2014-1492

United States Court of Appeals for the Federal Circuit

CARNEGIE MELLON UNIVERSITY,

Plaintiff-Appellee,

v.

MARVELL TECHNOLOGY GROUP, LTD., and MARVELL SEMICONDUCTOR, INC.,

Defendants-Appellants.

Appeal from the United States District Court for the Western District of Pennsylvania in No. 2:09-CV-00290-NBF, Judge Nora Barry Fischer

REPLY BRIEF FOR DEFENDANTS-APPELLANTS

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INTRODUCTION

CMU's answering brief tells a colorful story in which its inventors supposedly developed a heroic innovation that "had to 'break[] the physics'" (Br.15, 19) to achieve "a 'major breakthrough'" (Br.16) that "pav[ed] the way for further miniaturization of hard drives" (Br.17) and became a "must have" technology for Marvell (Br.25, 27). CMU neglects to mention, however, that its supposedly revolutionary technology never resulted in a single sale to a single customer, was never commercialized, and was never licensed except as part of a research-center membership package that donors received for paying CMU a flat fee of $250,000 per year. Nor does it mention Marvell's own undisputed creative contributions of numerous features to the chips that made noise-detection technology commercially viable. In fact, no rational jury could find CMU's two claims valid and infringed without ignoring undisputed facts and admissions that contradict CMU's expert's opinion.

Even if the liability judgment could stand (which it cannot), the historically unprecedented $1.54 billion damages award cries out for reversal or vacatur. Fifty cents per chip on worldwide sales is not a reasonable royalty for a technology that never commanded any licensing revenue in the real world, that was offered (but declined) for a $200,000 one-time flat fee, and that CMU itself speculated would be worth no more than $2 million a year. Fifty cents per chip on worldwide sales

is not a reasonable royalty in a territorial patent system that declines to govern patent regulation in other nations. And fifty cents per chip is not a reasonable royalty where CMU's expert failed to apportion damages specifically to the patented technology as distinct from myriad features essential to each chip.

Nor can CMU defend the court's finding of willfulness and resulting enhancement, given the objective reasonableness of Marvell's invalidity and infringement defenses. And CMU fails to explain how the district court could find that CMU "unreasonably and inexcusably delayed" in filing suit and yet reject Marvell's laches defense, even though Marvell's supposed egregious conduct did nothing to cause CMU's delay.

The judgment for CMU should be reversed or vacated.

ARGUMENT

I. CMU FAILS TO JUSTIFY THE DISTRICT COURT'S DENIAL OF JMOL ON INVALIDITY

Far from being "near impossible," as CMU asserts (Br.32), Marvell's showing of invalidity based on anticipation plainly justifies reversal, and the invalidity issue cannot be left, as CMU incorrectly suggests (Br.33), to the jury's intuitive sense of which expert witness it likes better.

A. Worstell Anticipates CMU's Claims

CMU asserts (Br.34) that the district court identified two limitations missing from Worstell (selecting from "'a set of signal-dependent branch metric

functions'" and applying a selected function to "'a plurality of signal samples'"), but the district court in fact merely summarized (A210-12) the competing experts' opinions before concluding that the jury could credit either. And the opinion of CMU's expert, Dr. McLaughlin, that Worstell did not anticipate those limitations is contradicted by "indisputable record facts" and "probative admissions." *Brooke Grp. Ltd. v. Brown & Williamson Tobacco Corp.*, 509 U.S. 209, 242 (1993); *Newell Cos. v. Kenney Mfg. Co.*, 864 F.2d 757, 767 (Fed. Cir. 1988).

First, Worstell indisputably addresses ***signal-dependent noise*** as required by CMU's claims—not just transition noise, as CMU incorrectly asserts (Br.36-37). As Dr. McLaughlin himself admitted, Worstell's transition noise is "a type of ***signal dependent*** noise" (A44968:10-16 (emphasis added); *see* A44944:4-18 (McLaughlin) (Worstell "only contemplates one" ***signal-dependent*** branch-metric function)).[1] And contrary to CMU's suggestion (Br.35), Marvell's argument does not depend on whether or not Equation 20 in the abstract is a signal-dependent branch-metric function. Rather, as noted in Marvell's opening brief (at 34), Worstell accounts for signal-dependent noise by *further* modifying Equation 20 using a multiplier dependent on the transition-noise standard deviation (σ)—a parameter that Dr. McLaughlin admitted (A44648:11-649:8) varies depending on

[1] The district court recognized that Worstell accounts for both correlated and signal-dependent noise. A7082-83; *see* Mrvl.Br.33.

whether there is a transition or not, confirming that, as Marvell's expert Dr. Proakis explained (A44647:7-648:10; A44655:12-656:1), Worstell discloses a ***set*** of functions.[2]

Second, Worstell would require ***a set*** of functions even assuming that, as CMU asserts (Br.36), the standard deviation was "*constant* across all branches"[3] or applied only to the 1s branches, because it would make no sense to multiply both the 1s and 0s branches by the same fraction.[4] Indeed, selecting from a "set" of functions was not a new idea. *See* Mrvl.Br.35-36. Worstell disclosed it, and so did the admitted prior art Zeng and Lee, as discussed *infra*. That is why CMU's

[2] Contrary to CMU's assertion (Br.36) that Dr. Proakis' testimony was "made up" or "misleading," the illustration of the further modified metric simply reflects common knowledge. A variance (σ^2) is the square of the standard deviation (σ), a feature of mathematics that is subject to judicial notice. *See, e.g.*, WEBSTER'S NEW WORLD COLLEGIATE DICTIONARY 1476 (3d ed. 1997) (defining "variance" in statistics as "the square of the standard deviation").

[3] CMU's suggestion (Br.36) that Worstell uses a "*constant*" fraction "across all branches" makes no sense: Viterbi detectors measure the ***difference*** between branch metrics. *See* A44673:15-674:17 (Proakis) ("I can eliminate [] those multipliers because what's important here is the relative value…."). And Worstell says only that "*one* of the *inputs* to each of the multipliers is constant." A53697 at 10:59-60 (emphasis added). Dr. McLaughlin admitted that the transition-noise standard deviation, upon which the multiplier depends, is not constant but *varies* depending on the presence of transitions. A44648:23-649:8; *see* Mrvl.Br.34.

[4] Taking CMU's miner analogy (Br.8-9, 37), if some tunnels included toll booths (representing media noise created by a transition) whereas others did not, one could include a multiplier for the tunnels with tolls to account for the greater time required to traverse those tunnels. But using the *same* multiplier for *all* tunnels would not account for the *additional* time associated with the tunnels with tolls.

invention disclosure distinguished the prior art on other grounds like the fact that that its invention uses "correlation matrices" while the prior art detectors "ignore correlation between noise samples" (A46088-89).[5]

Third, CMU's argument (Br.37) that Worstell does not disclose applying its "transition noise adjustment" to "a plurality of signal samples" misses the mark. The transition-noise "adjustment" is *used* to further modify Worstell's modified branch-metric function that is applied to a plurality of signal samples (*see* Mrvl.Br.34). Worstell's text makes this plain, as even the court below acknowledged (A7075; A7082-83): Worstell accounts for correlation by modifying a conventional branch-metric function so that it is applied to a plurality of signal samples. A53693 at 2:3-7. To *further* address transition noise, Worstell takes the already modified branch metric (that uses the plurality of signal samples) and *further modifies* it by multiplying it by a fraction dependent on the transition-noise standard deviation. A53697 at 10:48-59. Thus, both branch-metric functions (the modified metric and the further modified metric) are applied to a plurality of signal samples.

[5] The supposed inconsistency CMU attributes to Dr. Proakis (Br.36, 51) was simply a result of him responding to the district court's evolving rulings defining the elements of a function (*see* Mrvl.Br.20-21; A7079) while characterizing Worstell and CMU's asserted claims exactly the same way under those rulings (A44646:9-20; A44678:18-679:6). But the court precluded Dr. Proakis from so explaining at trial. A44669:24-670:20; A44678:18-694:6.

B. Worstell Renders CMU's Claims Obvious Either Alone Or In View Of The Admitted Prior Art

CMU does not deny that the admitted prior art discloses a set of signal-dependent branch-metric functions, but rather argues (Br.38) only that Marvell waived obviousness based on Worstell in view of the admitted prior art. That is incorrect.

First, CMU asserts (Br.38) that the obviousness argument was too conclusory. But Marvell's point is simple: Even if *Worstell* did not teach a set of functions for addressing signal-dependent noise, *other* admitted prior art *did*—as CMU's own expert and inventor acknowledged (*see* A44635:13-24; A44636:6-19).

Second, CMU asserts (Br.38) that Marvell did not raise obviousness at trial based on Zeng and Lee. But CMU ignores Dr. Proakis's extensive testimony that, like Worstell, Zeng and Lee disclose selecting from a set of signal-dependent branch-metric functions (A44634:5-636:19; A44639:13-25). Indeed, CMU acknowledges (Br.38) that Marvell relied on all three references (Worstell, Zeng, *and* Lee) in seeking JMOL on invalidity (A33843-44; A33848-50).

As a fallback, CMU argues (Br.39) that secondary considerations defeat obviousness. But CMU fails to establish any nexus to the asserted claims or to identify (outside of the accused chips) a single commercial chip that uses the patented methods (*see* A41534:13-536:5 (Kavcic)).

For all these reasons, no reasonable jury could find validity.

II. CMU FAILS TO JUSTIFY THE DISTRICT COURT'S DENIAL OF JMOL ON NONINFRINGEMENT

By CMU's account (Br.40, 43, 57), noninfringement came down to a "battle of the experts," and the district court was right that the "jury was free to accept either expert's opinions or reject them" (A194). But CMU disregards undisputed record evidence contradicting its account of its expert testimony. *See Brooke Grp.*, 509 U.S. at 242; *Newell*, 864 F.2d at 767.

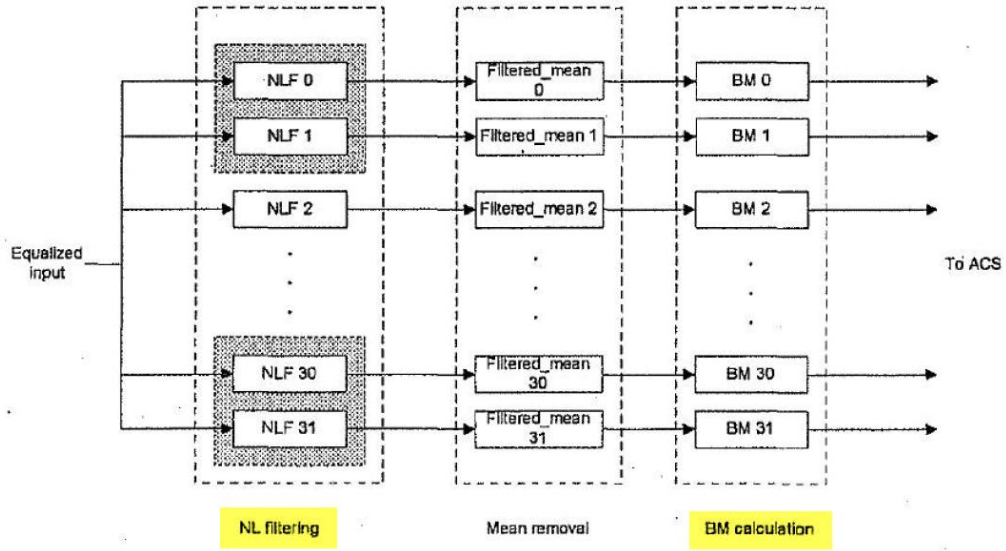
A. Marvell's NLD Chips Do Not Infringe

Contrary to CMU's argument (Br.40-42), the record fails to support infringement by the NLD-type chips. CMU's claims require application of branch-metric functions to a ***plurality*** of signal samples (*e.g.*, r_1, r_2, r_3) to determine a branch-metric value (A456 at 14:15-16; A481 at 15:47-48). As CMU fails to note, CMU's inventor described (A41231:18-232:8 (Moura)) as "the key to the invention" CMU's Equation 13, ***a set*** of branch-metric functions applied to ***a plurality*** of signal samples (r_{t1}, r_{t2}, and r_{t3}), expressed in CMU's technology tutorial video (*see* Supp. Video App. at slides 127-29) as the following "novel equation":

$$BM_1 = \log \sigma_1^2 + \frac{[(r_{t1}-m_1) + w_{1(2)}\cdot(r_{t2}-m_{1(2)}) + w_{1(3)}\cdot(r_{t3}-m_{1(3)})]^2}{\sigma_1^2}$$

By contrast, Marvell's detector indisputably uses a branch-metric function, expressed in the equation $BM = (f_y - f_m)^2$, that is applied to a ***single*** signal sample, f_y, as Marvell's technical documents demonstrate (A48271). CMU offers no response to Marvell's reliance (Mrvl.Br.17) on that equation. Nor could it, for CMU's own expert Dr. McLaughlin admitted (A41996:6-10) that the result of the "application step" in Marvell's NLD-type chips is a ***single*** signal sample (f_y).

CMU attempts to avoid Marvell's technical documents demonstrating that NLD filters ***precede*** the branch-metric calculation by calling them (Br.40-41) a mere "box"-drawing exercise:



A48240 (highlighting added). But CMU identifies no Marvell "function" or "mathematical relation" in the NLD chips whatsoever, much less one that is

applied to a plurality of signal samples to determine a branch-metric value.[6] And CMU is not helped by the fact (Br.41) that the NLD FIR filters perform "'noise whitening,'" because those filters output only a ***single*** signal sample, f_y, which represents a noise-whitened parameter—and it is only the ***single*** signal sample that is input into the branch-metric function, $BM = (f_y - f_m)^2$.

B. Marvell's MNP/EMNP Chips Do Not Infringe

CMU likewise fails in its effort (Br.42-45) to rehabilitate the finding of infringement as to the MNP-type chip. Conceding (Br.44) but seeking to minimize Dr. Kavcic's admission that his invention accounts for signal dependency "***in the trellis*** and NOT in the post processor" (A53700 (emphasis added); A41545:24-546:4), and that no technical documents in the parties' chip stipulation refer to the MNP using a trellis, CMU argues (Br.42-43), for the first time, that its claims are not limited to branch-metric calculations "in a trellis." But the operative claim construction precludes such an approach, for it holds that a branch is a "potential transition between two states (nodes) immediately adjacent in time ***in [a] trellis***." A45463:16-19; A3179 (emphasis added). Because CMU's claims are directed to "branch" metric functions that determine "branch" metric values, the functions at issue necessarily calculate the values of branches "***in a trellis***." Marvell's MNP

[6] The district court construed "function" as "a mathematical relation that uniquely associates members of a first set with members of a second set." A45463:13-15.

module cannot infringe because it is indisputably a post-processor that operates after and ***outside*** the Viterbi trellis, which is where and how "branch metric values" are determined.[7]

As a fallback, CMU argues (Br.44-45) that Marvell's defense was rejected during claim construction. There, however, the court was construing (A3745) a *different* term, "Viterbi-like," which is not at issue in this appeal.

Thus, the record fails to support infringement by the MNP chips. The ***only*** document CMU references (Br.43-44) in arguing that the MNP uses a trellis is a high-level document intended for a sales audience (A47896; *see* A41817:7-16 (McLaughlin)), but that document does not illuminate the technical specifications that control analysis of infringement. As this Court held in CMU's own authority *PharmaStem Therapeutics, Inc. v. ViaCell, Inc.*, 491 F.3d 1342, 1351-52 (Fed. Cir. 2007) (cited in Br.44), such advertising materials are insufficient to show infringement in the absence of technical proof that accused products actually do what the asserted claims require.[8]

[7] Although CMU asserts (Br.42-43) that Marvell never specifies what limitation its MNP chips fail to satisfy, Marvell made clear (Mrvl.Br.14-15, 42) that its MNP chips use a conventional branch metric applied to a ***single*** signal sample whereas the claims require the application of a set of functions to a ***plurality*** of signal samples.

[8] CMU asserts (Br.44) that Marvell "even admitted" that its MNP circuit computes a few branch metrics, pointing to a noninfringement claim chart (A18435) that was not presented to the jury and was created prior to claim

C. Marvell's Simulations Do Not Infringe

In defending the jury's finding that the simulators infringe, CMU misconstrues this Court's decision in *Harris Corp. v. Ericsson Inc.*, 417 F.3d 1241 (Fed. Cir. 2005). CMU suggests (Br.45-46) that *Harris* found a "flow chart" describing a simulation program insufficient to infringe but would have found infringement had the simulation program been run. That is incorrect. In fact, this Court vacated the jury's infringement verdict because Harris had failed to show that the claimed method was used in an actual communication system, rather than in a mere simulation used to test algorithms: "Harris has not shown that the claimed method is ***actually*** carried out, ***rather than simulated***, when Ericsson runs this program." *Harris*, 417 F.3d at 1256.

Here, as in *Harris*, Marvell's simulations cannot infringe claims directed to actual "detectors." Simulations use synthetic signals or text files that represent captured signals, not actual signals read from a magnetic hard disk. A192-93. Text files are not actual signals any more than an image of car captured by a camera is the actual car.[9]

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construction. There, Marvell simply assumed *arguendo* that the MNP was part of the Viterbi detector. In pointing (Br.43-44) to testimony from Marvell's lead engineer that "*BM*" in Marvell's specification stands for "branch metric," CMU cuts off the engineer's response: "It stands for branch metric, but we don't calculate that." A44020:25-21:2 (Wu).

[9] CMU maintains (Br.46) that the patent teaches that the claims can be carried out "on a computer." But CMU fails to note that the computer described is

For all these reasons, no reasonable jury could find infringement.

III. CMU CANNOT DEFEND THE ASTRONOMICAL DAMAGES AWARD

A. The Running-Royalty Award Warrants Reversal Or Vacatur

1. CMU Fails To Justify The District Court's Disregard Of Flat-Fee Benchmarks

While it is undisputed that, in the real world, CMU offered to license the patents-in-suit for only modest flat fees, CMU relies (Br.61) upon evidence that the parties entered into some running-royalty agreements around the time of the hypothetical negotiation. But CMU tacitly admits that *those* agreements involved technologies that were ***not comparable*** to the technology at issue here (*see* Mrvl.Br.47, 50-52). This Court has rejected reliance on similarly "irrelevant" licenses "untethered from the patented technology at issue and the many licenses thereto." *LaserDynamics, Inc. v. Quanta Computer, Inc.*, 694 F.3d 51, 80-81 (Fed. Cir. 2012) (citing *ResQNet.com, Inc. v. Lansa, Inc.*, 594 F.3d 860, 872-73 (Fed. Cir. 2010)).[10]

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part of a "high density magnetic recording device." A455 at 11:11-13. In contrast, the very next paragraph describes "simulation" test results applied to synthetic samples used to "create realistic waveforms." A455 at 11:30-31. The claims are not directed to "realistic" simulations of detection—but to ***real*** magnetic recording detection.

[10] CMU's own university *amici* (Universities' Br.17) cite "established licensing practice," which would counsel reliance on historical flat-fee benchmarks here.

There is no dispute that CMU was willing to license these very same patents to other industry participants for flat-fee sums ***thousands*** of times less than Ms. Lawton calculated and the jury awarded. A41159:24-160:1 (Cohon); A41297:17-299:3 (Moura). While CMU tries (Br.61-64) to distinguish the flat-fee licenses as mere efforts to gain "venture-capital funding" from DSSC donors or to obtain a marketing imprimatur from Intel, it offers no explanation why Marvell would have negotiated to pay ***well over a billion dollars in running royalties*** to license the same patents that other companies could obtain for a minuscule fraction of that amount. CMU's only answer to *its own* $2 million-per-year projection (A53806) is to say that it was "'speculative'" (Br.64 (quoting A42420)), but that fact *confirms* that a $2 million annual fee would have been the *upper bound*, at best, of what CMU could have hoped to obtain in negotiating a reasonable royalty: CMU could not credibly have demanded, and Marvell would not have agreed to pay, a royalty ***hundreds*** of times greater than CMU's own best-case projection.

2. CMU Fails To Defend Lawton's Unreliable Testimony

As this Court recently reiterated, it is "a critical prerequisite" to a jury's damages verdict "that the underlying methodology be sound." *Virnetx, Inc. v. Cisco Sys., Inc.*, 767 F.3d 1308, 1328 (Fed. Cir. 2014). Because Ms. Lawton's methodology is unsound under the Court's precedents, including to the extent predicated upon licensing of non-comparable technologies using running

royalties,[11] it should have been excluded and, at a minimum, the damages award should be vacated and remanded. *See LaserDynamics*, 694 F.3d at 79-80.[12]

B. The Use Of A Worldwide Royalty Base Warrants Reversal Or Vacatur

In defending the district court's novel use of a ***worldwide sales base*** in calculating a reasonable-royalty award, CMU (Br.84-88) and its *amici* (Universities' Br.15)[13] fail in their effort to distinguish this Court's ruling in *Power Integrations, Inc. v. Fairchild Semiconductor Int'l, Inc.*, 711 F.3d 1348 (Fed. Cir. 2013). As this Court has reiterated, "confer[ring] a worldwide exclusive right to a U.S. patent holder" would be "contrary to the statute and case law." *Halo Elecs., Inc. v. Pulse Elecs., Inc.*, 2014 WL 5352367, *7 (Fed. Cir. Oct. 20, 2014) (citing

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[11] CMU emphasizes (Br.59) Ms. Lawton's "27 years … as an expert on damages," but her experience with *other* litigation matters is well removed from negotiating actual licenses, let alone licenses for semiconductor chips. In any event, no amount of experience can justify an expert's resort to unsound, unreliable methodologies such as those at issue.

[12] Nor can CMU salvage (Br.65 n.5) Ms. Lawton's alternative royalty base of 556,812,091 chips, for there is no evidence that Marvell relied on the relevant industry publications to estimate (as Ms. Lawton did) how many of its own chips enter the United States. Nor does anything else support Ms. Lawton's assumption (A43405:25-406:5) that the number of Marvell's chips in the United States can be derived from the number of PCs imported.

[13] Daniel Ravicher's submission should be disregarded. As this Court has noted, Mr. Ravicher has a practice of inserting himself as *amicus* to further his undisclosed financial interests. *E.g., ParkerVision, Inc. v. Qualcomm Inc.*, No. 14-1612 (Fed. Cir. Nov. 14, 2014), ECF No. 53.

Power Integrations, 711 F.3d at 1371-72); *see also Morrison v. Nat'l Australia Bank Ltd.*, 561 U.S. 247, 266 (2010); *Microsoft Corp. v. AT&T Corp.*, 550 U.S. 437, 454-56 (2007). But here, the district court allowed the inclusion of foreign sales in the royalty base to inflate the damages award by as much as ***$891 million to over $1 billion***. *See* A43448-51.

1. CMU Asserts No Precedent For The District Court's Novel Royalty Base

CMU incorrectly casts *Power Integrations* (Br.85) as "reject[ing] the patentee's theory because of a simple failure of proof." To the contrary, this Court rejected, *as a matter of law*, the theory that damages for U.S. patent infringement may be based on foreign sales merely because the sales would not have occurred but for domestic infringement. 711 F.3d at 1371-72. In doing so, the Court recognized that the patent-holder's theory posed an "interesting juxtaposition" between the principle of full compensation for infringement and the prohibition against extraterritorial enforcement, before holding that the latter necessarily trumps because foreign production, use, or sale "cuts off the chain of causation initiated by an act of domestic infringement." *Id*. Although CMU tries to distinguish *Power Integrations* (Br.87-88) by invoking a "direct link" between Marvell's domestic infringing use and foreign sales of accused products, Power Integrations similarly sought to recover on worldwide sales because they were "the *direct, foreseeable result* of Fairchild's domestic infringement." 711 F.3d at 1370-

71 (emphasis added). Just as Power Integrations could not recover damages to compensate for foreign sales that it lost as a result of Fairchild's domestic infringement, CMU may not recover for Marvell's foreign sales even if they were obtained (as they were not) as the result of domestic infringing use.

CMU fares no better in defending the worldwide-sales damages base by citing (Br.78-79) other decisions that addressed damages awards in entirely different contexts. Several of those decisions held only that damages may be recovered for sales of the very same units whose ***use or manufacture in the United States*** itself infringed**.** *See Powell v. Home Depot U.S.A., Inc.*, 663 F.3d 1221, 1237-38 (Fed. Cir. 2011) (domestic use of radial arm saw guards); *Fromson v. Western Litho Plate & Supply Co.*, 853 F.2d 1568, 1569, 1577-78 (Fed. Cir. 1988) (domestic use of infringing lithographic plates). Several others involved infringement by domestic manufacture or use that ***immediately generated*** (not just causally resulted in) the very same units that comprised the royalty base. *See Spectralytics, Inc. v. Cordis Corp.*, 649 F.3d 1336, 1339-41 (Fed. Cir. 2011) (damages for sales of coronary stents produced domestically from infringing apparatus); *Union Carbide Chem. & Plastics Tech. Corp. v. Shell Oil Co.*, 425 F.3d 1366, 1378 (Fed. Cir. 2005) (damages for sales of chemicals produced

domestically from infringing catalyst process);[14] *Minco, Inc. v. Combustion Eng'g, Inc.*, 95 F.3d 1109, 1113, 1119-20 (Fed. Cir. 1996) (damages for sales of non-infringing silica produced by domestic use of infringing furnace); *see also U.S. Frumentum Co. v. Lauhoff*, 216 F. 610, 610, 614, 617 (6th Cir. 1914) (damages available where defendant sold infringing corn-flake product made by infringing process). Those cases had no occasion to engage the presumption against extraterritorial application of U.S. patent law.

The only decisions CMU cites (Br.82-83) that do count foreign sales in a royalty base are a far cry from this case. In *Gould's Mfg. Co. v. Cowing*, 105 U.S. 253, 256 (1881), and *Railroad Dynamics, Inc. v. A. Stucki Co.*, 727 F.2d 1506, 1519 (Fed. Cir. 1984), foreign sales were included in a royalty base only because each infringing unit was ***manufactured in the United States*** (an infringing act, *see* 35 U.S.C. § 271(a)) before some of those same units were sold abroad. There was thus a coextensive, one-to-one relationship between the act of domestic infringement and the specific units included in the base, leaving any subsequent sales abroad "irrelevant" to the calculation, as this Court noted in *Railroad*

[14] *Union Carbide*'s holding that section 271(f) applies to method claims has been overruled. *Cardiac Pacemakers, Inc. v. St. Jude Med., Inc.*, 576 F.3d 1348, 1365 (Fed. Cir. 2009) (*en banc*).

Dynamics, 727 F.2d at 1519.[15] In this case, by contrast, the district court allowed any act of domestic infringement in the sales cycle to warrant inclusion in the royalty base of a potentially unlimited number of foreign chips that never even touch the United States, ***based on a mere "casual connection."*** CMU can cite *no* precedent for the district court's novel causal leap from domestic infringing use to sales of chips manufactured, sold and used entirely abroad. And, contrary to CMU's suggestion (Br.76-78), method claims enjoy no special exemption from the territorial limitations otherwise applicable to patent damages.[16]

Nor does CMU's mantra about "must have" technology (Br.76) bear upon the royalty ***base***. The supposed "must have" premium value was built into CMU's proffered royalty ***rate***, as Ms. Lawton testified (A43080:9-81:2), and CMU may not double-count by relying on the same concept to expand the royalty base. The cases CMU cites (Br.78-79) only confirm its error, for each accounts for the "value of the benefit conferred to the infringer by use of the patented technology" in

[15] The same holds for other cases CMU cites in passing (Br.82-83). *See Schneider (Eur.) AG v. SciMed Life Sys., Inc.*, 1995 WL 375949, *3 (Fed. Cir. Apr. 26, 1995) (unpublished) (domestic manufacture of infringing catheters); *Sheldon v. Metro-Goldwyn Pictures Corp.*, 106 F.2d 45, 52 (2d Cir. 1939) (domestic reproduction of copyright-infringing negatives). Notably, *Dowagiac Mfg. Co. v. Minn. Moline Plow Co.*, 235 U.S. 641, 650 (1915) (cited in Br.82), ***rejected*** liability for drills "sold in Canada."

[16] Also contrary to CMU's suggestion (Br.79-80), *Lucent Techs., Inc. v. Gateway, Inc.*, 580 F.3d 1301, 1334-35 (Fed. Cir. 2009), supports Marvell by holding that non-infringing use cannot be used to value infringing use.

assessing the royalty ***rate***. *Powell*, 663 F.3d at 1240-41; *see Minco*, 95 F.3d at 1119-20; *Spectralytics*, 649 F.3d at 1347.

2. CMU Errs In Suggesting That All Of Marvell's "Sales" Are Domestic

CMU asserts as a fallback (Br.83-84, 89) that all relevant "sales" occurred in California because that is where Marvell allegedly used CMU's method to achieve "design wins." Contrary to CMU's assertion, however, ***a design win is not the equivalent of a sale***: "pricing and contracting negotiations in the United States alone do not constitute or transform those extraterritorial activities [*e.g.*, location of final formation of contract, delivery, performance] into a sale within the United States for purposes of § 271(a)." *Halo*, 2014 WL 5352367, *6.[17] At best, the question whether the location of the design win is the same as the location of sale would be one for the jury, *see MEMC Elec. Materials, Inc. v. Mitsubishi Materials Silicon Corp.*, 420 F.3d 1369, 1379-80 (Fed. Cir. 2005),[18] but here that question was never posed. To the contrary, the jury was invited (A45456:1-6) to consider

[17] *See Transocean Offshore Deepwater Drilling, Inc. v. Maersk Contractors USA, Inc.*, 617 F.3d 1296, 1310 (Fed. Cir. 2010); *Ziptronix, Inc. v. Omnivision Tech., Inc.*, 2014 WL 5463051, *5 (N.D. Cal. Oct. 21, 2014) (no domestic sales even where contracts were "negotiated and executed" in the U.S., because they "contemplated delivery and performance abroad").

[18] CMU misplaces reliance (Br.83) on *Broadcom Corp. v. Emulex Corp.*, 732 F.3d 1325 (Fed. Cir. 2013), which merely affirmed a *permanent injunction* where competitors competed in a "design win" market, without analyzing the criteria for determining sales location. *Id.* at 1337.

all "sales resulting from" infringing use when determining damages, no matter the particular sales location.[19] Having won on a legal theory that was indifferent to whether Marvell's sales occurred in the United States or abroad, CMU may not now use sleight-of-hand to suggest that all sales were really domestic. In any event, the record evidence that the jury was not even told to consider shows that Marvell's chips in fact are manufactured, delivered, and sold abroad. *See* A42159:12-23 (Bajorek); A44204:14-205:7 (Hoffman).

3. CMU Fails To Justify Instructing The Jury To Consider All Marvell Sales "*Resulting From*" Alleged Infringing Use

Even if a U.S. patent-holder could include foreign sales in a royalty base under a theory like the district court's, at minimum such inclusion would require a strict causal nexus to the domestic infringement. Requiring such a nexus guards against overcompensating patentees, just as it does in other contexts where a number of different inventive features lead to sales. *See LaserDynamics*, 694 F.3d at 68 (requiring showing that patented invention "drove demand" to use infringing product's entire market value); Tech. Companies' Br.20-23. CMU defends the district court's omission of such a requirement from the damages instruction

[19] *See* A248 (court permitting CMU to rely on "foreign sales" as an "appropriate component to value domestic infringement"); A31961 (court permitting CMU to "seek[] damages for this sales cycle infringement by claiming a reasonably royalty rate on *all* of the chips that are … purchased *based on the result* of said cycle"); A45252, A45284 (CMU's closing argument urging jury to award royalty on Marvell's worldwide sales).

(A45456:1-20) only by suggesting (Br.91) that even the slightest factual relationship is legally sufficient—a suggestion at odds with *LaserDynamics*.[20]

The district court's jury instruction was further deficient because it afforded no meaningful guidance. Sales "result from" innumerable things that Marvell does in the United States (*e.g.*, correcting bugs in its software). Apparently recognizing that mere causal "result" cannot support recovery on foreign chips, CMU stresses (Br.78, 82; *see* Universities' Br.24) that Marvell's global sales "***directly*** result" from infringement, yet the jury was not instructed to find as much—the word "directly" is absent from the instruction (A45456:1-6).

Finally, CMU asserts (Br.91) that the problem with the jury instruction is a "quibble" because the same royalty base obtains "under any plausible causation standard." To the contrary, a billion dollars turns on this issue. And the jury was presented with uncontradicted evidence (A44417:14-418:15; A44422:2-7; A44427:1-431:13; A44435:2-25; A44448:9-22 (Baqai)) that Marvell's largest customer, Western Digital, ***did not want*** the accused feature in making purchasing decisions.

[20] The lone case CMU cites (Br.91) to support the "resulting from" instruction is far removed from this context—a criminal case turning on the statutory phrase "if death or serious bodily injury results from the use of [a] substance." *See United States v. Hatfield*, 591 F.3d 945, 947-50 (7th Cir. 2010).

4. CMU Wrongly Discounts The Adverse Policy Consequences Of The Erroneous Royalty-Base Decision

CMU has no meaningful answer to the grave policy concerns that affirmance of the worldwide-sales royalty base would trigger (*see* Professors' Br.11-19). By CMU's theory, for instance, use of a single U.S. prototype during testing and demonstration could open the door to a royalty base encompassing any number (potentially thousands, millions, indeed billions) of *separate* (albeit causally related) foreign units whose sale, manufacture and use reflects non-infringing conduct under U.S. patent law. Neither CMU nor its *amici*[21] deny that CMU has been awarded—under the auspices of valuing ***domestic*** infringement—every penny that would be due if ***foreign*** use infringed its U.S. patent claims. CMU's position further upsets the law by mooting any need to prove indirect infringement in cases like this; holders of method claims would recover exactly the same damages for all units (in the United States and abroad) connected causally to initial U.S. infringement.

CMU discounts (Br.89) the specter of double recovery by asserting that "an award in one jurisdiction is typically offset against any claim in another." CMU thereby makes the mistake (*see* Professors' Br.14-15) of presuming how foreign jurisdictions will apply their law. In any event, offsetting does nothing to address

[21] The contributions CMU's academic *amici* highlight (Universities' Br.1-2) all occurred without resort to the novel theory of patent damages that CMU advances.

cases where different parties hold foreign rights, or where foreign sovereigns do not condone the same recovery for relevant activity within their borders (*e.g.*, because patent protections have not been secured there).

Contrary to CMU's assertion (Br.90), the prospect of technology companies relocating operations abroad to avoid outsized recoveries is no speculative "boogeyman," as Marvell's *amici* attest (*see* Tech. Companies' Br.27). To the contrary, such offshoring would be a real likelihood if all global activities arguably resulting from an initial, infringing use were now to become fair game in U.S. patent cases.

C. The Use Of An Unsupported $.50-Per-Chip Royalty Rate Warrants Reversal Or Vacatur

As to the royalty rate, CMU glosses over its failures of proof by insisting (Br.56, 72, 75-76) that its patented technology was a "must have" for Marvell. But uncontradicted testimony from Marvell's largest customer, Western Digital, showed that the accused MNP technology "was not a factor of any weight" in its purchasing decisions. A44417:14-418:15; A44422:2-7; A44427:1-431:13; A44435:21-25; A44448:9-22 (Baqai). Furthermore, Marvell chips *without* the accused technology had equal or *greater* profit margins than chips with it. A43481:19-25 (Lawton).

Even if the patented technology were "must have" (as it was not), it was but one among many features that drove Marvell's chip accuracy and speed, making

proper apportionment imperative. It was undisputed that Marvell added *several* non-accused technologies to its chips by the time of the alleged infringement (*compare* A43884:14-23 (0.4 dB gain from MNP) *with* A54313-14; A43874:3-877:10 (Wu) (SNR gain from non-accused features developed around 1999-2001); A43874:3-10 (2-3 dB gain from RLL code); A43874-75 (0.5 dB gain from analog front end); A43875:4-16 (0.5 dB gain from high-rate single parity code), *id.* (0.5-1 dB gain from programmable target); A43875-76 (1.2 dB gain from 10-bit ECC)). Accepting that each source of dB gain was at a premium in this industry, Marvell would not negotiate to pay a $.50-per-chip premium for every one.

1. CMU Fails To Rehabilitate The "Excess Profits" Theory

While conceding below that this case does not satisfy the entire market value rule (Br.91; A33592; A42593-96), CMU has no defense for the district court's failure to require that "damages [be] attributable to the infringing features," *Virnetx*, 767 F.3d at 1326; *see LaserDynamics*, 694 F.3d at 67, 69-70; *Uniloc USA, Inc. v. Microsoft Corp.*, 632 F.3d 1292, 1317-18 (Fed. Cir. 2011).[22] CMU tries to

[22] Tellingly, whereas the entire market value rule is out of play here, most of the cases CMU cites to defend Ms. Lawton's excess-profits analysis depend upon that rule. *See Finjan, Inc. v. Secure Computing Corp.*, 626 F.3d 1197, 1208 (Fed. Cir. 2010) (defendants waived challenge to entire market value rule); *Fromson*, 853 F.2d at 1578 (entire market value rule applied), *overruled on other grounds by Knorr-Bremse Systeme Fuer Nutzfahrzeuge GmbH v. Dana Corp.*, 383 F.3d 1337 (Fed. Cir. 2004) (*en banc*); *TWM Mfg. Co. v. Dura Corp.*, 789 F.2d 895, 900-01 (Fed. Cir. 1986) (same); *Georgia-Pac. Corp. v. U.S. Plywood Corp.*, 318 F.

obscure this legal defect by stating (Br.70) that this was "a life or death matter for the company." But that is unavailing: this Court has held that, regardless whether a patented feature is "valuable, important, or even essential," apportionment is *still* required unless the patented feature ***drove consumer demand***. *LaserDynamics*, 694 F.3d at 68. No refrain about "must have" technology can excuse the failure to apportion here. *See, e.g.*, *Virnetx*, 767 F.3d at 1326.[23]

CMU now asserts (Br.71) that Lawton's excess-profits calculations were merely a "benchmark for the amount that 'would be available to pay a royalty' for CMU's invention."[24] But that assertion is untenable, for Ms. Lawton testified that

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Supp. 1116, 1134 (S.D.N.Y. 1970) (same), *aff'd as modified*, 446 F.2d 295 (2d Cir. 1971).

[23] Equally unpersuasive are CMU's suggestions (Br.66, 70, 71) that Ms. Lawton's approach leaves Marvell with an "acceptable return," an "adequate profit" or even "doing really well." "This [C]ourt has consistently held that 'a reasonable royalty analysis requires a court to … carefully tie proof of damages to the claimed invention's footprint in the market place.'" *Virnetx*, 767 F.3d at 1327 (quoting *ResQNet*, 594 F.3d at 869).

[24] CMU maintains (Br.70) that *Energy Transp. Grp., Inc. v. William Demant Holding*, 697 F.3d 1342, 1356 (Fed. Cir. 2012), supports Ms. Lawton's "excess profits" calculation as relevant to the "range of possible royalties the parties would have considered in a hypothetical negotiation." The analysis in *Energy Transp.*, however, looked to actual "operating profits" of infringing products compared to noninfringing devices, *id.* at 1356, whereas Ms. Lawton seized only on *gross* profits above an *aspirational* goal (A43314:15-315:18; A43326:18-327:4). By ignoring Marvell's costs, Ms. Lawton arrived (A43325:19-326:2) at an inflated calculation ($.42 per chip of ***gross*** profit) that fails to illuminate the amount actually "available to pay a royalty." In any event, because the defendants in *Energy Transp.* dropped their apportionment challenge on appeal, *see* Response and Reply Brief, 2012 WL 481406, *32-35 (Fed. Cir. Jan.

her "excess profit analysis" served to "estimate[e] the value associated with the other components of the chip" (A42803:1-14) and "valu[e] the other patents within Marvell's read channel" (A42790:4-9) as part of the analysis that brought her to a royalty rate of "50-cents per chip" (A43411:12-412:9). Moreover, where (as here) the entire market value rule is inapplicable, a patentee may not invoke evidence of total revenue and profits to serve as a royalty "check." *Uniloc*, 632 F.3d at 1318-21. Directing the jury to Marvell's supposed "excess profits" on the bare theory that Marvell could draw from them to pay CMU amounted, at best, to an end-run around *Uniloc*.

CMU also fails to explain (Br.70-71) how Ms. Lawton's "excess profits" analysis can survive the undisputed fact (A43481:19-25 (Lawton)) that Marvell's ***non***-infringing chips had ***gross profit margins greater or equal to*** the margins Lawton identified for the infringing chips. Ms. Lawton's attempt to explain away this fact does not bear scrutiny. *See, e.g.*, *Virnetx*, 767 F.3d at 1333 (expert's "thin" explanation of methodology's reliability "demonstrates how [it] is subject to abuse").

23, 2012) (No. 2011-1487) (raising 25% rule after *Uniloc*), that case did not address apportionment. *See* 697 F.3d at 1356-57 (addressing 25% rule challenge).

2. CMU Fails To Rehabilitate The "Operating Profit Premium" Theory

CMU defends (Br.72) Ms. Lawton's assertion that MNP is worth an "operating profit premium" of up to $.72 per chip by citing her testimony (A43339-40) that she understood MNP to be the "key" or "only" difference between the chips she compared. But, as to the ***Toshiba*** chips, when "only" MNP was added, the premium was just ***$.06 per chip***. *See* Mrvl.Br.66. Ms. Lawton derived the premium of ***$.72 per chip*** specifically from ***a miniscule sample of just 9,855 Maxtor chips***, as to which MNP was, per Ms. Lawton, just one of ***several*** differences. *See* A43334:2-13; A43339:15-340:10; A38648; A38646. Even crediting Ms. Lawton's "operating profit premium" analysis, a rational jury could not favor the apples-to-oranges Maxtor differential ($.72) over the apples-to-apples Toshiba differential ($.06) in order to arrive at a $.50 rate that is more than eight times the Toshiba "premium."

CMU also fails to excuse Ms. Lawton's failure to attribute any portion of the MNP "premium" to Marvell's valuable contributions in developing a method for implementing the asserted algorithm in a commercially viable chip. Although CMU asserts (Br.73) that there is no evidence that Marvell's "efforts were so significant as to warrant allocating a portion of the *profits* associated with MNP,"[25]

[25] CMU cites nothing suggesting that profits are any less subject to apportionment than costs. To the contrary, this Court's apportionment precedents

that contention ignores the admissions of CMU's own inventors. For instance, Kavcic himself admitted that his optimal approach was "difficult[,] since the metric computations are too intense" (A53677), and was indeed "too complicated for implementation in a detector" (A53673). And Kavcic and Moura both acknowledged that their work was "embryonic" and needed "substantial work to bring to market." A46093; *see also* A54316 (CMU recognizing that while its "patent [was] optimal," the "optimal implementation is complex"). Absent Marvell's development work, CMU's invention would have generated *no* royalties; no jury could rationally conclude that Marvell's implementation contributed ***nothing*** to the invention's profitability, as affirmance would require. In nonetheless asserting that the jury could simply credit Ms. Lawton's testimony (Br.73), CMU overlooks that Ms. Lawton claimed neither requisite technical expertise (A33422) nor even to have assessed the "real value" of Marvell's contributions in order to apportion her "premiums."[26]

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extend to an infringer's *profits*. *See Virnetx*, 767 F.3d at 1326 (citing *Garretson v. Clark*, 111 U.S. 120, 121 (1884)) ("a patentee must in every case give evidence tending to separate or apportion the defendant's profits and the patentee's damages between the patented feature and the unpatented features"). *Monsanto Co. v. Ralph*, 382 F.3d 1374 (Fed. Cir. 2004), cited by CMU (Br.72-73), did not involve apportionment.

[26] Although CMU cites *i4i Ltd. Partnership v. Microsoft Corp.*, 598 F.3d 831 (2010), to suggest that Ms. Lawton's invocation of *Georgia-Pacific* sufficed to apportion (Br.65), *i4i* preceded *Uniloc* and did not mention apportionment. There, plaintiff's expert applied the now discredited 25-percent rule to defendant's total

CMU is no more persuasive in denying (Br.73) that Ms. Lawton improperly anchored her "operating profit premium" analysis to the paltry ***9,855-chip*** sample of chips that Marvell offered to Maxtor. A43345:3-346:5, A43487:19-4-488:6; *see also* A38648 (identifying three chips with alleged $.72 per chip "operating profit premium"); A38646 (identifying alleged sales of 9,855 for those same three chips). The other "data" that CMU cites involving *greater* volumes of chips all reflect *diminished* premiums that cannot sustain a $.50 royalty. *See, e.g.*, A43345:3-346:19 (Lawton); A38647-48 (reflecting $.47 "premium" on just under 150,000 chips); A32796; A43330:12-332:6 (Lawton) (showing *higher* per-chip price and gross margin for chips *without* MNP than for chips with MNP for *total* 2003-04 sales of chips compared in Ms. Lawton's analysis).

Nor can CMU show that the Maxtor chips were representative. CMU does not deny (Br.73-74) that the Maxtor chips were low-volume *sample* chips (A43484:3-12; A43486:14-24) (Lawton), nor that such chips are priced significantly higher than high-volume *production* chips (A43603:14-605:21; A44398:17-400:19) (Hoffman). And CMU nowhere addresses Ms. Lawton's admissions at trial that chip price "will [] vary by customer," "from chip to chip," and "based on time" (A43329:3-15), and that, "in this industry, the price is always

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profits on a purportedly comparable product to arrive at a royalty that served as an initial "baseline" for a *Georgia-Pacific* analysis.

going down" (A43347:25-348:20).[27] No rational jury could credit Lawton's insistence on using the same *absolute* price "premium" (rather than a percentage) throughout multiple years' worth of sales: With chip prices progressively falling, the necessary result of Ms. Lawton's static approach was to inflate the royalty rate.

D. Marvell Is At Minimum Entitled To Remittitur Or A New Trial On Damages

As explained (Mrvl.Br.67), for the same reasons that no rational jury could arrive at this damages award, it follows that the award was against the weight of the evidence or rested on inadmissible expert testimony. The district court thus abused its discretion by denying new trial.

IV. CMU FAILS TO JUSTIFY THE FINDING OF WILLFULNESS

While this Court's willfulness precedent clearly differentiates subjective state of mind from objective reasonableness, *see In re Seagate Tech., LLC*, 497 F.3d 1360, 1371 (Fed. Cir. 2007) (*en banc*), CMU mistakenly suggests (Br.46-49) that Marvell's supposed subjective intent undercuts the objective reasonableness of

[27] Although CMU labels it (Br.74-75) a mere "assertion" by Marvell that Ms. Lawton "was unable to show that Marvell's major customers like Western Digital, Samsung, Fujitsu, Hitachi, or Seagate ever paid any premium for the MNP," that was Ms. Lawton's ***own admission*** (A43484:3-487:9).

Marvell's defenses. The district court's ruling is erroneous insofar as it relied on similar reasoning.[28]

Bard established that a defense is not objectively baseless "if an objective litigant ***could*** conclude that the suit is reasonably calculated to elicit a favorable outcome." *Bard Peripheral Vascular, Inc. v. W.L. Gore & Assocs., Inc.*, 682 F.3d 1003, 1007 (Fed. Cir. 2012) (*en banc*) (emphasis added); *see also Uniloc*, 632 F.3d at 1310. Whereas *Bard* demands objective assessment of a defense's legal merit, CMU suggests (Br.48, 51-53) that the district court was right to reject the reasonableness of Marvell's invalidity defense because "Marvell proffered no evidence that anyone at Marvell knew of the Worstell Patent" prior to the litigation (A227). Yet the reasonableness of Marvell's defenses does ***not*** depend on ***when*** Marvell formed them. *See Halo*, 2014 WL 5352367, at *9 ("obviousness defense that Pulse developed during the litigation" supported objective reasonableness). Indeed, focusing on timing harkens back to old law, now superseded, of affirmative duties to avoid infringement. *See Underwater Devices, Inc. v.*

[28] Although CMU urges a change in this Court's law governing willfulness (Br.46-47 n.4), that is beyond the scope of briefing here and Marvell reserves the right to address any proposed change if the issue is visited *en banc*.

Morrison-Knudsen Co., Inc., 717 F.2d 1380, 1389 (Fed. Cir. 1983), *overruled by Seagate*, 497 F.3d 1360. [29]

CMU likewise errs in suggesting (Br.47-49) that Marvell was reckless because it "disregard[ed] a corporate policy requiring consultation with counsel about possible infringement" (*see* A218, A34017-18) and that (Br.52-53) Marvell's consultations were "shrouded by the attorney-client privilege" (A222). Such criticism defies this Court's holdings that Marvell was under no duty to obtain an opinion of counsel, much less to waive privilege and disclose specific contents of any advice obtained. *See Seagate*, 497 F.3d at 1371; *Knorr-Bremse*, 383 F.3d at 1344-45.[30]

To state the obvious, patent defendants typically investigate potential infringement and formulate their defenses through consultations with counsel. *See, e.g.*, *Seagate*, 497 F.3d at 1374. CMU's account of objective willfulness would, in practice, subject any defendant who asserts privilege to a finding of objective recklessness simply because it fails to prove that it subjectively formulated, with counsel, a particular defense pre-suit. Defendants should not be put to this

[29] CMU's citation (Br.48) to *Clontech Labs. v. Invitrogen Corp*., 406 F.3d 1347, 1357 n.6 (Fed. Cir. 2005), is misconceived: *Clontech* was decided under *Underwater Devices*.

[30] CMU's citation (Br.48) to *Spectralytics*, 649 F.3d at 1348, is unavailing: that case addressed only whether failure to obtain an opinion of counsel could support enhancement after *Knorr* and *Seagate*—not whether it could be used to prove willfulness *ab initio*.

Hobson's choice between disclosing privileged pre-suit communications with counsel, and conceding the absence of an objectively reasonable defense. For this reason, the threshold objective prong should remain focused only on technical merits, not subjective legal views and the privileged communications that evince them. *Id.* at 1371.[31]

On the merits, Marvell's non-infringement and invalidity defenses were objectively reasonable. CMU misses the point on Marvell's anticipation defense: once the district court recognized it as a "close call" on summary judgment, it should not have sent willfulness to the jury. *Powell*, 663 F.3d at 1236; *Lee v. Mike's Novelties, Inc.*, 543 F. App'x 1010, 1017 (Fed. Cir. 2013). CMU asserts (Br.50) that Marvell's anticipation defense, while posing a "close call" on summary judgment (A7064; A8111), was nonetheless "so weak that [Marvell] abandoned it for trial." In reality, Marvell briefed multiple theories of anticipation as bases for summary judgment, including the same one it presented at trial. *See* A4216-18. In any event, Marvell's decision to favor one theory of anticipation

[31] CMU's reliance (Br.47, 49) on *i4i* is misplaced. That decision stated only (and in *dicta*) that the jury had substantial evidence to find objective recklessness. 598 F.3d at 860. *Bard* later held objective recklessness to be a question of law. 682 F.3d at 1005. Thus, regardless whether the district court might let the jury assess objective reasonableness (*see* Br.52), Marvell's defenses must now be assessed *de novo*. *See Halo*, 2014 WL 5352367, *9.

over another before a jury cannot determine the objective reasonableness of its remaining defenses.

Finally, no rational jury could have found subjective willfulness notwithstanding Marvell's candid, prominent reference to "Kavcic," its explanation that it found Kavcic's detector too complex to implement, and its disclosure of both CMU patents, all in the pursuit of its own patent. *See* Mrvl.Br.71-72. Although CMU argues (Br.54) for an adverse conclusion based on Marvell's supposed failure to investigate the patents, that argument is foreclosed. *See Knorr-Bremse*, 383 F.3d at 1344-45.

V. CMU FAILS TO DEFEND THE DISTRICT COURT'S IMPROPER REJECTION OF MARVELL'S LACHES DEFENSE

The "deference" that CMU urges on laches (Br.93) should not obscure the district court's *legal* errors in refusing to reduce damages to reflect CMU's "unreasonable and inexcusable" delay in filing suit.[32]

First, the district court's finding of egregious conduct depends upon its willfulness finding, which was error (see *supra* Part IV). CMU is wrong to suggest (Br.92-94 (citing A144-47)) that copying is *per se* willful, and therefore *per se* egregious, for copying may also represent fair competition. *See, e.g.*, *TrafFix Devices, Inc. v. Mktg. Displays, Inc.*, 532 U.S. 23, 29 (2001) ("Allowing

[32] Like CMU (Br.92 n.10), Marvell reserves the right to address *Petrella v. Metro-Goldwyn-Mayer, Inc.*, 134 S. Ct. 1962 (2014), in appropriate proceedings.

competitors to copy will have salutary effects in many instances."); *Wm. Wrigley Jr. Co. v. Cadbury Adams USA LLC*, 683 F.3d 1356, 1364 (Fed. Cir. 2012); *Slimfold Mfg. Co., Inc. v. Kinkead Indus., Inc*., 932 F. 2d 1453 (Fed. Cir. 1991). For the same reasons that the willfulness judgment should be reversed, therefore, the finding of egregious conduct should be reversed as well. *Cf. A.C. Aukerman Co. v. R.L. Chaides Constr. Co.*, 960 F.2d 1020, 1033 (Fed. Cir. 1992) (*en banc*) (defining "particularly egregious conduct" in terms identical to then-governing willfulness standard).

Second, even if Marvell's conduct had been willful (it was not), the equities would still foreclose laches because ***Marvell*** was not "responsible for the plaintiff's delay in bringing suit." *Serdarevic v. Advanced Med. Optics, Inc.*, 532 F.3d 1352, 1361 (Fed. Cir. 2008). CMU does not challenge the district court's factual finding (A122) that "CMU cannot validly claim that its investigation was hindered" by Marvell. And CMU's only answer to the clear legal rule laid down by *Serdarevic* is to note (Br.95) that the case concerned patent inventorship, not infringement. That distinction makes no difference: four of the five cases *Serdarevic* cited in analyzing unclean hands addressed patent infringement, *see* 532 F.3d at 1361, and the identical standard has applied for decades to both inventorship and infringement, *see, e.g.*, *Potash Co. of Am. v. Int'l Minerals & Chem. Corp.*, 213 F.2d 153, 155, 160-61 (10th Cir. 1954) (cited favorably by

Serdarevic); *Bound v. Spencer Gifts, Inc.*, 1996 WL 556657, *4 (E.D. Pa. Oct. 1, 1996) (cited favorably by *Serdarevic*); *Intertech Licensing Corp. v. Brown & Sharpe Mfg. Co.*, 708 F. Supp. 1423, 1439 (D. Del. 1989); *E.T. Mfg. Co., Inc. v. Xomed, Inc.*, 679 F. Supp. 1082, 1086 (M.D. Fla. 1987); *Coleman v. Corning Glass Works*, 619 F.Supp. 950, 955 (W.D.N.Y. 1985), *aff'd*, 818 F.2d 874 (Fed. Cir. 1987); *Anaconda Co. v. Metric Tool & Die Co.*, 485 F. Supp. 410, 430 (E.D. Pa. 1980).[33]

Finally, CMU offers no justification for the bad incentives created by the ruling below: It encourages patent-holders in CMU's position to sit on potential infringement claims, watch royalties accrue, and posit counter-factual damages theories, instead of pursuing prompt licensing (or other recovery) on prevailing market terms.

CONCLUSION

The judgment should be reversed, or, alternatively, vacated and the case remanded for a new trial.

[33] CMU argues (Br.93-94) that Marvell waived this argument by not citing *Serdarevic* below, but parties may cite additional authority on appeal provided they "argue[d] the same concept." *Harris*, 417 F.3d at 1251. Marvell argued in the district court that, whether or not it willfully infringed, laches attaches "because of CMU's failure to pursue its claims with diligence." A38238. Below, both parties focused on disputing whether, as CMU argued (A36856-59; A38418-20) and Marvell refuted (A36283-85; A38233-36), CMU's delay resulted from Marvell's "secrecy" in copying. *Serdarevic* was specially implicated when the court found ***entirely against*** CMU on that core dispute (A121-24) while ruling that the laches equities ***nonetheless favor*** CMU (A144-48).

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Respectfully submitted,

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PROOF OF SERVICE

The undersigned hereby certifies that on November 20, 2014, I electronically filed the foregoing with the Clerk of the Court for the United States Court of Appeals for the Federal Circuit by using the appellate CM/ECF system. I certify that all participants in the case are registered CM/ECF users and that service will be accomplished by the CM/ECF system.

/s/ Kathleen M. Sullivan
Kathleen M. Sullivan

CERTIFICATE OF COMPLIANCE

Counsel for Defendants-Appellants hereby certifies that:

1. The brief complies with the type-volume limitation of this Court's November 13, 2014 Order permitting an opening brief of up to 8,500 words because exclusive of the exempted portions it contains 8,448 words as counted by the word processing program used to prepare the brief; and

2. The brief complies with the typeface requirements of Federal Rule of Appellate Procedure 32(a)(5) and the type-style requirements of Federal Rule of Appellate Procedure 32(a)(6) because it has been prepared using Microsoft Office Word 2007 in a proportionately spaced typeface: Times New Roman, font size 14.

Dated: November 20, 2014

/s/ Kathleen M. Sullivan
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