as such uses are not approved by the FDA. (D.I. 268 at 451:9-16; D.I. 269 at 733:19-734:1)

While a limited market does not automatically render the decrease of Taxus Atom sales the result of the introduction of the 2.25 mm Cypher, BSC adduced evidence at trial that the Taxus Atom and 2.25 mm Cypher stents were in head-to-head competition. When Cordis first received FDA approval, its press release directly compared its new 2.25 mm Cypher only to the Taxus Atom stents. (D.I. 270 at 858:20-23; BSX-620 (further noting that "the Cypher stent . . . has outperformed the Taxus stent in numerous clinical trials")) As part of its "small vessel campaign," Cordis implemented a price-match program to the Taxus Atom and the Xience/Endeavor 2.5 mm stents. (BSX-144; D.I. 268 at 500:13-19)

Dr. Goldberg testified that his hospital did not stock 2.25 mm Cypher stents because they did not feel a need to "duplicate" inventory to the 2.25 mm Taxus stents. (D.I. 268 at 368:1-22) As BSC's Taxus Atom sales records from April 2009 to March 2010 indicate, several hospitals that were buying a lot of Taxus stents significantly decreased their purchasing of Taxus Atom after September 2009: the Riverside Methodist Hospital in Ohio, Christ Hospital in Ohio, Price Hospital in Ohio, Borgess Medical Center in Michigan, and Brigham and Women's Hospital in Massachusetts. (D.I. 267 at 258:14-265:5; D.I. 269 at 742:16-743:10, 777:1-778:12; BSX-528) Cordis does not dispute these facts, only that the true cause was TCT 2009, not BSC's commensurate stent launch.

Kevin Ballinger ("Ballinger"), Vice President and General Manager of Group Program Management for BSC's Cardio, Rhythm and Vascular Division, explained to the jury that prior to the launch of the 2.25 mm Cypher, BSC had a 100% market share for 2.25 mm stents. (D.I. 267 at 243:23-244:5) After Cordis's launch, only 2.25 mm DES were available in the United States and, thus, a physician determining that a 2.25 mm DES was the best treatment option for a patient could only choose between the Taxus Atom and 2.25 mm Cypher.[16]

According to Ballinger, the impact of Cordis's launch was "a sudden and severe impact on the sales of the Taxus Atom," taking one-third of the market from BSC. (D.I. 267 at 265:6-14) BSC introduced market data to illustrate this impact. Specifically,

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[16]As BSC points out, shortly after trial, the FDA approved the 2.25 Promus and Xience stents, which are the same everolimus-eluting stents sold under two separate trade names. (D.I. 267 at 294:20-23; D.I. 268 at 335:6-12)

Taxus Atom held a 6% share of the entire DES market in August 2009 (or about 16% of the 2.25 mm and 2.5 mm combined market share), but only 4% (or 12% of the 2.25-2.5 mm market share) by November 2009. (D.I. 267 at 248:24-249:2, 250:17-25)

Ballinger testified that , generally, clinical study results do not have as immediate and dramatic of an impact with a one-third market share loss. (D.I. 268 at 334:25-335:5) Rather, sudden market shifts are usually attributable to the launch of a new product, as physicians "generally like to try new products," and the "new products tend to drive market usage." (*Id.* at 335:14-336:3)

c. TCT 2009

Dr. Goldberg, BSC's expert, testified that, like "anything in life," doctors are going to have differences in opinions about how clinical data should be interpreted. (*Id.* at 369:19-24) Cypher stents were not studied in COMPARE or SPIRIT IV. (*Id.* at 366:5-8) Dr. Goldberg testified that the results of COMPARE or SPIRIT IV (concerning the Promus and Taxus stents) could not be used to determine how the 2.25 mm Cypher would have fared in the studies. (*Id.* at 365:18-366:13) The Cypher has a "completely different" stent architecture. (*Id.* at 366:14-17)

Regardless of the applicability of COMPARE or SPIRIT IV to the 2.25 mm Cypher, BSC continued to sell Taxus stents after TCT 2009, and the Taxus Atom continued to outsell the 2.25 mm Cypher stent, despite the COMPARE and SPIRIT IV studies. Dr. Simon, Cordis's witness, confirmed Ballinger's testimony that two-thirds of doctors using 2.25 mm DESs are choosing the Taxus Atom at the present time. (*Id.* at 341:13-342:2; D.I. 269 at 785:12-16) Mr. Vince Thomas, Cordis's damages expert, also

confirmed this point.[17] (D.I. 270 at 960:14-19)

d. Woodford's testimony

The jury heard from Woodford that Cordis's market share "was going to come out of the hide of the only other company that was out there with 2.25 [mm] drug eluting stents." (D.I. 268 at 498:18-20) Woodford testified to the existence of a two-supplier market for 2.25 mm DESs, evidenced by the fact that, despite Cordis's claims that doctors were abandoning paclitaxel, there was no continued growth in the 2.25 mm market. (*Id.* at 508:6-509:9 ("this market segment is isolated from the phenomenon that Cordis has been discussing"), 624:2-9 (there are "different trends between the different sizes of stents")) Based on the market data, it was Woodford's opinion that BSC could have made 100% of Cordis's 2.25 mm DES sales. (*Id.* at 476:22-23, 509:25-510:6) Woodford performed her calculations using 67.6% as the percentage of infringing sales that BSC would have made but for Cordis's infringement. (BSX-661H) Applying the average sales price and average incremental profit margin to the lost unit sales, Woodford's bottom line was $28,442,748 in lost profit damages. (*Id.*)

Woodford also concluded that a reasonable royalty would have been "30 percent of the sales value" of the 2.25 mm Cypher stents not included in her lost profits calculation (10,887 stents). (D.I. 269 at 569:14-571:3) In Woodford's opinion, reasonable royalty damages are $5,888,332. (*Id.* at 572:21-573:8; BSX-D329) As stated previously, the parties agree that implied in the verdict is a determination by the jury to award lost profits on 44% of the 2.25 mm Cypher stents sold (14,824 of the total

[17]The parties also agree that BSC's Taxus sales increased overall between 4Q 2010 and 1Q 2011. (D.I. 205 at 7; D.I. 231 at 24, n.8)

33,647 units) using BSC's profit margin on Taxus Atom ($1,250 per unit).[18] (D.I. 205 at 26; D.I. 231 at 2, 13)

4. Analysis

The jury was presented with two alternatives from which to rationalize the decline of Taxus Atom sales beginning in September 2009. In awarding lost profits damages to BSC, the jury determined that the launch of the 2.25 mm Cypher caused the loss of 44% of Taxus Atom sales. The alternative explanation – the COMPARE and SPIRIT IV studies revealed at TCT 2009 – was rejected with respect to this 44%.

Cordis asks the court to determine, as a threshold inquiry, whether the *Panduit* test is an acceptable method for testing the veracity of the jury's decision. It is Cordis's position that BSC did not show "but for" causation under a correct application of *Panduit* because the 2.25 mm Cypher stent and Taxus Atom stent are fundamentally different products – one stent elutes paclitaxel and the other elutes everolimus. (D.I. 205 at 36-38) Both the first and second *Panduit* factors presuppose the "demand for the infringer's and patent owner's products is interchangeable," i.e., that the parties "sell substantially similar products in the same market." *BIC Leisure Products, Inc. v. Windsurfing International Inc.*, 1 F.3d 1214, 1219 (Fed. Cir. 1993) (reversing district court's award of lost profit damages where the products "differed significantly in terms of price, product characteristics, and marketing channels"[19]); *Biacore v. Thermo*

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[18]The damages experts agreed on this $1,250 per-stent profit margin. (D.I. 270 at 922:20-25)

[19]In full, the Federal Circuit iterated that

[t]he first *Panduit* factor – demand for the patented product – presupposes that

Bioanalysis Corp., 79 F. Supp. 2d 422, 469 (D. Del. 1999). The second *Panduit* factor, or the absence of acceptable, noninfringing alternatives, "also presupposes that the patentee and the infringer sell substantially similar products in the same market . . . [and] ensures that any proffered alternative competes in the same market for the same product for the same customers as the infringer's product." *BIC Leisure Prods.*, 1 F.3d at 1219. In this regard, Cordis emphasizes the evidence (such as the COMPARE and SPIRIT IV studies) denoting the differences between paclitaxel-eluting and everolimus-eluting stents and that some doctors "refuse to use" the Taxus Atom. (D.I. 244 at 6-8)

Unlike in *BIC Leisure Products*, the record at bar supports the finding that a specific market existed for 2.25 mm DESs, regardless of the drug coating. While Cordis showed that doctors had several tools in their arsenal and that some doctors comfortably use a 2.5 mm stent in a smaller vessel, the jury also heard about the high risk of using a stent that is too big for the vessel: causing a tear in the blood vessel, which could lead to a heart attack and even death. (D.I. 268 at 377:17-20, 378:17-379:4) The jury was free to credit the trial testimony (from both parties' witnesses) that

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> **demand** for the infringer's and patent owner's products is interchangeable. Under this assumption, evidence of sales of the infringing product may suffice to show *Panduit's* first factor, "demand for the patented product." This analysis assumes that the patent owner and the infringer sell substantially the same product. In *Gyromat*, for instance, the patent owner's and the infringer's products were similar in price and product characteristics. If the products are not sufficiently similar to compete in the same market for the same customers, the infringer's customers would not necessarily transfer their demand to the patent owner's product in the absence of the infringer's product. In such circumstances, as in this case, the first *Panduit* factor does not operate to satisfy the elemental "but for" test.

BIC Leisure Products, Inc. v. Windsurfing Intern., Inc., 1 F.3d 1214, 1218-1219 (Fed. Cir. 1993) (internal citations omitted) (emphasis added) (cited at D.I. 205 at 35-36).

certain medical circumstances warrant the use of a stent smaller than 2.5 mm. (*Id.* at 370:3-22; D.I. 268 at 431:9-15; D.I. 269 at 762:25-763:12; *Id.* at 781:15-19, 783:4-21, 799:22-801:1;[20] D.I. 270 at 875:7-12) That is, the experts agreed that, under certain circumstances, the other "small vessel treatment options" identified by Cordis are not viable.

After determining that a 2.25 mm stent is required, doctors may use either a bare-metal 2.25 mm stent or a 2.25 mm DES. The smaller the vessel, the higher the risk of restenosis. (D.I. 268 at 370:14-15) Cordis's expert agreed that bare-metal stents are associated with a high restenosis risk. (D.I. 269 at 799:14-800:22) The record is replete with references to the advantages of DESs over bare-metal stents in this regard. (D.I. 267 at 217:5-23; D.I. 268 at 361:1-5; BSX-620)

While there was also evidence regarding differences between paclitaxel and everolimus-eluting DESs,[21] sufficient evidence supports the determination that a specific market existed for 2.25 mm DESs and, within this market, the demand for Taxus Atom and 2.25 mm Cypher DESs was interchangeable. That is, sufficient evidence was presented that doctors' demand for the 2.25 mm Cypher DES would have transferred to the Taxus Atom DES in the absence of the 2.25 mm Cypher DES based on the medical

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[20]Dr. Rogers explained that, "in speaking with physicians, how they made decisions around what stents to use, how to treat patients, you know, it's really nuanced. There are a lot of individual characteristics from patient to patient."

[21]For example, as Cordis emphasizes, for doctors who "refuse to use" Taxus Atom, the introduction of the 2.25 mm Cypher stent provided another alternative and met a medical need. (D.I. 205 at 12) (citing D.I. 268 at 415:24-416:9; D.I. 269 at 723:4-15, 798:2-10)

determination that a <2.5 mm DES was the best option for a patient.[22] BSC was not "obliged to negate every possibility that a purchaser might not have bought [the 2.mm Cypher] instead of the [Taxus Atom], or might have foregone the purchase altogether." *Del Mar Avionics, Inc. v. Quinton Instrument Co.*, 839 F.2d 1320, 1326 (Fed. Cir. 1987); *see also Paper Converting Machine Co. v. Magna-Graphics Corp.*, 745 F.2d 11, 21 (Fed. Cir. 1984) ("The 'but for' rule only requires the patentee to provide proof to a reasonable probability that the sale would have been made but for the infringement.").

In view of the foregoing, Cordis's arguments that BSC did not present testimony from hospital purchasing agents about why their hospitals stopped buying Taxus Atom after September 2009, and did not present testimony from doctors who used the 2.25 mm Cypher about whether they would have used Taxus Atom (or other small treatment options) had the 2.25 mm Cypher been unavailable, are misplaced. (D.I. 205 at 38; D.I. 244 at 2) BSC was not required to present survey evidence in particular. *See Ericsson, Inc. v. Harris Corp.*, 352 F.3d 1369, 1378 (Fed. Cir. 2003). In view of the evidence discussed above, the court finds that the assumption (of demand interchangeability) underlying *Panduit* is appropriate in this case, 1 F.3d at 1219, and that BSC met its burden of proof in demonstrating the absence of acceptable alternatives (*Panduit* factor 2).

The first *Panduit* factor is not genuinely in dispute post-trial. "[T]he first *Panduit*

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[22]While the record at bar even more clearly supports the conclusion that 44% (rather than 100%) of the demand for the 2.25 mm Cypher DES would have transferred to the Taxus Atom DES if the 2.25 mm Cypher was not available, the court does not limit the demand inquiry to only the awarded percentage. Put another way, the court is careful not to conflate the availability of lost profits damages with the amount of such damages.

factor simply asks whether demand existed for the 'patented product,' i.e., a product that is 'covered by the patent in suit' or that 'directly competes with the infringing device.'" *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 567 F.3d 1314, 1330 (Fed. Cir. 2009) (quoting *Rite-Hite Corp. v. Kelley Co.*, 56 F.3d 1538, 1548-49 (Fed. Cir. 1995) (en banc)). Sales of (infringing) 2.25 mm Cypher stents are "compelling evidence of the demand for the patented product." *Gyromat Corp. v. Champion Spark Plug Co.*, 735 F.2d 549, 552 (Fed. Cir. 1984) (citations omitted). Woodford testified that sales of 2.25 mm Cypher stents generated over $60 million in sales. (481:15-20) Cordis does not dispute these sales. (D.I. 244 at 6-8)

In view of the foregoing, the court finds that sufficient evidence supports the jury's award of lost profits in this case. As Cordis's challenge of the lost profit award focused on the availability of lost profits damages, rather than the amount, the court does not disturb the jury's award of profits based on 44% of Cordis's 2.25 mm Cypher sales. (D.I. 244 at 9-10) Cordis's motion for JMOL on lost profits damages is denied. (D.I. 204)

B. BSC's Motion to Amend the Judgment

BSC moves to amend the May 12, 2011 judgment to award BSC: (1) lost profits and reasonable royalty damages for infringing sales of the 2.25 mm Cypher stent between April 1, 2011 and May 11, 2011;[23] and (2) prejudgment interest calculated at the prime rate compounded monthly. Cordis opposes the motion primarily on the basis that, per its motion for JMOL, BSC did not prove lost profits damages. Cordis argues,

[23]Cordis's documents, used by the experts at trial, included sales and financial information only through March 31, 2011. (D.I. 207 at 2)

however, that if the court upholds the award, the correct amounts of lost profits and reasonable royalty damages for the April 1-May 11, 2011 period are $612,188 and $30,651, respectively, which are $43,804 and $4765 less than the amounts calculated by Ms. Woodford for BSC.[24] (D.I. 228 at 4; D.I. 229 at ¶ 8) While BSC describes Ms. Woodford's calculation as the more accurate, BSC has, quite commendably, agreed to Cordis's amount of supplemental damages to bring closure to the dispute. (D.I. 243 at 2) The parties are also in agreement regarding the amount of prejudgment interest at the prime rate compounded monthly. The court, therefore, will grant BSC's motion and enter an amended judgment increasing the total damage award from $19,531,492 to $20,754,192.[25] (D.I. 206)

C. BSC's Motion for Ongoing Damages in Lieu of a Permanent Injunction

While BSC asserts that a permanent injunction would be appropriate under the facts of this case, it appreciates that courts have been reluctant to issue injunctions in stent cases, and seeks instead an award of an ongoing 32% royalty rate. (D.I. 211 at 2) The jury awarded $1,000,470 in reasonable royalty damages in this case. (D.I. 192) There is no dispute that inherent in this determination was the application of a 2.95% royalty rate. (D.I. 205 at 39; D.I. 231)

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[24]According to Mr. Thomas, Cordis's selling price from April 1-May 11, 2011 was significantly lower than its historical average, as was BSC's profit margin, as compared to the 2009-2011 average utilized my Ms. Woodford for this additional period. (D.I. 229 at ¶¶ 6-7)

[25]The new award includes an additional $642,838 in lost profits and reasonable royalty damages for the April 1-May 11, 2011 period (D.I. 229 at ¶ 8); $75,382 in prejudgment interest during this time period (*id.* at ¶ 9); and $504,479 in prejudgment interest through April 1, 2011 (*id.* at ¶ 10). BSC's total for damages is $1 short of Cordis's which is likely only an error in tabulation. (D.I. 243)

A post-verdict royalty is fundamentally different from a pre-verdict royalty.

Amando v. Microsoft Corp., 517 F.3d 1353, 1361 (Fed. Cir. 2008).

> Prior to judgment, liability for infringement, as well as the validity of the patent, is uncertain, and damages are determined in the context of that uncertainty. Once a judgment of validity and infringement has been entered, however, the calculus is markedly different because different economic factors are involved.

Id. at 1362. With respect to the parties' change in bargaining positions, the Federal Circuit has finally adjudicated the issues of infringement and validity, and the PTO has allowed claim 36 on reexamination; Cordis has no other irons in the fire. Cordis simultaneously asserted in its papers that Cypher stents would not be produced after January 31, 2011 (which stents may not be sold after March 31, 2012), yet it vehemently opposes BSC's proposed ongoing royalty.[26] (D.I. 224, ex. A) Cordis stressed, in fact, that when it announced that it will stop selling Cypher, sales began to significantly drop (beginning the week ending June 26, 2011).

To arrive at its 32% proposed royalty rate, BSC's expert (Woodford)

> calculated the effective damages rate that reflects all of Cordis's infringing sales through March 2011 based on the jury's total damages verdict, including both reasonable royalty and lost profits damages. This effective damages rate is the equivalent percentage of Cordis's sales revenues that reflects the jury's determination of damages to [BSC] (both lost profits and reasonable royalty damages) resulting from Cordis's infringement of the ['021] patent with the 2.25 mm Cypher stent. . . Based on Cordis's total sales of approximately $60.7 million from September 2009 to March 2011, . . . total damages, including reasonable

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[26]Based upon the parties' history, the court does not adopt Cordis's suggestion that the court should direct the parties to negotiate the royalty amongst themselves. *See Telecordia Techs., Inc. v. Cisco Sys., Inc.*, 592 F. Supp. 2d 727, 748 (D. Del. 2009) (citing *Paice, LLC v. Toyota Motor Corp.*, 504 F.3d 1293, 1314 (Fed. Cir. 2007)). Put most simply, given that the parties could not negotiate a license after the Federal Circuit's decision, during this litigation or before taking this damages case to trial, let alone this contentious post-trial practice, the court has no indication that such a mandate would effectuate closure to this case.

> royalty and lost profit damages, correspond to an effective damages rate of 32 percent.

(D.I. 213 at ¶ 16)

Cordis counters with the fact that cardiologists now have other olimus-eluting stents (the 2.25 mm Xience Nano and the 2.25 mm Promus DESs) to select from, and that there is no "realistic possibility that future sales of the 2.25 mm Cypher will take sales or profits away from Taxus Atom." (D.I. 224 at 9) Cordis does not explain with any detail, however, the effects of the launch of either alternative on the marketplace. (*Id.* at 9-11) Cordis also asserts that it is selling Cypher in the United States at a substantial loss, and even a 2.95% royalty rate is insufficient to allow it a reasonable profit margin. (*Id.* at 11)

The court declines to allow Cordis, an adjudicated willful infringer, to effectively owe less for its post-verdict infringement than the jury found for its pre-verdict infringement under the circumstances. *Accord Joyal Prods., Inc. v. Johnson Elec. North America, Inc.*, Civ. No. 04-5172, 2009 WL 512156, *13 (D.N.J. 2009) (26% post-verdict royalty rate representing net operating profit was reasonable, contrasted to 8% rate found by the jury, where defendant admitted to willful infringement and "never established a serious validity challenge"). BSC's motion is granted.

D. BSC's Motions for Attorney Fees and for Enhanced Damages

1. Background

BSC's motions are best evaluated against a backdrop of the relevant procedural history. The stent portion of the 2.25 mm Cypher stent at issue in this case was identical to the six-cell stent accused of infringement in Civ. No. 03-027, but it is

mounted on a balloon that inflates to a nominal diameter or 2.25 mm. (D.I. 161 at 4) The court's final judgment[27] that Cordis's Cypher stent infringed claim 36 of the '021 patent was entered in Civ. No. 03-027 on September 24, 2007. (Civ. No. 03-27, D.I. 437) The Federal Circuit affirmed this court's prior rulings and the jury verdict in March 2009. (*Id.*, D.I. 454[28])

Cordis's 2.25 mm Cypher stent was first manufactured for commercial use on August 18, 2009, and Cordis obtained FDA approval and began selling the 2.25 mm Cypher DES in the United States in September 2009. (D.I. 161 at 4) (citations omitted) Cordis did not dispute in this litigation that the 2.25 mm Cypher stent infringed claim 36 of the '021 patent.[29] (*Id.* at 11) As previously noted, "Cordis filed its initial request for reexamination on October 13, 2009, two months before BSC filed this suit on December 4, 2009, but several years after the end of the jury trial in the 03-027 case in which Cordis's liability for infringement of claim 36 of the '021 patent was established." (*Id.* at 8) By its memorandum order of April 28, 2011, the court excluded from trial evidence of the reexamination proceedings and, as Cordis conceded that the reexamination was its only evidence in support for its argument that it did not willfully infringe, the court granted summary judgment in favor of BSC on the issue of willful infringement. (D.I. 176)

BSC now seeks a judgment that this case is "exceptional" pursuant to 35 U.S.C.

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[27]Following the denial of two JMOL motions by Cordis.

[28]*Cordis Corp. v. Boston Scientific Corp.*, 561 F.3d 1319 (Fed. Cir. 2009).

[29]On April 13, 2011, the court granted BSC's motion for summary judgment of infringement with respect to the 2.25 mm Cypher. (D.I. 161)

§ 285 and the reimbursement of its attorney fees and litigation expenses throughout trial (approximately $4.7 million), on three bases: (1) Cordis's willful infringement; (2) Cordis's conscious business decision to infringe "with full knowledge of the previous final adjudication of infringement and validity against it;" and (3) balancing of the factors described in *Read Corporation v. Portec Inc.*, 970 F.2d 816, 826-27 (Fed. Cir. 1992), abrogated in part on other grounds by *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 975 (Fed. Cir. 1995) (hereinafter, *Read* or "the *Read* factors"). (D.I. 200 at 3) BSC also points out that Cordis repeatedly emphasized at trial that Cordis would be "perfectly content to pay whatever th[e] jury thinks is fair for rights to the 2.25 [mm] sector," yet challenged the jury's verdict post-trial. (D.I. 269 at 728:12-14; *see also* D.I. 267at 172:22-173:2, 193:23-194:1)

2. Legal standards

Section 285 authorizes the court "in exceptional cases" to award "reasonable attorney fees to the prevailing party." 35 U.S.C. § 285. "Whether a case is exceptional and, thus, eligible for an award of attorney[ ] fees requires the district court to first, make a factual determination of whether a case is exceptional and second, exercise its discretion to determine whether attorney[ ] fees are appropriate." *Bard Peripheral Vascular, Inc. v. W.L. Gore & Associates, Inc.*, — F.3d —, 2012 WL 414373, *17 (Fed. Cir. Feb. 10, 2012) (citation omitted). The prevailing party – here, BSC – must prove that the case is exceptional by clear and convincing evidence. *See MarcTec, LLC v. Johnson & Johnson*, 664 F.3d 907, 915-16 (Fed. Cir. 2012).

> A case may be deemed exceptional under § 285 where there has been willful infringement, fraud or inequitable conduct in procuring the patent, misconduct during litigation, vexatious or unjustified litigation, conduct that violates Federal

> Rule of Civil Procedure 11, or like infractions. Where [ ] the alleged infringer prevails in the underlying action, factors relevant to determining whether a case is exceptional include the closeness of the question, pre-filing investigation and discussions with the defendant, and litigation behavior. Where a patentee prolongs litigation in bad faith, an exceptional finding may be warranted.
>
> Absent litigation misconduct or misconduct in securing the patent, a district court can award attorney fees under § 285 only if the litigation is both: (1) brought in subjective bad faith; and (2) objectively baseless. Under this standard, a patentee's case must have no objective foundation, and the plaintiff must actually know this. Whether a case is objectively baseless requires an objective assessment of the merits.

Id. at 916 (internal quotations and citations omitted). "Although an attorney fee award is not mandatory when willful infringement has been found, precedent establishes that the court should explain its decision not to award attorney fees." *Spectralytics, Inc. v. Cordis Corp.*, 649 F.3d 1336, 1349 (Fed. Cir. 2011) (citations omitted).

Section 284 authorizes the court to "increase the damages up to three times the amount found or assessed." 35 U.S.C. § 284. The "paramount determination in deciding to grant enhancement and the amount thereof is the egregiousness of the defendant's conduct based on all the facts and circumstances." *Read*, 970 F.2d at 826; *see also Spectralytics, Inc. v. Cordis Corp.*, 649 F.3d 1336, 1349 (Fed. Cir. 2011) (confirming the applicability of the *Read* factors to the inquiry of enhancement of damages). In these regards, the *Read* factors direct the court to consider: (1) whether the infringer deliberately copied the invention; (2) whether the infringer, when aware of the patent, investigated and formed a good faith belief of invalidity or noninfringement; (3) the infringer's behavior as a party to litigation; (4) defendant's size and financial condition; (5) closeness of the case; (6) duration of defendant's misconduct; (7) remedial action by the defendant; (8) defendant's motivation for harm; and (9) whether

defendant attempted to conceal its misconduct. *Id.* at 826-28.

> Inasmuch as a finding of willful infringement does not mandate enhancement of damages, the above factors taken together assist the trial court in evaluating the degree of the infringer's culpability and in determining whether to exercise its discretion to award enhanced damages and how much the damages should be increased. To enable appellate review, a district court is obligated to explain the basis for the award, particularly where the maximum amount is imposed. For the latter, the court's assessment of the level of culpability must be high.

Id. at 828.

3. Attorney fees

Upon careful review of the record, the court finds that BSC has not satisfied its burden of proving, by clear and convincing evidence, that this case was exceptional as contemplated by § 285. While Cordis was deemed to be a willful infringer, BSC does not specifically challenge Cordis's behavior in litigation other than noting, in its reply papers, that Cordis launched in the face of an adverse judgment and that its "assertion of inapplicable defenses unnecessarily increased the burden on the court and BSC."[30] (D.I. 230 at 9) While "similar considerations may be relevant to enhanced damages and attorney fees," it is the court's view that attorney fees are more aptly awarded for abusive litigation tactics than in other circumstances. *See Spectralytics*, 649 F.3d at 1349 ("attorney misconduct or other aggravation of the litigation process may weigh heavily with respect to attorney fees, but not for enhancement of damages"). The court proceeds to analyze whether an enhancement is appropriate under the *Read* factors.[31]

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[30]Having filed separate briefs on attorney fees and enhanced damages, the court limits BSC to arguments made in support of each motion separately.

[31]Given the history between the parties in this court, it is the court's observation that this case was part of an ongoing business dispute in which counsel may not have played a primary role vis-a-vis other decisionmakers.

4. Enhanced damages

As a willful infringer, Cordis is exposed to enhanced damages under § 284. The court weighs the totality of the circumstances according to the *Read* factors in order to determine the appropriateness of an enhancement in this case. *Accord Spectralytics, Inc. v. Cordis Corp.*, 649 F.3d 1336, 1349 (Fed. Cir. 2011) ("[A]ttorney misconduct or other aggravation of the litigation process may weigh heavily with respect to attorney fees, but not for enhancement of damages," which should be predicated on the *Read* factors).

With respect to *Read* factor 1, BSC does not specifically allege that Cordis copied Dr. Jang's design. (D.I. 209) Factor 2, Cordis's knowledge of the patent and lack of any defenses, as well as factor 3, litigation conduct, weigh heavily in favor of enhancement. Cordis was aware of the '021 patent well before it launched the 2.25 mm Cypher DES, had been adjudged of infringing it by the Federal Circuit, which had also confirmed the '021 patent's validity. Cordis had not filed for reexamination at the time of its launch. There is no indication that Cordis received an exculpatory opinion of counsel before its launch. *See Spectralytics*, 649 F.3d at 1348 (after willful infringement is found, "it is inappropriate to discount evidence relating to whether there was an adequate investigation of adverse patent rights"). Cordis argues only that it obtained opinions of counsel **concerning the reexamination** of claim 36. (D.I. 219 at 12-13)

This was not a case where Cordis simply put BSC to its proofs. In this case, Cordis was found to be a willful infringer on summary judgment in view of the facts that: (1) Cordis launched the 2.25 mm Cypher DES after the Federal Circuit had determined

that Cypher stents having the same structure infringed the '021 patent; and (2) Cordis did not contest infringement in this case. Yet Cordis denied from the outset BSC's allegations of infringement (D.I. 11), and opposed BSC's summery judgment motion – though admitting in its opposition that it infringed (D.I. 125 at 4).[32]

Cordis's only defense in this litigation was the copending (and later-filed) reexamination. Cordis filed its request for reexamination on October 13, 2009. The District of Minnesota transferred the instant litigation (filed in December 2009) to this court in April 2010. Cordis did not move for a stay of litigation pending reexamination until September 23, 2010. As noted in the court's prior opinion denying Cordis's motion, Cordis moved for a stay after Civ. No. 03-027 had been resolved against it on appeal, almost a year after the reexamination was filed, and after fact discovery had been completed in this case.

During the jury trial on damages, Cordis told the jury it would be bound by its determination, yet challenged the damages verdict on multiple grounds post-trial. While Cordis was permitted to move for JMOL, it argued that BSC failed to take full advantage of the 03-027 litigation and, therefore, "needlessly burdened the parties and the court by bringing this separate case" – an assertion that both strains credulity and exemplifies the tenor of its papers throughout these proceedings.[33] (D.I. 249 at 10)

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[32]That claim 36 may have been rejected concurrently in reexamination does not bear on Cordis's infringement.

[33]Cordis willfully infringed the '021 patent and, notwithstanding the status of Civ. No. 03-027, there was no legal impediment to BSC's filing a new lawsuit addressing that undisputed infringement. BSC was not required, as Cordis implies, to include the 2.25 mm Cypher DES in the settlement reached in the 03-027 litigation: a widely-publicized $1.725 billion consent judgment **in favor of Cordis**. (Civ. No. 03-027, D.I. 551)

On factor 4, BSC argues, and Cordis does not dispute, that Cordis is a wholly-owned subsidiary of Johnson & Johnson with over $60 billion in annual sales. With respect to factor 5, insofar as the Cypher stent system was already deemed to be infringing, and the Federal Circuit had already upheld the validity of the '021 patent over several pieces of prior art, this was not a close case. The court views Cordis's duration of infringement by the 2.25 mm Cypher DES (September 2009 to present) as a neutral factor. *See, e.g., NTP, Inc. v. Research in Motion, Ltd.*, 270 F. Supp. 2d 751, 759 (E.D. Va. 2003) (three years of infringement was a "neutral" factor).

Factor 7, remedial action taken by Cordis, favors enhancement. Cordis asserts that it has taken remedial action by discontinuing sales of its Cypher stents by March 31, 2012 – corresponding to the three-month shelf-life date for stents made through January 31, 2012. (D.I. 219 at 15 & ex. A) While Cordis's decision to stop manufacturing its infringing stents is commendable, there is no indication that Cordis recalled any product or stopped any shipments of infringing product prior to the January 1, 2012 end production date. Thus, Cordis continues to sell out its infringing product despite the judgment against it. Cordis has simply made the business decision that it will not be profitable for it to sell infringing stents moving forward.

Factor 8 also favors enhanced damages, as the facts permit an inference of Cordis's motivation to harm BSC. Cordis saw a market opportunity in offering the 2.25 mm Cypher DES. (D.I. 269 at 723:7-11 (Cordis "added a line extension to [its] product base], 744:22-745:8) As BSC points out, it had a monopoly on 2.25 mm DESs until Cordis's launch. Given the circumstances of Cordis's launch, this favor weighs in favor of awarding enhanced damages. *See, e.g., Power Integrations, Inc. v. Fairchild*

Semiconductor Intern, Inc., 762 F. Supp. 2d 710, 724 (D. Del. 2011) ("[T]he evidence of motivation to harm becomes greater when the patentee and infringer are in direct competition, and the accused infringer's actions are specifically intended to take business away from the patent owner") (citations omitted). Finally, BSC does not assert that Cordis attempted to conceal its conduct, which is factor 9.

5. Conclusion on enhancement

Taking into account the posture of this case, whereby Cordis launched its 2.25 mm Cypher DES after the Federal Circuit's infringement and validity disposition, and relied only on a subsequently-filed reexamination as a defense in this suit, the *Read* factors as discussed above, and the rationale underlying enhanced damages, the court is persuaded that enhanced damages are appropriate in this case. The *Read* factors favoring enhancement are the extent to which Cordis was aware of and investigated the scope of the '021 patent, Cordis's litigation conduct, Cordis's financial condition, Cordis's motivation for harm, the non-closeness of the case, and the lack of remedial action. Factors that are neutral with respect to enhancing damages are the duration of Cordis's infringement, the lack of copying and Cordis's lack of attempts to conceal its infringement. No factors specifically weigh against enhancement.

As there exists clear and convincing evidence that Cordis's conduct is sufficiently culpable to justify enhancing damages, the court finds that doubling the jury's award (of $20,754,192, as amended) is reasonable under the circumstances. *Accord K-TEC v. Vita-Mix*, Civ. No. 06-108, 2011 WL 285699, *4-*6 (D. Utah. Jan. 26, 2011) (doubling jury's damages award in case where court found infringement on summary judgment and most of defendant's invalidity defenses did not survive summary judgment, and

where evidence demonstrated defendant knew of and deliberately copied patent at issue); *Power Integrations, Inc.*, 762 F. Supp. 2d at 725-26 (awarding double rather than treble damages "to serve the punitive function of enhanced damages" following an evaluation of the *Read* factors, stating that "it is important to note [defendant's] behavior does not appear to have become more culpable and egregious over time"); *Cf. Parker-Hannifin Corp. v. Wix Filtration Corp.*, Civ. Nos. 07-1374 & 07-1375, 2011 WL 976559, *11 (N.D. Ohio Mar. 17, 2011) (awarding a 50% enhancement for willful infringement where defendant failed to present legitimate invalidity or noninfringement defenses, but stopped manufacturing and shipping product the day after the jury's verdict); *TruePosition Inc. v. Andrew Corp.*, Civ. No. 05-747, 2009 WL 1651042 (D. Del. June 10, 2009), *prior proceedings finding exceptionality*, 611 F. Supp. 2d 400, 413-14 (D. Del. 2009) (upon finding the case exceptional, awarding partial attorney fees and costs following defendant's willful infringement in circumstances where defendant continued to ship infringing product after the judgment and made numerous misrepresentations to the court and jury with respect to its shipments, because "plaintiff's expenditures vis-a-vis the time period involved" were excessive).

V. CONCLUSION

For the aforementioned reasons, the court denies Cordis's renewed motion for JMOL on the unavailability of lost profits damages (D.I. 204); denies BSC's motion for attorney fees (D.I. 199); grants BSC's motion to amend the judgment (D.I. 206); grants BSC's motion for enhanced damages (D.I. 208); and grants BSC's motion for ongoing damages in lieu of a permanent injunction (D.I. 210). An appropriate order and revised form of judgment shall issue.

IN THE UNITED STATES DISTRICT COURT

FOR THE DISTRICT OF DELAWARE

BOSTON SCIENTIFIC CORPORATION and BOSTON SCIENTIFIC SCIMED, INC.,	)	
Plaintiffs,	)	
v.	)	Civ. No. 10-315-SLR
CORDIS CORPORATION,	)	
Defendant.	)	

ORDER

At Wilmington this 13th day of March, 2012, consistent with the memorandum opinion issued this same date;

IT IS ORDERED that:

1. Cordis's renewed motion for judgment as a matter of law on the availability of lost profits damages (D.I. 204) is denied.

2. BSC's motion to amend the judgment (D.I. 206) is granted, to wit:

a. The judgment shall be amended to reflect a total damage award of $20,754,192; and

b. Cordis shall pay prejudgment interest, pursuant to 35 U.S.C. § 284, on the award of $20,754,192, at the prime rate compounded monthly.[1]

3. BSC's motion for ongoing damages in lieu of a permanent injunction (D.I.

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[1]BSC did not request post-judgment interest. (D.I. 207); *See* 28 U.S.C. § 1961(a) ("Interest **shall be allowed** on any money judgment in a civil case . . . .") (emphasis added).

210) is granted. A 32% ongoing royalty rate applies to sales of the 2.25 mm Cypher DES not included in the amended judgment.

5. BSC's motion for enhanced damages (D.I. 208) is granted. Cordis shall pay $20,754,192 in punitive damages to BSC.

6. BSC's motion for attorney fees (D.I. 199) is denied.

United States District Judge