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Apportionment in the Semiconductor Age

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The extent to which certain apportionment principles, such as the entire market value rule and related doctrines, may constrain damages theories in patent infringement cases remains uncertain. This article reviews the current state of apportionment law through the lens of semiconductors and electronic components—ideal archetypes for such issues—and proposes a framework to help reconcile governing precedents that, at times, seem to conflict.

Introduction

We often define the state of human civilization by the materials we use to make tools—the Stone Age, Bronze Age, Iron Age, and so on. It seems reasonable to say that we live in the Semiconductor Age. Essentially everything in the modern world relies in some way on semiconductor technologies and electronic components. They dominate not just our smartphones, tablets, and computers, but also our cars, home appliances, and even light bulbs. Even the most innocuous household items depend on them. Modern products are often designed using computers, constructed with the aid of digitally managed processes, ordered over the Internet, and tracked and shipped using digital logistics networks. All of these tasks depend on semiconductors and electronic components, and our collective reliance on those technologies seems unlikely to abate any time soon. The automobile industry cannot even manufacture certain vehicles right now simply because semiconductor chips are in short supply.[1]

The sheer ubiquity of semiconductor technologies means companies from automobile manufacturers[2] to retailers[3]—not just electronic device designers and semiconductor foundries—will continue to be potential targets for semiconductor-related patent infringement lawsuits. But, despite their ubiquity, semiconductor technologies often hide behind the scenes in tiny features of what consumers and businesses actually buy, sell, and use. Most people never see or think about them, which is why semiconductor technologies and electronic components are often the tip of the spear for patent damages law.

A patent may only improve one aspect of an accused device that might include hundreds, if not thousands, of other valuable additions. This implicates a concept called "apportionment," intended to reflect the long-standing principle that a patent's value should not exceed its relative contribution to the value of a product. Because apportionment is often an important issue in cases involving semiconductors and electronic components, they provide the basis for much of the Federal Circuit's governing law about apportionment.

Patent lawsuits involving semiconductors and electronic components can also lead to large damages awards simply because semiconductor technology is so ubiquitous.[4] The chart on the next page illustrates the point, showing some of the most eye-catching damages awards from cases decided in the last several years, including a recent $2.18 billion verdict against Intel.

Entire Market Value Rule (EMVR)

In most patent cases, the damages inquiry centers on what constitutes a "reasonable royalty."[6] Such a royalty typically includes two components: (1) a royalty base, which defines the value of units for which damages are assessed; and (2) a royalty rate, which defines the relative value of the claimed invention per unit. The total royalty is the product of the base and the rate, accounting for product volumes and time. Any reasonable royalty determined through litigation must account for apportionment.

Discussions of apportionment often invoke *Garretson v. Clark*, a terse Supreme Court decision authored by Justice Field in 1884 that consists of just two paragraphs.

Year	Plaintiff(s)	Defendant(s)	Technology	Verdict[5]
2021	VLSI Technology	Intel	Management of Clock Speeds and Power	$2.18 B
2012	Carnegie Mellon University	Marvell	Viterbi Detectors (Hard Disk Read-Out)	$1.17 B
2020	California Institute of Technology	Apple/Broadcom	IRA Coding Blocks (Wi-Fi)	$838 M (Apple) $270 M (Broadcom)
2020	Unwired Planet	Apple	Wireless Coding Blocks (4G/LTE)	$506 M
2018	KAIST	Samsung	FinFETs	$400 M
2015	Wisconsin Alumni Research Foundation	Apple	Speculation Circuits (Parallel Computing)	$234 M
2014	Power Integrations	Fairchild Semiconductor	Switch-Mode Power Supplies	$140 M
2020	Wi-LAN	Apple	Wireless Coding Blocks (4G/LTE)	$85.2 M

The invention at issue related to a replacement mop head, and the patentee improperly sought to recover damages based on the value of the entire mop. Quoting the trial court, the Supreme Court stated:

> The 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, and such evidence must be reliable and tangible, and not conjectural or speculative; or he must show, by equally reliable and satisfactory evidence, that the profits and damages are to be calculated on the whole machine, for the reason that the entire value of the whole machine, as a marketable article, is properly and legally attributable to the patented feature.[7]

This appears to be the first articulation of an apportionment principle called the "entire market value rule" (EMVR).[8] Put more succinctly, the EMVR says a patented feature of a component should not be tied to the value of a multi-component article unless the patented feature drives demand for the article as a whole.[9]

This is typically difficult to show, especially for semiconductor technologies and electronic components. It is not enough that consumers would prefer the accused product to include the patented feature or even that removing the patented feature would create an undesirable or inoperable product. Rather, the EMVR exception applies only when the patented feature itself prompts consumers to buy the product.[10] Patented aspects of certain products, like pharmaceuticals, may be able to clear that hurdle more easily. A person buying a patented drug composition, for example, may be buying that drug precisely because of its patented composition. In many other products, however, patented features can be farther removed from purchasing decisions. Patented quantum-well structures used in LEDs or error-correction protocols used in wireless communications, for example, might not be at the top of consumers' minds when purchasing a light bulb or smartphone. In such circumstances, the EMVR may preclude relying on the value of the entire product as a royalty base.

Smallest Salable Patent-Practicing Unit (SSPPU) and Its Limitations

Although the EMVR does not say what royalty base to use (only which one *not* to use), a concept called the smallest salable patent-practicing unit (SSPPU) sheds some light on this issue. Sitting by designation, the former Chief Judge of the Federal Circuit presided over a trial involving a patented way of issuing instructions in a microprocessor. Instead of using the value of the accused computer product as the royalty base, which had "significant non-infringing components," he noted, "The logical and readily available alternative was the smallest salable infringing unit with close relation to the claimed invention—namely, the processor itself."[11] The Federal Circuit later endorsed this idea of the SSPPU, calling the EMVR a "narrow exception":

> Where small elements of multi-component products are accused of infringement, calculating a royalty on the entire product carries a considerable risk that the patentee will be improperly compensated for non-infringing components of that product. Thus, it is generally required that royalties be based not

> on the entire product, but instead on the "smallest salable patent-practicing unit." The entire market value rule is a narrow exception to this general rule.[12]

As this passage suggests, the SSPPU helps to fulfill what the Federal Circuit calls the "substantive" purpose of apportionment: ensuring the value of a patent "does not overreach and encompass components not covered by the patent."[13]

The SSPPU also furthers the "evidentiary" purpose of apportionment: "to help our jury system reliably implement the substantive statutory requirement of apportionment."[14] Large financial sums associated with "the entire market value . . . 'cannot help but skew the damages horizon for the jury, regardless of the contribution of the patented component.'"[15] For that reason, the Federal Circuit cautions trial courts to avoid undue emphasis on the value of the entire accused product.[16] As one trial court observed, "[t]he $19 billion cat" could not be "put back into the bag" after the jury heard it.[17] Applying a smaller base, such as the SSPPU, helps to avoid jury prejudice that can result from being exposed to such large numbers.

The SSPPU concept, however, is incomplete. Consider, for example, an inventive architecture for a general-purpose processor. A clever draftsperson might be tempted to write a claim directed to an end-user device, such as a smartphone, tablet, or automobile, by adding conventional features only tangentially related, if at all, to the patented improvement. Technically, the SSPPU for such a claim would be the end-user device, not the processor, but it might strike some as odd if the law permitted a patentee to dictate a larger royalty base using such a gimmick.[18] The Federal Circuit has suggested it may agree, rejecting the idea "that when the [SSPPU] is used as the royalty base, there is necessarily no further constraint on the selection of the base."[19] According to the court, "That is wrong" because "the fundamental concern about skewing the damages horizon—of using a base that misleadingly suggests an inappropriate range—does not disappear simply because the [SSPPU] is used."[20] A more recent Federal Circuit decision, however, suggests the Federal Circuit may be moving in a different direction.

An Uncertain Future for the EMVR and SSPPU

In *Exmark Mfg. Co. v. Briggs & Stratton Power Products Group, LLC*, the invention related to an improved lawnmower baffle.[21] The claims recited an entire lawnmower, including conventional lawnmower features and the improved baffle, and the parties disputed whether it was appropriate to use the entire lawnmower as a royalty base. Without mentioning the EMVR or SSPPU, the Federal Circuit stated, "Using the accused lawn mower sales as the royalty base is particularly appropriate in this case because the asserted claim is, in fact, directed to the lawn mower as a whole. . . . It is not the baffle that infringes the claim, but rather the entire accused mower."[22]

In support of this approach, *Exmark* quotes *Ericsson, Inc. v. D-Link Systems*:

> We have held that apportionment can be addressed in a variety of ways, including "by careful selection of the royalty base to reflect the value added by the patented feature [or] . . . by adjustment of the royalty rate so" as to discount the value of a product's non-patented features; or by a combination thereof. So long as Exmark adequately and reliably apportions between the improved and conventional features of the accused mower, using the accused mower as a royalty base and apportioning through the royalty rate is an acceptable methodology.[23]

To some, these open-ended statements (and the general tenor of *Exmark*) might appear to conflict with earlier Federal Circuit precedents. In *VirnetX, Inc. v. Cisco Systems*, for example, the Federal Circuit was more circumspect:

> [A] patentee may not balance out an unreasonably high royalty base simply by asserting a low enough royalty rate. Although the result of that equation would be mathematically sound if properly applied by the jury, there is concern that the high royalty base would cause the jury to deviate upward from the proper outcome.[24]

The *Ericsson* decision that *Exmark* quotes contains a similar caveat. The quoted portion of *Ericsson* states, "Logically, an economist could [apportion] in various ways—by careful selection of the royalty base to reflect the value added by the patented feature . . .; by adjustment of the royalty rate . . .; or by a combination thereof."[25] But in the next paragraph, *Ericsson* explains why, despite the mathematical equivalence of those methods, the law does *not* view them as equivalent:

> It is not that an appropriately apportioned royalty award could never be fashioned by starting with the entire market value of a multi-component product—by, for instance, dramatically reducing the royalty rate to be applied in those cases—it is that reliance on the entire market value might mislead the jury, who may be less equipped to understand the extent to which the royalty rate would need to do the work in such instances. . . . [C]ourts must insist on a more

> realistic starting point for the royalty calculations by juries—often, the smallest salable unit and, at times, even less.[26]

It remains to be seen how (or whether) the Federal Circuit will reconcile *Exmark*'s more sweeping remarks, but the actual holding of *Exmark*—that the lawn mower was the appropriate royalty base—seems to fit with the court's earlier precedents. The cases are consistent with the notion that, unless an exception applies, the appropriate royalty base is the competitive market value of the smallest unit that has such a value and benefits from the patented improvement[27]—like the Price Is Right® in reverse (*i.e.*, the smallest number that captures the inventive benefit without going under). Such an approach minimizes the risk of jury prejudice while ensuring the royalty base includes the added value of the invention.[28]

The patented improvement in *Exmark* related to the baffle's "structure and orientation within the mower deck," not from the baffle alone,[29] so the manufacturing cost of the baffle alone would not have captured the added value of the patented improvement. It seems the baffle was a unique part of the overall mower design. Perhaps because of this, it also seems there was no separate market in which the improved baffle competed as a stand-alone product. The smallest relevant value in a competitive marketplace appears to have been the value of the lawnmower itself.

Despite *Exmark*'s language suggesting otherwise, it should not matter whether the claims recited a mower. The scope of a claim does not necessarily reflect the value of an invention. Just like an infringing product may contain valuable non-infringing features, a patent claim may include extraneous features with no contribution to the invention's added value. Suppose in *Exmark* the claims recited only the baffle. The appropriate royalty base still would be the price of the lawnmower, not the cost to manufacture a baffle, because the mower is the smallest unit with a competitive market price that captures the value of the inventive baffle. Similarly, in the case of our hypothetical draftsperson claiming an inventive general-purpose processor, it should not matter whether a claim recites a processor or an end-user product. The processor, not a smartphone, tablet, or automobile, would likely be the smallest component with a competitive market price that captures the invention's value.

Thinking About Apportionment as a Two-Step Process

The term "apportionment" means to divide and allocate. In the context of patent damages, the division comes by separating the patented features from the non-patented features, and the allocation comes by assigning the patented features a relative value. Both aspects of apportionment are impossible without first specifying a royalty base that defines the universe of features under consideration. Because of this, it may help to think of "apportionment" as a two-step process where only one step truly involves apportioning. The first step is to select the royalty base, and the second step is to apportion the royalty base.

Consider, for example, an accused automobile where the asserted patent relates to an improved microchip. The first step may be to determine whether to apportion the value of the accused vehicle itself, the value of a telematics unit inside the vehicle, the value of a circuit board inside the telematics unit, or the value of a chip on that circuit board. No financial figures are divided or allocated in this first step; the law simply requires the selection of a royalty base from these discrete options. The second step is to apportion that royalty base, generally via the royalty rate. This means dividing the relevant product into patented and unpatented features and allocating relative values to the patented features.[30]

Unlike selection of the royalty base, which involves choosing from discrete options, determining a royalty rate is inherently imprecise, so the courts allow much more leeway.[31] One approach might be to apportion through counting techniques. In *Finjan, Inc. v. Blue Coat Systems*, for example, the Federal Circuit affirmed an apportionment analysis based on 24 functional blocks in the architectural diagram for a computer system.[32] One patent related to just one of the functional blocks, so the defendant's expert advocated an apportionment adjustment of 1/24. Another patent related to three of the functional blocks, so the defendant's expert advocated an apportionment adjustment of 3/24. Despite an admission by the defendant that each functional block lacked equal value, the Federal Circuit affirmed this approach.[33] Other courts have permitted apportionment adjustments based on the relative surface area of a microchip[34] or relative amount of source code[35] associated with the invention.

Some courts, however, have rejected such counting methods. In *Eidos Display, LLC v. Chi Mei Innolux Corp.*, for example, a trial court rejected an apportionment analysis based on feature counting.[36] The patent was directed to a method for making a semiconductor device, and the accused product employed 10 manufacturing steps. Because only one of those steps related to the patent, the defendant's expert advocated a 1/10 apportionment adjustment factor. The court ruled this approach "is inherently flawed because it mistakenly assumes that all ten steps . . . are of equal value."[37] The court, however, permitted another approach—to compare the prior art to the claimed invention. The analysis singled out "those parts of the [item associated with the royalty base] that

could not have been formed using conventional methods," arguing those features represented the incremental value of the invention.[38] According to the court, this approach was preferable to counting manufacturing steps because it would "account for the incremental benefit conferred by the nonconventional elements of [the] patent claim[s] taken as a whole."[39]

Whatever method is used to perform this type of royalty rate allocation, chances are some courts have allowed it and others have rejected it. Such conflicting outcomes are not unexpected given the discretion trial judges have "to ensure that the testimony presented—using whatever methodology—is sufficiently reliable to support a damages award."[40] Different outcomes merely illustrate the fact-specific nature of such issues in each case, the court's discretion, and the "inherent imprecision in patent valuation."[41]

But such wide latitude is not guaranteed. Some apportionment models notably attract more scrutiny than others. Following a $388 million jury verdict against Microsoft, the Federal Circuit famously eliminated the so-called "25 Percent Rule" and similar rules of thumb.[42] The court called it a "fundamentally flawed tool" and concluded it is "inadmissible . . . because it fails to tie a reasonable royalty base to the facts of the case at issue."[43] For similar reasons, the court later disparaged the so-called Nash Bargaining solution after a $368 million jury verdict against Apple, essentially destroying its viability as well.[44] A similar battle is now brewing over regression models.

Using regression models to apportion damages has gained a lot of attention recently. Not only did a regression model lead to VLSI's $2.18 billion jury verdict against Intel this year,[45] but a regression model also led to KAIST's $400 million jury verdict against Samsung in 2018.[46] The Federal Circuit has never had an opportunity to pass judgment on such regression models, but Judge Dyk, sitting by designation in the Eastern District of Texas, previously ruled that a plaintiff's "own description of hedonic regression analysis suggests that such subjective assessments are not reliable indicators of consumer marketplace behavior."[47] The viability of such regression models will likely feature prominently in Intel's appeal of the VLSI decision, and the result could have massive implications both for future patent litigations and patent valuation more generally.

The Importance of the *Georgia-Pacific* Factors and Comparable Licenses

So far, this article has centered on the Federal Circuit's rules for assessing the incremental value of an invention in the first instance, but "there may be more than one reliable method for estimating a reasonable royalty."[48] Courts have widely endorsed analyzing the 15 *Georgia-Pacific* factors to assess a reasonable royalty,[49] and only a few of those factors implicate the type of *ab initio* incremental value assessment discussed so far.[50] Other factors relate to comparable patent licenses that may demonstrate how the marketplace has valued an invention in practice.[51] When sufficiently comparable, such licenses "may be the most effective method of estimating the asserted patent's value" and are "typically reliable because the parties are constrained by the market's actual valuation of the patent."[52]

To preclude reliance on a comparable license just because it may employ a large royalty base, even the entire market value, would be inappropriate.[53] But it also would be inappropriate to rely on a large royalty base just because it appears in a license. The license must be sufficiently comparable to a hypothetical license between the patentee and accused infringer.[54] Although not limiting, courts often weigh the following considerations to determine whether a jury would be unduly prejudiced by any differences between the prior license and the case at hand:

- the patentee's relationships with the licensee and accused infringer;
- the date and duration of the license;
- whether the license includes the asserted patent;
- how many other patents the license includes and how many are related to the asserted patent;
- the geographic scope of the licensed patents;
- whether the license includes any other valuable consideration (*e.g.*, rights to sub-license or enforce the licensed patents, trade secrets, know-how, material support, cross-licensing terms, services, etc.);
- whether the licensee and accused infringer have comparable bargaining power (*e.g.*, market sizes, resources, relationships with the patent owner, or other leverage);
- whether the license provides a lump sum or ongoing royalty, and how any lump sum was determined;
- whether the license is a litigation settlement and, if so, whether the license reflects the value of the invention, as opposed to the costs associated with litigation; and

- whether the license is for technology sufficiently close to the patented technology.[55]

Prior licenses are "almost never perfectly analogous to the infringement action,"[56] and trial courts have a great deal of discretion whether to admit such evidence.[57] "In each case, district courts must assess the extent to which the proffered testimony, evidence, and arguments would skew unfairly the jury's ability to apportion the damages to account only for the value attributable to the infringing features."[58]

Assuming the license is sufficiently comparable, a damages theory may employ the same royalty base as the license, even the entire market value.[59] But any such theory must assess the royalty rate in a way that accounts for the factual differences between the license and the litigation.[60] "[E]xpert testimony opining on a reasonable royalty must 'sufficiently [tie the expert testimony on damages] to the facts of the case.'"[61] Typically, this means applying the relevant *Georgia-Pacific* factors,[62] but "superficial recitation of the *Georgia-Pacific* factors, followed by conclusory remarks, [cannot] support [a] jury's verdict."[63] Any testimony must explain "both why and generally to what extent the particular factor[s] impact[] the royalty calculation."[64]

This framework for comparable licenses may seem familiar. It is essentially the same two-step process discussed above in the context of the EMVR and SSPPU: first, select a legally permissible royalty base, then apportion that royalty base by determining a royalty rate. Like the EMVR, a comparable license is just another exception to the baseline rule for what constitutes a legally permissible royalty base.[65] Parties are then free to apportion the royalty base via the royalty rate so long as the analysis is sufficiently tied to the facts at hand.

Summary and Open Questions

For all the complexity and, at times, conflicting language of Federal Circuit cases on apportionment, this simple, two-step framework seems to describe their outcomes:

- **Step One (Royalty Base Selection)**—Absent evidence that an exception applies, the royalty base should be the competitive market value of the smallest component that has such a value and benefits from the patented improvement. This is often the SSPPU, but it may be larger or smaller. The two recognized exceptions appear to be (1) the EMVR exception (*i.e.*, the invention provides the primary reason consumers purchase a specific downstream component) and (2) the comparable license exception (*i.e.*, specific evidence, such as a comparable license or comparable negotiations, makes clear a certain royalty base would be appropriate in the context of the apportionment analysis provided).

- **Step Two (Royalty Rate Allocation)**—Analyze the applicable *Georgia-Pacific* factors in the context of the specific facts at hand to determine the proportion of the royalty base attributable to the invention's incremental value. Such analysis must explain both why and to what extent each *Georgia-Pacific* factor impacts the proposed royalty allocation.

Although the Federal Circuit has not expressly articulated this framework, it seems to reconcile some of the tension inherent in the court's written opinions.

Whether the Federal Circuit will continue to scrutinize the selection of royalty base, or whether cases like *Exmark* signal more tolerance for damages theories that employ the entire market value, remains to be seen. One interesting test case might have been *KAIST IP US LLC v. Samsung Electronics Co.*,[66] which settled on appeal.[67] In *KAIST*, the claimed invention related to a particular fin-shaped structure for a field-effect transistor—tiny switches (you could fit thousands across the width of a human hair) that control electronic signals in a microchip.[68] The patentee proposed a damages model based on the value of smartphones and tablets, not the microchips inside them: about $1 per smartphone or tablet for every 1% increase in processor speed attributable to the transistor, allegedly 18% to 25%.[69] The court permitted the patentee to present this model to the jury, reasoning it "doesn't derive a per-unit royalty by applying a royalty rate to the price of the devices, so [it] does not implicate the[] jury-confusion concerns" the EMVR and SSPPU are designed to prevent.[70] The result was a jury verdict of $400 million.[71]

It would have been interesting to see whether the Federal Circuit agrees that such a model does not apply a per-unit royalty rate or skew the damages horizon. The *KAIST* trial court apparently concluded the EMVR does not apply because the patentee sought about $18 to $25 per device rather than expressing it, for example, as 3.6% to 5.0% per $500 device. Although the Federal Circuit may leave the door open to damages models that superficially avoid the royalty base × royalty rate formulation in this way,[72] whether it would agree with the *KAIST* court remains unclear.

The *KAIST* damages model seems to rely on the value of end-user devices as the royalty base without offering a comparable license or proving the EMVR exception applies. The ratio of $1 per 1% improvement in processor speed came from a regression analysis. That analysis began

with the prices of accused smartphones and tablets, then correlated those prices with processor speeds.[73] That is, the price of the accused smartphones and tablets served as the royalty base, and the regression analysis was part of the royalty rate apportionment analysis. Although this model avoided expressing the result as a percentage of smartphone or tablet prices, the unresolved question remains whether the law recognizes a meaningful distinction.

Had the same regression analysis been applied to the price of processors in the accused devices, the resulting value per chip likely would have been much less, and the patentee almost certainly would have been unable to ask the jury for $1.5 billion in damages as it did at trial.[74] The *KAIST* model, however, did avoid asking the jury for, say, 5% of $30 billion in total sales, which would have been mathematically equivalent. The court kept the $30 billion cat securely in the bag. If the EMVR is intended only to prevent exposing the jury to prejudicial sums exceeding the damages sought, not to limit the damages sought by restricting when patentees can seek damages based on downstream products, the *KAIST* court's view may prevail.

More test cases are surely on their way. No doubt patent applicants are drafting claims that recite expensive downstream products only indirectly related to their inventions. More patentees are likely to adopt damages models like the one in *KAIST* that avoid the appearance of a royalty base × royalty rate formulation, and more patentees will surely adopt regression models to perform apportionment. There is little doubt that sophisticated patent-assertion entities and litigation funders will exploit comparable-license rules by structuring self-serving licenses. And high-profile consumer product manufacturers are now designing proprietary processors for their products instead of integrating general-purpose chips available on the open market.[75] All of these developments will test the boundaries and continued viability of the Federal Circuit's apportionment rules.

The question is not exactly mop heads versus mops anymore. Justice Field penned *Garretson v. Clark* in 1884, during the Industrial Age. There were no smartphones or tablets, no transistors, not even automobiles. Now, in the Semiconductor Age, courts may be asked how much value a nano-sized transistor design adds to a self-driving SUV. Justice Field might have found that one a little tougher to work out. Then again, maybe the two-step framework proposed above was the type of analysis he was trying to telegraph. It works for mops and self-driving SUVs, too.

1. *See, e.g.*, Jonathan M. Gitlin, *A Silicon Shortage Is Causing Big Issues for Automakers*, Wired (Feb. 7, 2021), *available at https://www.wired.com/story/silicon-chip-shortage-automakers/* ("[I]t's getting so bad that a number of OEMs . . . have had to go as far as idling shifts and even entire factories.").
2. *See, e.g.*, Complaint, *Advanced Silicon Technologies, LLC v. Volkswagen AG*, Case No. 1:15-cv-01181 (D. Del. Dec. 21, 2015), ECF No. 1 (accusing Volkswagen and Audi of infringing patents directed to graphics processor circuit architectures).
3. *See, e.g.*, Complaint, *Seoul Semiconductor Co. v. Bed Bath & Beyond, Inc.*, Case No. 2:18-cv-03837 (C.D. Ca. May 8, 2018), ECF No. 1 (accusing Bed Bath & Beyond of infringing patents directed to LEDs and LED packages, including "epitaxially produced quantum dot semiconductor components").
4. *See, e.g.*, Scott Graham, *How Irell's Morgan Chu Is "Spoon-Feeding" a Billion-Dollar Damages Case to Jurors*, The AmLaw Litigation Daily (Feb. 22, 2021) (noting that "even a 1% royalty could cost Intel billions of dollars" because it has sold so many microprocessors).
5. *See* Jury Verdict Form, *VLSI Tech. LLC v. Intel Corp.*, Case No. 6:21-cv-00057-ADA (W.D. Tex. Mar. 2, 2021), ECF No. 564; Verdict Form, *Carnegie Mellon Univ. v. Marvell Tech. Grp., Ltd.*, Civil Action No. 09-290 (W.D. Pa. Dec. 26, 2012), ECF No. 762; Jury Verdict, *Cal. Inst. of Tech. v. Broadcom Ltd.*, Case No. CV 16-3714-GW-AGRx, (C.D. Cal. Jan. 29, 2020), ECF No. 2114; Verdict Form, *Optis Wireless Tech., LLC v. Apple Inc.*, Civil Action No. 2:19-cv-00066-JRG (E.D. Tex. Aug. 11, 2020), ECF. No. 483; Verdict Form, *KAIST IP US LLC v. Samsung Elecs. Co., Ltd.*, Case No. 2:16-cv-01314-JRG-RSP (E.D. Tex. June 15, 2018), ECF. No. 481; Special Verdict - Damages, *Wis. Alumni Research Found. v. Apple, Inc.*, No. 14-cv-062-wmc (W.D. Wis. Oct. 16, 2015), ECF No. 642; Verdict Form, *Power Integrations, Inc. v. Fairchild Semiconductor Int'l, Inc.*, Case No. 09-cv-05235-MMC (N.D. Cal. Dec. 17, 2015), ECF No. 918; Verdict Form, *Wi-LAN, Inc. v. Apple Inc.*, Case No. 14cv2235 DMS (BLM) (S.D. Cal. Jan 24, 2020), ECF No. 845.
6. The main damages statute in United States patent law states that "the court shall award the claimant damages adequate to compensate for the infringement, but in no event less than a *reasonable royalty* for the use made of the invention by the infringer, together with interest and costs as fixed by the court." 35 U.S.C. § 284 (2018) (emphasis added). A royalty is "reasonable" when "a person, desiring to manufacture, use, or sell a patented article, as a business proposition, would be willing to pay [that amount] as a royalty" and still make "a reasonable profit." *Applied Med. Research Corp. v. U.S. Surgical Corp.*, 435 F.3d 1356, 1361 (Fed. Cir. 2006) (quoting *TransWorld Mfg. Corp. v. Al Nyman & Sons, Inc.*, 750 F.2d 1552, 1568 (Fed. Cir. 1984)). Alternatively, a patentee can seek lost profits when it can demonstrate it would have made sales but for the defendant's conduct. Lost profits claims also require apportionment, though lost profits are less common than reasonable royalties. *See Mentor Graphics Corp. v. EVE-USA, Inc.*, 851 F.3d 1275, 1287 (Fed. Cir. 2017) ("[A]pportionment is an important component of damages law generally, and we believe it is necessary in both reasonable royalty and lost profits analysis.").
7. *Garretson v. Clark*, 111 U.S. 120, 121 (1884); *see also Seymour v. McCormick*, 57 U.S. (16 How.) 480, 490–91 (1853) ("[I]t is a very grave error to instruct a jury 'that as to the measure of damages the same rule is to govern, whether the patent covers an entire machine or an improvement on a machine.'").
8. *See, e.g.*, *Lucent Techs., Inc. v. Gateway, Inc.*, 580 F.3d 1301, 1336–38 (Fed. Cir. 2009) (discussing the origins of the entire market value rule).
9. *See Rite-Hite Corp. v. Kelley Co.*, 56 F.3d 1538, 1549 (Fed. Cir. 1995) (en banc) ("We have held that the entire market value rule permits recovery of damages based on the value of a patentee's entire apparatus containing several features when the patent-related feature is the 'basis for customer demand.'" (quoting *State Indus., Inc. v. Mor-Flo Indus., Inc.*, 883 F.2d 1573, 1580 (Fed. Cir. 1989))); *see also Lucent*, 580 F.3d at 1337 ("The first flaw with any application of the entire market value rule in the present case is the lack of evidence demonstrating the patented method of the [asserted] patent as the basis—or even a substantial basis—of the consumer demand for [the accused product].").
10. *See Power Integrations, Inc. v. Fairchild Semiconductor Int'l, Inc.*, 904 F.3d 965, 979 (Fed. Cir. 2018) ("[W]hen the product contains multiple valuable features, it is not enough to merely show that the patented feature is viewed as essential, that a product would not be commercially viable without the patented feature, or that consumers would not purchase the product without the patented feature. When the product contains other valuable features, the patentee must prove that those other features do not cause consumers to purchase the product."); *LaserDynamics, Inc. v. Quanta Computer, Inc.*, 694 F.3d 51, 68–69 (Fed. Cir. 2012) ("It is not enough to merely show that the [patented feature] is viewed as valuable, important, or even essential to the use of the [entire product]. Nor is it enough to show that [the entire product] without [the patented feature] would be commercially unviable. Were this sufficient, a plethora of features . . . could be deemed to drive demand for the entire product.").
11. *Cornell Univ. v. Hewlett-Packard Co.*, 609 F. Supp. 2d 279, 287–88 (N.D.N.Y. 2009).
12. *LaserDynamics*, 694 F.3d at 67–68 (citations omitted) (quoting *Cornell*, 609 F. Supp. 2d at 28788); *see also Power Integrations*, 904 F.3d at 977 ("We have articulated that, where multi-component products are accused of infringement, the royalty base should not be larger than the smallest salable unit

embodying the patented invention."); *VirnetX, Inc. v. Cisco Sys.*, 767 F.3d 1308, 1326 (Fed. Cir. 2014) ("[W]hen claims are drawn to an individual component of a multi-component product, it is the exception, not the rule, that damages may be based upon the value of the multicomponent product.").

13. *VirnetX*, 767 F.3d at 1326 (quoting *LaserDynamics*, 694 F.3d at 70); *see also Ericsson, Inc. v. DLink Sys.*, 773 F.3d 1201, 1226 (Fed. Cir. 2014) ("As a substantive matter, [the value attributable to the patented invention] is the 'value of what was taken' that measures a 'reasonable royalty' under 35 U.S.C. § 284. What is taken from the owner of a utility patent . . . is only the patented technology, and so the value to be measured is only the value of the infringing features of an accused product." (citations omitted)).
14. *Ericsson*, 773 F.3d at 1226.
15. *VirnetX*, 767 F.3d at 1327 (quoting *LaserDynamics*, 694 F.3d at 70).
16. *See Ericsson*, 773 F.3d at 1226 ("[W]here a multi-component product is at issue and the patented feature is not the item which imbues the combination of the other features with value, care must be taken to avoid misleading the jury by placing undue emphasis on the value of the entire product.").
17. *Uniloc USA, Inc. v. Microsoft Corp.*, 640 F. Supp. 2d 150, 184 (D.R.I. 2009).
18. *See GPNE Corp. v. Apple, Inc.*, Case No. 12-CV-02885-LHK, 2014 U.S. Dist. LEXIS 53234, at *50–52 (N.D. Cal. Apr. 16, 2014) ("[C]ursory recitation of the entire device in the asserted claims does not foreclose the component that directly implements the invention from being the smallest salable patent-practicing . . . . Adopting [contrary] reasoning would allow patent drafters to effectively abolish the smallest salable patent-practicing unit doctrine by simply drafting patent claims to cover end products rather than the individual components that actually embody the invention.").
19. *VirnetX*, 767 F.3d at 1317; *see also AstraZeneca AB v. Apotex Corp.*, 782 F.3d 1324, 1338 (Fed. Cir. 2015) ("When a patent covers the infringing product as a whole, and the claims recite both conventional elements and unconventional elements, the court must determine how to account for the relative value of the patentee's invention in comparison to the value of the conventional elements recited in the claim, standing alone.").
20. *VirnetX*, 767 F.3d at 1317.
21. 879 F.3d 1332, 1348 (Fed. Cir. 2018) ("[T]he patent makes clear that the patented improvement relates to the mower's flow control baffle . . . . The remaining limitations of claim 1 recite conventional features of a lawn mower . . . .").
22. *Id.*
23. *Id.* (quoting *Ericsson, Inc. v. DLink Sys.*, 773 F.3d 1201, 1226 (Fed. Cir. 2014)).
24. *VirnetX*, 767 F.3d at 1333.
25. *Ericsson, Inc. v. DLink Sys.*, 773 F.3d 1201, 1226 (Fed. Cir. 2014).
26. *Id.* at 1226–27; *see also LaserDynamics, Inc. v. Quanta Computer, Inc.*, 694 F.3d 51, 67–68 (Fed. Cir. 2012) (barring the use of a large royalty base, even if mathematically offset by a "low enough royalty rate," because such a base "carries a considerable risk" of misleading a jury (citing *Uniloc USA, Inc. v. Microsoft Corp.*, 632 F.3d 1292, 1320 (Fed. Cir. 2011)); *VirnetX*, 767 F.3d at 1327 ("[T]he smallest salable unit approach was intended to produce a royalty base much more closely tied to the claimed invention than the entire market value of the accused products.").
27. *See AstraZeneca AB v. Apotex Corp.*, 782 F.3d 1324, 1339 (Fed. Cir. 2015) (suggesting that when a patent confers "new value" on conventional elements, "the value of [those] conventional elements" may not need to be "subtracted from the value of the patented invention as a whole"); *Ericsson*, 773 F.3d at 1227 ("[W]here the entire value of a machine as a marketable article is 'properly and legally attributable to the patented feature,' the damages owed to the patentee may be calculated by reference to that value. Where it is not, however, courts must insist on a more realistic starting point for the royalty calculations by juries—often, the [SSPPU] and, at times, even less." (citation omitted)); *VirnetX*, 767 F.3d at 1327 ("Where the smallest salable unit is, in fact, a multi-component product containing several non-infringing features with no relation to the patented feature . . ., the patentee must do more to estimate what portion of the value of that product is attributable to the patented technology."); *Lucent Technologies, Inc. v. Gateway, Inc.*, 580 F.3d 1301, 1339 (Fed. Cir. 2009) ("There is nothing inherently wrong with using the market value of the entire product, especially when there is no established market value for the infringing component or feature . . . .").
28. *See VirnetX*, 767 F.3d at 1327 ("[T]he instruction mistakenly suggests that when the smallest salable unit is used as the royalty base, there is necessarily no further constraint on the selection of the base. That is wrong. For one thing, the fundamental concern about skewing the damages horizon—of using a base that misleadingly suggests an inappropriate range—does not disappear simply because the smallest salable unit is used. Moreover, the smallest salable unit approach was intended to produce a royalty base much more closely tied to the claimed invention than the entire market value of the accused products.").
29. *Exmark Mfg. Co. v. Briggs & Stratton Power Prods. Grp., LLC*, 879 F.3d 1332, 1347–48 (Fed. Cir. 2018).
30. *See Finjan, Inc. v. Blue Coat Sys.*, 879 F.3d 1299, 1311 (Fed. Cir. 2018) ("[T[he essential requirement [is] the ultimate reasonable royalty award must be based on the incremental value that the patented invention adds to the end product."); *Ericsson*, 773 F.3d at 1226 ("The essential requirement is that the ultimate reasonable royalty award must be based on the incremental value that the patented invention adds to the end product.").
31. *See, e.g.*, *Commonwealth Scientific & Industrial Res. Org. v. Cisco Sys.*, 809 F.3d 1295, 1301 (Fed. Cir. 2015) (referring to "the inherent imprecision in patent valuation" and advising trial courts to "be proactive to ensure that the testimony presented—using whatever methodology—is sufficiently reliable to support a damages award").
32. *See generally Finjan*, 879 F.3d at 1312–13.
33. *See id.* at 1313 ("[T]he existence of conflicting testimony does not mean the damages award is unsupported by substantial evidence. The jury was entitled to believe the patentee's expert.").
34. *See, e.g.*, *The Cal. Inst. of Tech. v. Broadcom Ltd.*, No. CV 16-3714-GW-AGRx, slip op. 1–2 (C.D. Cal. Dec. 17, 2019), ECF No. 1723; *ZiiLabs Inc. v. Samsung Elecs. Co. Ltd.*, No. 2:14-cv-203-JRG-RSP, 2015 U.S. Dist. LEXIS 191436, at *22–25 (E.D .Tex. Dec. 8, 2015).
35. *See, e.g.*, *Comcast Cable Commc'ns, LLC v. Sprint Commc'ns. Co.*, 218 F. Supp. 3d 375, 387 (E.D. Pa. 2016); *Finjan, Inc. v. Blue Coat Sys.*, Case No. 13-cv-03999-BLF, 2015 U.S. Dist. LEXIS 91528, at *13–19 (N.D. Cal. July 14, 2015).
36. *See generally Eidos Display, LLC v. Chi Mei Innolux Corp.*, No. 6:11-CV-00201-JRG, 2017 U.S. Dist. LEXIS 52641, at *19–20 (E.D .Tex. Mar. 29, 2017).
37. *Id.*
38. *Id.* at *9.
39. *Id.* at *10.
40. *Commonwealth Scientific & Industrial Res. Org. v. Cisco Sys.*, 809 F.3d 1295, 1301 (Fed. Cir. 2015) [*hereinafter CSIRO*].
41. *Id.*
42. The 25 Percent Rule assumed, as a starting point, that 25% of a product's value should go to the patent owner and 75% should remain with the accused infringer. The Federal Circuit unequivocally rejected it. *See Uniloc USA, Inc. v. Microsoft Corp.*, 632 F.3d 1292, 1312-18 (Fed. Cir. 2011).
43. *Id.* at 1315.
44. The Nash Bargaining Solution assumes, as a starting point, that a patent owner and accused infringer would equally split the incremental profits resulting from a patented improvement. The Federal Circuit ruled such an assumption is inappropriate unless it can be tied to the facts of the case, which renders it almost impossible to use as a practical matter. *See VirnetX, Inc. v. Cisco Sys., Inc.*, 767 F.3d 1308, 1331-34 (Fed. Cir. 2013).
45. *See, e.g., Guest Post by Alan Cox: The Damages Testimony in VLSI Technologies v. Intel*, https://patentlyo.com/patent/2021/03/damages-testimony-technologies.html ("The damages testimony in this trial is interesting for several reasons, including Plaintiff's presentation of a regression analysis as the basis of its damages claim.").
46. *See, e.g., KAIST IP US LLC v. Samsung Electronics Co.*, No. 2:16-CV-01314-JRG-RSP, 2018 U.S. Dist. LEXIS 93876, at *3-4 (E.D. Tex. June 5, 2018) ("[The patentee] uses regression analysis to measure the relationship between changes in processor speed and the price of [the accused] devices.").
47. *Stragent, LLC v. Intel Corp.*, Case No. 6:11-cv-421, 2014 WL 1389304, at *4 (E.D. Tex. Mar. 6, 2014).
48. *CSIRO*, 809 F.3d at 1301 (quoting *Apple Inc. v. Motorola, Inc.*, 757 F.3d 1286, 1315 (Fed. Cir. 2014)).
49. *See Georgia-Pacific Corp. v. U.S. Plywood Corp.*, 318 F. Supp. 1116, 1120 (S.D.N.Y. 1970) (listing the relevant factors).
50. *See id.* (factors 9–11 and 13, for example).
51. *See id.* (factors 1–3, 5, 7, for example).
52. *CSIRO*, 809 F.3d at 1303–04.
53. *See Elbit Sys. Land & C4I Ltd. v. Hughes Network Sys., LLC*, 927 F.3d 1292, 1301 (Fed. Cir. 2019) ("[T]hose discussions . . . already informally apportioned the proposed license rates to the value of the patented technology. Hughes has not shown the unreasonableness of that analysis of how a negotiation can fulfill the apportionment requirement."); *CSIRO*, 809 F.3d at 1303 ("[O]therwise comparable licenses are not inadmissible solely because they express the royalty rate as a percentage of total revenues . . . ."); *Ericsson, Inc. v. DLink Sys.*, 773 F.3d 1201, 1228 (Fed. Cir. 2014) ("[T]he mere fact that licenses predicated on the value of a multi-component product are referenced in that analysis—and the district court exercises its discretion not to exclude such evidence—is not reversible error.").
54. *See Elbit*, 927 F.3d at 1299 ("[T]he prior licenses or settlements need to be 'sufficiently comparable' for evidentiary purposes and any differences in circumstances must be soundly accounted for."); *CSIRO*, 809 F.3d at 1302 ("Where the data used is not sufficiently tied to the facts of the case, a damages model cannot meet the substantive statutory requirement of apportionment of royalty damages to the invention's value." (citations and internal quotation marks omitted)); *VirnetX, Inc. v. Cisco Sys.*, 767 F.3d 1308, 1330 (Fed. Cir. 2014) ("[I]n attempting to establish a reasonable royalty, the 'licenses relied on by the patentee in proving damages [must be] sufficiently comparable to the hypothetical license at issue in suit.'" (quoting *Lucent Techs., Inc. v. Gateway, Inc.*, 580 F.3d 1301, 1325 (Fed. Cir. 2009))); *LaserDynamics, Inc. v. Quanta Computer, Inc.*, 694 F.3d 51, 79 (Fed. Cir. 2012) ("When relying on

licenses to prove a reasonable royalty, alleging a loose or vague comparability between different technologies or licenses does not suffice.").

55. *See generally Elbit*, 927 F.3d at 1299; *CSIRO*, 809 F.3d at 1302 n.2 (describing factors the Federal Circuit has considered when assessing comparability); *VirnetX*, 767 F.3d at 1330–31 (same); *MLC Intellectual Prop., LLC v. Micron Tech., Inc.*, No. 14-cv-03657-SI, 2019 U.S. Dist. LEXIS 116634, at *7–9 (N.D. Cal. July 12, 2019); *Opticurrent, LLC v. Power Integrations, Inc.*, No. 17-cv-03597-WHO, 2019 U.S. Dist. LEXIS 94615, at *26 (N.D. Cal. June. 5, 2019); *AVM Techs., LLC v. Intel Corp.*, No. 10-610-RGA, 2013 U.S. Dist. LEXIS 1165, at *8–9 (D. Del. Jan. 4, 2013).
56. *Ericsson*, 773 F.3d at 1227.
57. *See generally* 22A Charles Alan Wright & Arthur R. Miller, *Federal Practice and Procedure* § 5212 (Westlaw ed. 2020) (describing the policy and purpose of Fed. R. Evid. 403).
58. *Ericsson*, 773 F.3d at 1227.
59. *See CSIRO*, 809 F.3d at 1303 ("[O]therwise comparable licenses are not inadmissible solely because they express the royalty rate as a percentage of total revenues . . . ."); *Ericsson*, 773 F.3d at 1228 ("[T]he mere fact that licenses predicated on the value of a multi-component product are referenced in that analysis—and the district court exercises its discretion not to exclude such evidence—is not reversible error.").
60. *See CSIRO*, 809 F.3d at 1303 ("The district court still may need to adjust the negotiated royalty rates to account for other factors . . . ."); *Ericsson*, 773 F.3d at 1227 ("Testimony relying on licenses must account for such distinguishing facts when invoking them to value the patented invention."); *ActiveVideo Networks, Inc. v. Verizon Commc'ns, Inc.*, 694 F.3d 1312, 1333 (Fed. Cir. 2012) (ruling under the circumstances that "[t]he degree of comparability . . . as well as any failure on the part of [patentee]'s expert to control for certain variables are factual issues best addressed by cross examination and not by exclusion"); *Finjan, Inc. v. Secure Computing Corp.*, 626 F.3d 1197, 1212 (Fed. Cir. 2010) (upholding the admissibility of testimony about a license where descriptions of the "differences [between the license and litigation] permitted the jury to properly discount the [comparable] license").
61. *Exmark Mfg. Co. v. Briggs & Stratton Power Prods. Grp., LLC*, 879 F.3d 1332, 1349 (Fed. Cir. 2018).
62. *See id.* at 1348–49 ("[O]ne possible way to [apportion the royalty rate] is through a proper analysis of the *Georgia-Pacific* factors.").
63. *Whitserve, LLC v. Computer Packages, Inc.*, 694 F.3d 10, 31 (Fed. Cir. 2012); *see also Exmark*, 879 F.3d at 1350 ("When an expert employs the *Georgia-Pacific* factors, 'reciting each factor and making a conclusory remark about its impact on the damages calculation before moving on does no more than tell the jury what factors a damages analysis could take into consideration.'" (quoting *Whitserve*, 694 F.3d at 26)); *Lucent Techs., Inc. v. Gateway, Inc.*, 580 F.3d 1301, 1329 (Fed. Cir. 2009) (explaining that a "damages award cannot stand solely on evidence which amounts to little more than a recitation of royalty numbers" and that "superficial testimony" with "no analysis" is inadmissible).
64. *Whitserve*, 694 F.3d at 31.
65. *See, e.g.*, *CSIRO*, 809 F.3d at 1302 ("[T]he smallest salable patent-practicing unit principle provides that, where a damages model apportions from a royalty base, the model should use the smallest salable patent-practicing unit as the base. . . . That principle is inapplicable here, however, as the district court did not apportion from a royalty base at all. Instead, the district court began with the parties' negotiations.").
66. No. 2:16-CV-01314-JRG-RSP, 2018 U.S. Dist. LEXIS 93876 (E.D. Tex. June 5, 2018).
67. *See generally* D. Simpson, *KAIST, Samsung Settle $203M Patent Suit Over Firm's Protest*, Law360 (Sept. 10, 2020), *available at https://www.law360.com/articles/1308926/kaist-samsung-settle-203m-patent-suit-over-firm-s-protest* (last visited Feb. 4, 2021).
68. Field-effect transistors have long served as building blocks for integrated circuits, and they can be arranged in an infinite number of ways to perform an infinite variety of tasks. The idea of "finFETs" was not new at the time. The patent asserted in *KAIST* was filed in 2003, but fin-shaped field-effect transistors and related fabrication processes had been known since the late 1990s. Their cousin, planar field-effect transistors, had been ubiquitous for decades.
69. *KAIST IP US LLC v. Samsung Electronics Co.*, No. 2:16-CV-01314-JRG-RSP, 2018 U.S. Dist. LEXIS 93876, at *6–7 (E.D. Tex. June 5, 2018).
70. *Id.* at *8.
71. Verdict Form at 8, *KAIST IP US LLC v. Samsung Elecs. Co., Ltd.*, Case No. 2:16-cv-01314-JRG-RSP (E.D. Tex. June 15, 2018), ECF. No. 481.
72. *See Commonwealth Scientific & Industrial Res. Org. v. Cisco Sys.*, 809 F.3d 1295, 1302 (Fed. Cir. 2015) ("[The SSPPU] principle is inapplicable here . . . as the district court did not apportion from a royalty base at all.").
73. *See KAIST*, 2018 U.S. Dist. LEXIS 93876, at *3–4 ("[The patentee] uses regression analysis to measure the relationship between changes in processor speed and the price of [the accused] devices.").
74. *See id.* at *2 ("[The patentee's expert] opines that Defendants owe at least $1.5 billion in damages for infringement.").
75. *See* D. Clark, *Amazon and Apple are Powering a Shift Away From Intel's Chips*, New York Times (Dec. 2, 2020), *available at https://nyti.ms/2Vrh30U* (last visited Feb. 5, 2021); T. Simonite, *With Its Own Chips, Apple Aims to Define the Future of PCs*, Wired (Nov. 10, 2020), *available at https://www.wired.com/story/own-chips-apple-aims-define-future-pcs/#:~:text=Tuesday%20the%20company%20unveiled%20the,and%20bringing%20improved%20power%20efficiency* (last visited Feb. 5, 2021); D. Coldewey, *Tesla Vaunts Creation of "the Best Chip in the World" for Self-Driving*, TechCrunch (Apr. 22, 2019), *available at https://techcrunch.com/2019/04/22/tesla-vaunts-creation-of-the-best-chip-in-the-world-for-self-driving/* (last visited Feb. 5, 2021).

Vectura Ltd. v. GlaxoSmithKline LLC: *Federal Circuit Affirms Vectura's $90 Million Damages Award*

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Introduction

On November 19, 2020, a unanimous panel of the Court of Appeals for the Federal Circuit ("Federal Circuit") decided *Vectura Ltd. v. GlaxoSmithKline LLC*, affirming a $90 million verdict.[1] Vectura Ltd. ("Vectura") sued GlaxoSmithKline LLC and Glaxo Group Ltd. (collectively, "GSK") in the United States District Court for the District of Delaware, alleging that GSK infringed Vectura's U.S. Patent No. 8,303,991 (the "'991 patent").[2] The '991 patent "concerns the production of 'composite active particles' for use in pulmonary administration, such as in dry-powdered inhalers."[3] Vectura alleged that GSK infringed the '991 patent through its sale of its Ellipta-brand inhalers.[4] A jury found that the '991 patent was both valid and infringed by GSK, and that Vectura was entitled to a royalty payment of $89,712,069.[5] The district court denied GSK's post-trial motions for judgment as a matter of law or, in the alternative, a new trial, and remittitur.[6] GSK appealed and the Federal Circuit affirmed.[7]

Vectura offers some insights on well-versed areas of patent law, including claim construction, infringement, and damages. First, *Vectura* explains the circumstances under which a product or apparatus claim may be limited by a process for making that product or apparatus as disclosed in a patent's specification. Second, *Vectura* clarifies that an appropriate method for calculating damages for patent infringement can be the entire market value of a product, when damages are based on a prior license between the parties. Overall, *Vectura* adds but another thin layer to the longstanding, but ever-evolving, areas of infringement, claim construction, and damages law.

Factual and Procedural Background

Vectura, a pharmaceutical formulation development company specializing in inhaled medicines, is the assignee of the '991 patent, which issued on November 6, 2012 and relates to pharmaceutical compositions for inhalation.[8] Claim 1 of the '991 patent recites:

> Composite active particles for use in a pharmaceutical composition for pulmonary administration, each composite active particle comprising a particle of active material and particulate additive material on the surface of that particle of active material, wherein the composite active particles have a mass median aerodynamic diameter of not more than 10 μm, and wherein the additive material promotes the dispersion of the composite active particles upon actuation of a delivery device.[9]

Claim 2 depends from claim 1 and limits the additive material of claim 1 in relevant part to "a metal stearate or derivative thereof."[10] Claim 3 depends from claim 2 and recites:

> Composite active particles as claimed in claim 2, wherein the additive material includes magnesium stearate.[11]

In 2016, Vectura sued GSK alleging, among other things, that GSK's sale of its Ellipta-brand inhalers, including the Breo, Anoro, and Incruse devices (collectively, the "Infringing Products"), infringed claim 3 of the '991 patent.[12] Each of the Infringing Products "features one or more 'blisters,' which are sealed receptacles containing a single active ingredient, an excipient, and, optionally, additive material."[13] The excipient in the Infringing

Products is lactose and the additive material is magnesium stearate.[14] "As for the active ingredients, the blisters contain one of three drugs—vilanterol, umeclidinium, or fluticasone."[15] As contemplated by the '991 patent, "[t]he active ingredient produces the desired chemical or biological effect, while the additive particles promote the dispersion and delivery of the active ingredient into the lungs when the inhaler is activated."[16] GSK uses a "multi-step mixing process" to prepare the mixtures containing magnesium stearate, whereas the '991 patent discloses a "milling process" entailing "milling solid active particles in the presence of solid additive particles with sufficient energy to break down coarse particles into fine particles, resulting in the additive particles smearing over, and fusing onto, the active particles."[17]

The district court construed the relevant claim terms as follows[18]:

Claim Term	Construction
"promotes the dispersion of the composite active particles"	"wherein a composition that contains one or more composite active particles has increased dispersion of the active material upon activating a delivery device for inhalation into the lungs by a patient, as compared to the same composition wherein unmodified active particles are substituted for the composite active particles"
"composite active particles"	"[a] single particulate entit[y/ies] made up of a particle of active material to which one or more particles of additive material are fixed such that the active and additive particles do not separate in the airstream."

In arriving at its construction, the district court rejected GSK's argument that the term "composite active particles" includes a process limitation requiring that the composite active particles be produced by the milling process disclosed in the '991 patent.[19] Under the district court's construction, Vectura prevailed on the issues of validity, infringement, and willful infringement.[20] The jury awarded $89,712,069 in damages, reflecting a 3% royalty on a royalty base of $2.99 billion in sales of the Infringing Products.[21] The district court denied GSK's post-trial motions for judgment as a matter of law or, in the alternative, a new trial, and remittitur, and granted Vectura's motion for supplemental damages, pre- and post-judgment interest, and an ongoing royalty, thus increasing Vectura's damages award to over $106 million.[22]

GSK appealed the district court's decision denying its post-trial motions, raising four issues on appeal. *First*, GSK argued that Vectura failed to present substantial evidence that the Infringing Products use additive material that "promotes the dispersion" of active material for purposes of establishing infringement.[23] *Second*, GSK challenged the district court's construction of the term "composite active particles."[24] *Third*, GSK argued that a new trial on damages was necessary in light of flaws in the methodology used by Vectura's expert in calculating the royalty.[25] *Fourth*, GSK insisted that it was entitled to a new trial on damages because of prejudicial references to GSK's sales of the Infringing Products at trial.[26]

Legal Analysis

The Federal Circuit began by articulating the relevant legal standards applied in reviewing the district court's decision. Because the denial of a motion for judgment as a matter of law and a new trial does not raise issues unique to patent law, the Federal Circuit applied the regional circuit's standard of review, in this case, the Third Circuit.[27] "Under Third Circuit law, a district court must grant judgment as a matter of law if a jury's verdict is not supported by substantial evidence, i.e., if 'the record is critically deficient of the minimum quantum of evidence from which the jury might reasonably afford relief.'"[28] Moreover, a district court should not grant a new trial unless "the jury's verdict is against the great weight of evidence and either is a miscarriage of justice or cries out to be overturned."[29] Applying these principles, the Court considered each of GSK's arguments in turn.

A. Infringement: Testing, Expert Testimony, Documentary Evidence, and Testimony of Both Parties' Fact Witnesses Constituted Substantial Evidence to Support the Jury's Verdict

Turning to GSK's first argument—that Vectura failed to present substantial evidence supporting infringement—the Court first noted that "[t]he parties agree that, under the district court's [claim construction], Vectura needed to prove that the use of magnesium stearate in the [Infringing Products] improves the dispersion of the active ingredient . . . ."[30] GSK contended that Vectura failed to meet its burden on this issue because it relied principally on a defective scientific test performed by GSK.[31] The Federal Circuit, while noting that the scientific test was "not a perfect model for GSK's commercial products," nonetheless held that "the jury could conclude that despite its drawbacks, [the test] generally supported the view that coating the active ingredient with magnesium stearate

improves dispersion of the active ingredient."[32] This was so, in part, because the authors of the report on the test concluded that "coating all components with magnesium stearate produced a blend with . . . a high degree of dispersion, and that when the active drug is coated with magnesium stearate, better uniformity has been observed."[33] Moreover, the Court held that "[m]ore fundamentally" and "regardless of any infirmities" in the test, there was an abundance of other evidence supporting the jury's finding, including testing evidence, testimony from infringement experts, and testimony of employees from both GSK and Vectura, as well as documentary evidence.[34] Accordingly, "substantial evidence supported the jury's implied finding" that the Infringing Products use additive material that "promotes the dispersion" of the active material.[35] *Vectura* highlights the value of providing multiple layers and types of evidence, especially when testing may not be a perfect model.

B. Claim Construction: Process Steps Cannot Be Imported into a Product Claim if Statements by the Patentee Indicate Only a Preference for the Process

The Court next turned to GSK's argument that the district court erred in construing the term "composite active particles."[36] According to GSK, the district court should have construed that term to require that the composite active particles be produced by the milling process disclosed in the specification of the '991 patent.[37] GSK pointed to statements in the specification of the '991 patent as well as statements made during the prosecution of the '991 patent, arguing that the statements showed that the milling process is essential to the claimed composite active particles and that the applicant disclaimed particles made by other processes.[38] "Because GSK challenge[d] the district court's claim construction based only on intrinsic evidence, [the Federal Circuit] applie[d] *de novo* review."[39]

In assessing the merits of GSK's claim construction arguments, the Court reviewed prior precedent addressing the question of when an apparatus claim includes a process limitation.[40] In particular, the Court noted that in *Andersen Corp. v. Fiber Composites, LLC*, it construed an apparatus claim to include a process limitation, whereas in *Continental Circuits LLC v. Intel Corp.*, it declined to import such a limitation into the apparatus claim.[41] "In both cases, [the Federal Circuit] recognized that 'process steps can be treated as part of the product claim if the patentee has made clear that the process steps are an essential part of the claimed invention.'"[42] The Court distinguished the cases in that in *Andersen* "the specification used 'language of requirement, not preference,' when describing the apparatus-producing process," whereas in *Continental Circuits* "the specification 'merely indicate[d] a preference for using' the apparatus-producing process."[43] The Court held that the specification of the '991 patent was more akin to that in *Continental Circuits* than to that in *Andersen*.[44]

In arriving at its conclusion, the Court held that "[a]lthough the '991 patent contains a few statements suggesting that its high-energy milling is required, those statements are outweighed by the numerous statements indicating that high-energy milling is merely a preferred process."[45] Moreover, the Court held that "the fact that the '991 patent criticizes other methods is not dispositive," and that statements made during the prosecution of the '991 patent merely distinguished the prior art "based on the unique structure of the claimed composite particles, not the disclosed milling method."[46] Thus, the milling method disclosed in the specification of the '991 patent was not an essential part of the claim.[47] This case demonstrates the difficulty of importing method limitations from the specification into a formulation claim.

C. Damages: Apportionment May Not Be Required If a Patentee Relies on a Prior License to Establish Damages

The Court next turned to GSK's argument that Vectura's damages theory was legally flawed and required a new trial on the issue of damages.[48] Vectura's damages theory was based on a prior license between the parties.[49] The prior license "featured a tiered royalty structure in which GSK would pay a royalty of 3% on its first 300 million British pounds in sales, 2% on sales between 300 million and 500 million pounds, and no additional royalties on sales above 500 million pounds."[50] Vectura's damages expert retained the 3% royalty rate and GSK's total sales as the royalty base, but declined to apply the royalty cap specified in the prior license, citing changed circumstances.[51] GSK argued that it was improper for Vectura to use GSK's total sales of the Infringing Products because Vectura failed to show that the patented portion of the Infringing Products drove consumer demand, and thus, Vectura needed to apportion the royalty base to account for non-infringing components in the Infringing Products.[52]

In addressing GSK's arguments, the Court noted that although "an entire-marketvalue (*sic*) royalty base is appropriate only when the patented feature creates the basis for customer demand or substantially creates the value of the component parts," the Court has held that "when a sufficiently comparable license is used as the basis for determining the appropriate royalty, further apportionment may not necessarily be required."[53] This is so because "a damages theory that is dependent on a comparable license (or a comparable negotiation) may in some cases have 'builtin (*sic*) apportionment.'"[54] Built-in apportionment "effectively assumes that the negotiators of a comparable license settled on a royalty rate and royalty base combination embodying the value of the asserted patent."[55] Accordingly, the Court held that Vectura's damages theory was not improper. Moreover, the Court held that although certain remarks by Vectura's counsel at trial were improper, it would not second-guess the district court's conclusion that those remarks were not so prejudicial as to warrant a new trial.[56]

Conclusion

The Federal Circuit's recent decision in *Vectura* revisits some well-trodden areas of patent law—infringement, claim construction, and damages—and offers some practical considerations for patent applicants and patentees. First, patent applicants seeking to claim a product or apparatus made by a specific process should avoid making statements that indicate the process is an essential component of the apparatus or product, lest that process be construed as an element of the claim. Language of preference for the method, rather than requirement, may prevent a court from finding that an apparatus claim is limited by the disclosed process. Second, when seeking damages based on a prior comparable license, the patentee may not be required to apportion the royalty base to account for non-infringing components of the accused products. The patentee should offer evidence showing that the prior license embodied the value of the asserted patent.

1. *Vectura Ltd. v. GlaxoSmithKline LLC*, No. 2020-1054, 2020 U.S. App. LEXIS 36393 (Fed. Cir. Nov. 19, 2020), *aff'g* 397 F.Supp.3d 579 (D. Del. 2019).
2. *Id.* at *1–2.
3. *Id.* at *2.
4. *Id.* at *3.
5. *See id.* at *6.
6. *Id.* at *6–7.
7. *Id.* at *7.
8. *See* U.S. Patent No. 8,303,991, at [45], [73], col. 11 ll. 44¬–47 (issued Nov. 6, 2012).
9. '991 patent, at cl. 1.
10. *Id.* at cl. 2.
11. *Id.* at cl. 3.
12. *Vectura*, 2020 U.S. App. LEXIS 36393, at *3–4.
13. *Id.* at *4.
14. *Id.*
15. *Id.*
16. *Id.* at *2.
17. *Id.* at *2, 4–5.
18. *Id.* at *5–6.
19. *Id.*
20. *Id.* at *6.
21. *Id.*
22. *See id.* at *7; *Vectura Ltd. v. GlaxoSmithKline LLC*, C.A. No. 16-638-RGA, 2019 U.S. Dist. LEXIS 155768, at *1 (D. Del. Sept. 12, 2019).
23. *Vectura*, 2020 U.S. App. LEXIS 36393, at *7.
24. *Id.*
25. *Id.* at *7–8.
26. *Id.* at *8.
27. *Id.*
28. *Id.* (quoting *Gomez v. Allegheny Health Servs., Inc.*, 71 F.3d 1079, 1083 (3d Cir. 1995)).
29. *Id.* (quoting *Leonard v. Steamtech Int'l Inc.*, 834 F.3d 376, 386 (3d Cir. 2016)).
30. *Id.* at *8–9.
31. *Id.* at *9.
32. *Id.* at *10–11.
33. *Id.* at *10–11 (internal quotations omitted).
34. *Id.* at *11–12.
35. *Id.* at *14.
36. *See id.* at *14–15.
37. *Id.* at *15.
38. *Id.*
39. *Id.* at *15–16.
40. *See id.* at *17–21 (analyzing *Continental Circuits LLC v. Intel Corp.*, 915 F.3d 788 (Fed. Cir. 2019) and *Andersen Corp. v. Fiber Composites, LLC*, 474 F.3d 1361 (Fed. Cir. 2007)).
41. *Id.* at *17.
42. *Id.*
43. *Id.*
44. *Id.* at *18.
45. *Id.* (internal citations omitted).
46. *Id.* (internal citations omitted).
47. *Id.* at *18–19, *21.
48. *Id.* at *21.
49. *Id.* at *22.
50. *Id.*
51. *Id.*
52. *Id.* at *22¬–23.
53. *Id.* at *23.
54. *Id.* at *24.
55. *Id.*
56. *Id.* at *34–35.

After Fintiv: *The Continuing Evolution of Discretionary Denial at the PTAB*

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In 2019, the U.S. Patent Trial and Appeal Board (PTAB) designated precedential *NHK Spring Co., Ltd. v. Intri-plex Technologies, Inc.*[2], a decision in which the PTAB exercised its discretion under 35 U.S.C. § 314(a) to deny institution of a timely filed[3] petition for *inter partes* review (IPR) based on the advanced stage of a related district court litigation. Following *NHK Spring*, many patent owners began urging the PTAB to deny petitions in light of co-pending district court litigations, and many petitioners saw petitions denied on this ground.

In *Apple Inc. v. Fintiv, Inc.*[4], which was designated precedential in May 2020, the PTAB articulated six factors (*Fintiv* factors) for Administrative Patent Judges to weigh when considering whether to exercise discretion to deny institution. This article summarizes the *Fintiv* factors and explores subsequent developments pertaining to each.

I. The *Fintiv* Factors

The *Fintiv* "factors relate to whether efficiency, fairness, and the merits support the exercise of" discretionary denial by the PTAB.[5] Because "there is some overlap among these factors," the PTAB explained, "[s]ome facts may be relevant to more than one factor."[6] "In evaluating the factors," the PTAB "takes a holistic view of whether efficiency and integrity of the system are best served by denying or instituting review."[7] Each factor is explored below.

A. *Fintiv* Factor 1: Whether the court granted a stay or evidence exists that one may be granted if a proceeding is instituted

Fintiv Factor 1 considers stays of the district court litigation. According to the *Fintiv* panel, "[a] district court stay of the litigation pending resolution of the PTAB trial allays concerns about inefficiency and duplication of efforts."[8] Accordingly, a stay of the district court litigation "has strongly weighed against exercising the authority to deny institution." [9] This is also true where the district court litigation is stayed pending an ITC investigation, rather than any IPR.[10] A denial of a motion to stay, on the other hand—absent any indication that the district court will "reconsider . . . if a PTAB trial is instituted"—can "sometimes weigh[] in favor of exercising authority to deny institution."[11]

Since *Fintiv*, the PTAB has stated that where a stay has been neither requested nor granted, "[t]his factor does not weigh for or against discretionary denial."[12] Panels have "recognize[d] that many legitimate reasons may lead a party not to file a motion to stay prior to the Board's institution decision, including that such a motion may be premature."[13] In the informative decision *Sand Revolution II, LLC v. Continental Intermodal Group–Trucking LLC*, the PTAB explained that, "[i]n the absence of specific evidence"—that is, specific to the instant district court case—the PTAB "will not attempt to predict how the district court . . . will proceed because the court may determine whether or not to stay any

individual case . . . based on a variety of circumstances and facts beyond our control and to which the Board is not privy."[14] In the subsequent institution decision in *Fintiv*, also designated informative, the panel reasoned similarly: "We decline to infer, based on actions taken in different cases with different facts, how the District Court would rule should a stay be requested by the parties."[15]

B. *Fintiv* Factor 2: Proximity of the court's trial date to the Board's projected statutory deadline for a Final Written Decision

Fintiv Factor 2 examines the timing between a district court's forthcoming trial and a projected[16] Final Written Decision date in the IPR. "If the court's trial date is earlier than the projected statutory deadline" for a Final Written Decision, this factor has often weighed in favor of exercising authority to deny institution."[17] "If the court's trial date is at or around the same time as the projected statutory deadline," however, "or even significantly after the projected statutory deadline, the decision whether to institute will likely implicate other factors . . . such as the resources that have been invested in the parallel proceeding."[18]

Since *Fintiv*, some petitioners facing a district court trial scheduled earlier than the projected Final Written Decision date have argued that trial dates are often moved. [19] Panels of the PTAB have split on the extent to which uncertainty in a trial date impacts this factor. The *Sand Revolution* panel, for example, faced with evidence that the scheduled trial date had been moved four times and the district court included "the qualifier 'or as available'" on the schedule, concluded that it was "unclear that the court in the related district court litigation will adhere to any currently scheduled jury trial date or, if it is changed, when such a trial will be held.[20] Noting "the uncertainty that continued to surround the scheduled trial date," the panel found this fact to "weigh[] marginally in favor of not exercising discretion."[21] By contrast, the *Fintiv* panel itself rejected Apple's arguments that the district court trial date was uncertain in light of its postponement due to the COVID-19 pandemic.[22] It stated: "We generally take courts' trial schedules at face value absent some strong evidence to the contrary." Finding "no reason to believe" the trial date would be postponed again, the panel concluded "this factor weighs somewhat in favor of discretionary denial."[23]

One way the PTAB has navigated uncertainty in a trial date is by focusing on "the *proximity* of the trial date to the date of [a] final written decision."[24] "The proximity inquiry," one panel explained, "is a proxy for the likelihood that the trial court will reach a decision on validity issues before the Board reaches a final written decision."[25] Where "[a] trial set to occur soon after the institution decision," it "is fairly likely to happen before the Board's final written decision, even if the trial date were postponed due to intervening circumstances," the uncertainty may be given little weight.[26] Where the trial is set closer to the final written decision, uncertainty may be given more weight.[27]

C. *Fintiv* Factor 3: Investment in the parallel proceeding by the court and the parties

Fintiv Factor 3 "consider[s] the amount and type of work already completed in the parallel litigation."[28] This includes investment by both "the court and the parties" and is measured "at the time of the institution decision."[29] *Fintiv* specifically noted that "this fact favors denial" where "the district court has issued substantive orders related to the patent," such as a preliminary injunction or a claim construction order.[30]

A "countervailing consideration," the panel noted, is whether "Petitioner acted diligently" in filing its petition.[31] Accordingly, the *Fintiv* panel encouraged parties to "explain facts relevant to timing."[32] Filing a petition "expeditiously, such as promptly after becoming aware of the claims being asserted," may weigh against discretionary denial. [33] Filing a petition later, "such as at or around the same time that the patent owner responded to the petitioner's invalidity contentions," may weigh in favor of discretionary denial.[34] In the precedential decision *Sotera Wireless, Inc. v. Masimo Corporation*, the panel considered as relevant to the timing "the large number of patents and claims challenged in this and [the petitioner's] other related petitions for *inter partes* review, as well as the increased difficulty in preparing . . . due to concurrent office closures."[35]

D. *Fintiv* Factor 4: Overlap between issues raised in the petition and in the parallel proceeding

Fintiv Factor 4 explores the extent to which arguments and evidence before the district court and the PTAB will overlap. The *Fintiv* panel observed that where a "petition includes the same or substantially the same claims, grounds, arguments, and evidence" as presented in the district court litigation, "concerns of inefficiency and the possibility of conflicting decisions [are] particularly strong."[36] It noted, though, that "weighing the degree of overlap is highly fact dependent."[37]

Some petitioners have attempted to address this factor using stipulations. The petitioner in *Sand Revolution*, for example, stipulated that "if the IPR is instituted, Petitioner will not pursue the same grounds in the district court litigation."[38] The panel granted that this stipulation "mitigate[d] to some degree the concerns of duplicative efforts" and "potentially conflicting decisions." [39] The *Sand Revolution* panel also observed that the petitioner could have done more: "Petitioner could have stipulated that it would not pursue any ground raised *or that could have been reasonably raised in an IPR*, i.e., any ground that could be raised under § 102 or 103 on the basis of prior art patents or printed publications."[40] Because "[a] broader stipulation of that nature . . . might better address concerns regarding duplicative efforts and potentially conflicting decisions in a much more substantial way," the panel ventured, "[d]oing so might have tipped this factor more conclusively in [the petitioner's] favor."[41] In *Sotera*, the petitioner employed the "broader stipulation" envisioned by the *Sand Revolution* panel, and the *Sotera* panel was persuaded.[42] "Importantly," the panel stated, "Petitioner broadly stipulates to not pursue '*any ground* raised or that could have been reasonably raised."[43] Finding the "broad stipulation ensures that an *inter partes* review is a 'true alternative' to the district court proceeding," the panel found "this factor weighs strongly in favor of not exercising discretion to deny institution."[44]

E. *Fintiv* Factor 5: Whether the petitioner and the defendant in the parallel proceeding are the same party

Under *Fintiv* Factor 5, when the petitioner is also a defendant in the district court litigation, this factor has generally weighed in favor of discretionary denial.[45] Where the district court litigation is stayed pending IPR, however, this factor may be "neutral or, at most, weigh[] slightly in favor of exercising discretion to deny institution."[46]

F. *Fintiv* Factor 6: Other circumstances that impact the Board's exercise of discretion, including the merits

Noting "the factors considered in the exercise of discretion are part of a balanced assessment of all the relevant circumstances in the case," the *Fintiv* panel envisioned with Factor 6 that "[o]ther circumstances" may be considered as well, including "the merits" of the petition.[47] The *Fintiv* panel encouraged parties to "point out . . . particular 'strengths or weaknesses' to aid the Board in deciding whether the merits tip the balance one way or another."[48] Since *Fintiv*, parties have presented wide-ranging arguments under this factor, from the presence of parallel petitions[49] to the number of times a patent has been asserted in district court or challenged in IPR.[50]

II. Conclusion

Discretionary denial under § 314(a) has come a long way since *NHK Spring*, and will no doubt continue to evolve as the PTAB balances its workflow and duties under the statute. There has been criticism from petitioners who feel that access to the PTAB is being curtailed unpredictably. This tension was reflected in the U.S. Patent and Trademark Office's recent Request for Comments "to obtain feedback from stakeholders" on the PTAB's "current case-specific approaches" to its exercise of discretionary denial and "whether the Office should promulgate rules based on these approaches."[51] Parties and practitioners will have to keep an eye out for what's next.

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2. *NHK Spring Co. v. Intri-Plex Technologies, Inc.*, IPR2018-00752, Paper 8 (PTAB Sept. 12, 2018) (designated precedential May 7, 2019).
3. 35 U.S.C. § 315(b) ("An inter partes review may not be instituted if the petition requesting the proceeding is filed more than 1 year after the date on which the petitioner, real party in interest, or privy of the petitioner is served with a complaint alleging infringement of the patent.").
4. *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 (PTAB Mar. 20, 2020) (designated precedential May 5, 2020) (*Fintiv*).
5. *Id.* at 5.
6. *Id.*
7. *Id.* at 6.
8. *Id.*
9. *Id.* at 7–8. *See also, e.g., Snap, Inc. v. SRK Tech. LLC*, IPR202-00820, Paper 15 at 9 (PTAB Oct. 21, 2020) (designed precedential Dec. 17, 2020).
10. *Fintiv* at 8 ("[E]ven though the Office and the district court would not be bound by the ITC's decision, an earlier ITC trial date may favor exercising authority to deny institution . . . if the ITC is going to decide the same or substantially similar issues to those presented in the petition.").
11. *Id.* at 7–8.
12. *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 15 at 12 (PTAB May 13, 2020) (designated informative July 13, 2020) (*Fintiv II*).
13. *GlobalFoundries Inc. v. UNM Rainforest Innovs.*, IPR2020-00984, Paper 11 at 10 (Dec. 9, 2020).
14. *Sand Rev'n II LLC v. Cont'l Intermodal Grp. – Trucking LLC*, IPR2019-01393, Paper 24 at 7 (PTAB June 16, 2020) (designated informative July 13, 2020).
15. *Fintiv II* at 12. *See also, e.g., Dish Network L.L.C. . Broadband iTV, Inc.*, IPR2020-01280, Paper 17 at 13 (PTAB Feb. 4, 2021) ("[D]etermining how the Texas court might handle the issue of whether to stay . . . when no motion for stay has been filed invites conjecture . . . this factor is neutral to the exercise of our discretion.").
16. 35 U.S.C. § 316(a)(11) requires the PTAB to issue Final Written Decisions "not later than 1 year after" the date of institution.
17. *Fintiv* at 9.
18. *Id.*

19. *See, e.g.*, *Cellco Partnership v. Huawei Device Co., Ltd.*, IPR2020-01117, Paper 10 at 18–19 (PTAB Feb. 3, 2021).
20. *Sand Rev'n* at 9.
21. *Id.* at 9–10.
22. *Fintiv II* at 12–13.
23. *Id.* at 13.
24. *Dish Network* at 17.
25. *Id.*
26. *Id.*
27. *Id.*
28. *Fintiv* at *9*.
29. *Id.*
30. *Id.* at 9–10. The PTAB added that "the weight to give claim construction orders may vary depending upon a particular district court's practices," noting "some district courts may postpone significant discovery until after it issues a claim construction order, while others may not." *Id.* at 10 n.17. The PTAB has also considered how detailed the claim construction order is. *See, e.g.*, *Sand Rev'n* at 10–11 ("[T]he district court's two-page *Markman* Order . . . does not demonstrate the same high level of investment of time and resources as the detailed *Markman* Order in *Fintiv*.").
31. *Fintiv* at 11.
32. *Id.*
33. *Id.*
34. *Medtronic, Inc. v. Teleflex Innovs. S.A.R.L.*, IPR2020-01341, Paper 11 at 10–11 (PTAB Feb. 9, 2021).
35. *Sotera Wireless, Inc. v. Masimo Corp.* IPR2020, 01019, Paper 12 at 17 (PTAB Dec. 1, 2020) (designated precedential Dec. 17, 2020). *See also Samsung Elec. Co., Ltd. v. Acorn Semi, LLC*, IPR2020-01282, Paper 20 at 42 (PTAB Feb. 10, 2021) ("Petitioner filed this Petition, and nine others, in less than four months. We, therefore, consider this factor to only slightly favor denial.").
36. *Fintiv* at 12.
37. *Id.* at 13.
38. *Sand Rev'n* at 11–12.
39. *Id.* at 12; 12 n.5.
40. *Id.*
41. *Id.*
42. *Sotera* at 18 (PTAB Dec. 1, 2020).
43. *Id.* at 19.
44. *Id.*
45. *Fintiv II* at 15. *But see Cisco Sys., Inc. v. Ramot at Tel Aviv Univ. Ltd.*, IPR2020- 00122, Paper 15 at 10 (PTAB May 15, 2020) (APJ Crumbley, dissenting) ("My interpretation of the fifth *Fintiv* factor is that it only becomes relevant when the district court defendant and the petitioner before the Board are unrelated, in which case it weighs against denial of institution. In cases such as the one at hand, where the parties are the same, the factor is neutral. To hold otherwise—that the factor weighs in favor of denial if the parties are the same—would, in effect, tip the scales against a petitioner merely for being a defendant in the district court.").
46. *Snap* at 16.
47. *Fintiv* at 14.
48. *Fintiv II* at 15.
49. *See, e.g., Samsung* at 47 ("[W]e do not agree that the filing of the parallel petitions favors denial.").
50. *See, e.g., Ameristar Perimeter Sec. USA, Inc. v. RSA Protective Techs., LLC*, IPR2020-01369 Paper 11 at 19 (PTAB Feb. 5, 2021) ("We sympathize with Patent Owner that the . . . patent has undergone numerous challenges. However, this fact is tempered by the fact that Patent Owner brought suit against different parties at different times, triggering the earlier challenges.").
51. "United States Patent and Trademark Office Executive Summary — Public Views on Discretionary Institution of AIA Proceedings" (January 2021) (available at *https://www.uspto.gov/sites/default/files/documents/USPTOExecutiveSummaryofPublicViewsonDiscretionaryInstitutionofAIAProceedingsJanuary2021.pdf*).

Don't Be Caught without Possession (of Your Invention): What You Need To Know about the Written Description Requirement

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Introduction

The written description requirement under US patent law seeks to incentivize "actual invention" as opposed to "attempts to preempt the future before it has arrived." *Ariad Pharmaceuticals Inc. v. Eli Lilly & Co. 598 F.3d 1336, 1353 (Fed. Cir. 2010)*. How this policy is implemented is an important factor in defining the strength and scope of the exclusivity afforded by a patent grant. It has been just over ten years since the Federal Circuit reaffirmed that there is a written description requirement separate and distinct from the requirement that the invention be enabled. Two recent cases before the Federal Circuit illustrate the ongoing development of written description jurisprudence in the US since *Ariad*. This article reviews these cases and a few older post-*Ariad* cases to illustrate what may be a trend in how the written description requirement is developing in the pharmaceutical and biotechnology related arts, particularly as applied to genus claims covering molecules large and small, including antibodies, enzymes, and small organic molecules. An important takeaway is that genus claims, especially those employing functional language, may be increasingly susceptible to an invalidity attack based on lack of written description, as well as enablement, to the extent this line of cases is followed. Since these types of claims may also be the most valuable, it is important for stakeholders to understand these developments and their implications. This is also a critical issue beyond the United States, where some of the most desirable markets are located in jurisdictions that tend to interpret the written description requirement more strictly than in the US, at least outside of the 'blaze marks' line of cases discussed here.

Part I: Blazing a Trail through the Written Description Forest: *Novozymes* and *Idenix*

Most stakeholders will be aware of the requirement under US law to provide a "written description of the invention, and of the manner and process of making and using it" under 35 U.S.C. § 112 (a). Some may have heard about "blaze marks" and the perils of "functional" claiming. Yet written description is often not as appreciated or understood as other patentability requirements such as enablement, novelty, and non-obviousness. One reason may be that the Federal Circuit in *Ariad* eschewed laying down any bright-line rules as to what is required to satisfy written description. What we know from *Ariad* is that describing "groundbreaking research" in itself is not enough. The court explained that "[a] patent is not a hunting license" or "a reward for the search"; rather,

it is "compensation for a successful conclusion." *Ariad*, *598 F.3d at 1353*. Indeed, a research plan without more is insufficient, although neither specific examples nor an actual reduction to practice is strictly required. Instead, "a constructive reduction to practice that in a definite way identifies the claimed invention can satisfy the written description requirement." *Id.* at 1352. Yet, "actual 'possession' or reduction to practice outside of the specification is [also] not enough." *Id.* Instead, "the specification itself must demonstrate possession." *Id*. And, while the specification need not recite the claimed invention *in haec verba*, "a description that merely renders the invention obvious does not satisfy the requirement". *Id*.

Problems with both written description and enablement most commonly arise in the context of claims covering a genus broader than the examples provided in the patent specification. The same breadth that makes these claims highly desirable from an enforcement perspective renders them susceptible to invalidity attack. With respect to written description, the legal standard is generally characterized as requiring that the specification describe "a representative number of species" of the genus, or a set of common structural features shared by the members of the genus such that the person of ordinary skill would recognize each and every species of the claimed genus. *Ariad*, 598 F.3d at 1350. Satisfying this fact-specific requirement can be particularly difficult in chemical cases, where the specification may disclose a large genus of possible compounds. Yet, if it does not somehow guide the skilled person to the particular compound at issue encompassed by the claim, sufficient written description may be found lacking. *Id.* at 1347 (discussing *In re Ruschig*, 379 F.2d 990, 994–95 (CCPA 1967) and the importance of the claimed invention appearing in the specification). In an early post-*Ariad* case, the Federal Circuit found a genus claim to enzyme variants invalid because the specification failed to "provide sufficient 'blaze marks' to guide a reader through the forest of disclosed possibilities" toward the claimed compound at issue encompassed by the genus. *Novozymes A/S v. DuPont Nutrition Biosciences APS,* 723 F.3d 1336, 1346 (Fed. Cir. 2013), *cert denied* 571 U.S. 1244 (2014) (quoting *In re Ruschig*). The "blaze marks" rule announced by *Ruschig* was also discussed in *Ariad* and raised again more recently in *Idenix.* But what are "blaze marks" and when are they required?

Novozymes' patent claimed genetic variants of alpha-amylase enzymes at position 239 of the amino acid sequence of a parent protein that conferred increased resistance to high heat and acidity. *Novozymes* 723 F.3d at 1339. The specification identified 33 potential mutation sites in the alpha-amylase protein along with seven potential corresponding parent enzymes that could be altered by any of a deletion, addition, or substitution in one or more of those sites to obtain variants with improved stability. *Id* at 1340. The specification further included pages of exemplary variants, in single, double, triple, and larger combinations. The original application was filed in 2000 and contained two specific examples of enzyme variants with improved properties. Meanwhile, DuPont was developing its own enzyme variants and received a patent in June 2009 based on a specific variant having a substitution at amino acid position 239 that replaced serine with glutamine (S239Q). Although position 239 was one of the mutation sites identified in the Novozymes' application, the corresponding specification did not describe a substitution resulting in glutamine (Q). Instead, each of the 17 embodiments with a specific substitution at this position replaced the original serine with the amino acid tryptophan (S239W). In December 2009, Novozymes filed a new continuation application specifically claiming enzyme variants at position 239 and received US 7,713,723 (the '723 patent) in 2010, which was the patent asserted in the district court. Based on all of these facts, a divided three-judge panel of the Federal Circuit affirmed the district court's grant of a post-trial motion for judgment as a matter of law holding Novozymes' patent invalid for failing to satisfy the written description requirement. *Id* at 1346. The district court decision as affirmed by the Federal Circuit nullified an award of more than $18 million in damages to Novozymes after the jury determined that the '723 patent's claims were not invalid on enablement or written description grounds. Notwithstanding the jury's conclusion and the fact that each and every element of the claims was expressly recited in the specification, the district court entered judgment in favor of DuPont. In its decision affirming the district court, the Federal Circuit remarked that

> In contrast to the claims—which narrowly recite specific alpha-amylase variants that result from mutating a particular parent enzyme at a single amino acid position to yield distinctive functional properties—the supporting disclosure of the 2000 application provides only generalized guidance listing several variables that might, in some combination, lead to a useful result. *Taking the claims as a whole rather than as the sum of their individual limitations*, nothing in the 2000 application indicates that Novozymes then possessed what it now claims.

723 F.3d 1336, 1345 (emphasis added).

Despite an extensive listing of possible enzyme variants, what the court found missing from the specification in *Novozymes* was some indication that the combination of features now claimed, namely variants obtained by mutating position 239 of a particular parent enzyme, was known at the time of filing. Instead, the court found that

the '723 patent contained "no disclosure of any variant that actually satisfies the claims, nor . . . anything to suggest that Novozymes actually possessed such a variant at the time of filing." 723 F.3d at 1348. Since this case was decided in 2013 it has been cited for the proposition that "the written description requirement prohibits a patentee from leaving it to the . . . industry to complete an unfinished invention." *Id.* at 1350 (internal quotations and citations omitted).

More recently, the Federal Circuit, in *Idenix Pharm. LLC v. Gilead Scis. Inc*., again invoked *In re Ruschig* in characterizing the written description inquiry as "looking for blaze marks which single out particular trees" in a forest, rather than simply "pointing to trees", and held a patent invalid in part for failing to provide such blaze marks. 941 F.3d 1149 (Fed. Cir. 2019) *cert denied* 2021 U.S. LEXIS 620 (2021). At issue in *Idenix* was a genus claim directed to methods of treating hepatitis C by administering nucleoside compounds of a defined structure. It was undisputed that the claims encompassed Gilead's HCV therapeutic, sofosbuvir. The claim at issue was directed to nucleosides "having a methyl substitution (CH3) at the 2'-up position of the molecule's sugar ring." 941 F.3d at 1154. Idenix argued that this feature was the key inventive aspect of the genus of molecules encompassed by the claim. Gilead's compound had a fluorine (F) at the 2'-down position, for which the claim did not specify any particular substitution.

The parties' arguments focused on the number of possible compounds encompassed by the variable 2'-up and 2'-down positions. *Idenix*, 941 F.3d. at 1154. In its arguments in defense of enablement, Idenix's counsel conceded that the structural limitations of the claimed genus encompass "some number of thousands" of compounds. Yet, with respect to written description, Idenix argued that the specification provides "abundant traditional blazemarks for the claims—working examples, formulas, data, synthesis routes, and the target." But the court found that "[e]ach of these suffer from the same flaw" which was that they provided merely "lists or examples of supposedly effective nucleosides" while failing to "explain what makes them effective, or why." *Id.* at 1164. According to the majority, the result was to deprive the skilled person "of any meaningful guidance into what compounds beyond the examples and formulas, if any, would provide the same result." *Id*. The sheer number of disclosed compounds, "tens or hundreds of thousands of possible nucleosides", also seems to have undermined Idenix's 'blazemarks' position. The court also took notice that among the many thousands of possible compounds, "the compound in question is conspicuously absent." *Id.* at 1165. While all seven chemical formulas listed fluorine as a possibility at other positions, including the 2'-up position, and the formulas also included every other halogen at both the 2'-up and 2'-down positions, none specified fluorine at the 2'-down position, as it was in Gilead's accused compound. The court dismissed the possibility that the skilled person would have nevertheless envisioned fluorine at the 2'-down position based on its similarity with other halogens because "[a] description that merely renders the invention obvious does not satisfy the written description requirement." *Id.* (*quoting Ariad*, 598 F.3d at 1352).

It is worth taking note that based on these precedents, a genus claim may be susceptible to an invalidity attack where the specification lacks "meaningful guidance" or "blaze marks" leading to each of the species encompassed by the claimed genus. This is consistent with the rule followed by the US Patent and Trademark Office during examination of applications providing that while a species anticipates a genus, a genus does not necessarily anticipate the species. In addition, although including extensive 'lists' of various claim elements in the specification is a common practice and often relied upon as support for later drafting a claim having any combination of the listed elements, this approach does not necessarily provide adequate written description for the later-claimed combination.

Part II: Written Description and Functional Claiming

When the Federal Circuit confirmed the existence of a written description requirement as separate and distinct from enablement in *Ariad* more than ten years ago, the court acknowledged that in some cases, there may be little difference between the two. *See Ariad*, 598 F.3d at 1352. However, the court also envisioned cases where the claims at issue may not require undue experimentation to make and use, and thus may be enabled, "*but have not been invented, and thus cannot be described*." *Id.* (emphasis added). The court saw this as a particularly important issue for biotechnology patents, where a product, such as an antibody, may be claimed by its function or result. In those instances, the court noted that the specification must recite "sufficient materials to accomplish that function." *Id.* at 1353.

That issue of sufficiency was presented in the course of ongoing *Amgen v. Sanofi* litigation involving functionally claimed antibodies, and in which the Federal Circuit recently issued a second opinion following a second district court jury trial. Amgen's asserted claims are directed to anti-PCSK9 antibodies that bind to "at least one" of 15 listed amino acids of PCSK9 and block its binding to the low density lipoprotein receptor (LDLR). The claims cover Amgen's Repatha™ and Sanofi/Regeneron

stipulated to infringement of selected claims with respect to its accused product, Praluent™, while continuing to litigate validity. In the first trial, a jury found the patents were not invalid for lack of enablement and written description based on the district court's instruction that:

> In the case of a claim to antibodies, the correlation between structure and function may also be satisfied by the disclosure of a newly characterized antigen by its structure, formula, chemical name, or physical properties if you find that the level of skill and knowledge in the art of antibodies at the time of filing was such that production of antibodies against such an antigen was conventional or routine.

Amgen Inc. v. Sanofi, 872 F.3d 1367, 1376 (Fed. Cir. 2017). The Federal Circuit reversed and repudiated this "newly characterized antigen" test for written description of an antibody as flouting the "basic legal principles of the written description requirement." *Id.* at 1378. That test would have allowed the written description of an antibody to be satisfied by the disclosure of a newly characterized antigen. The rationale was that the correlation between an antibody's structure and its ability to bind a particular antigen would satisfy the "common structural features" prong of the written description requirement. Rejecting this approach, the Federal Circuit explained that the art failed to establish a correlation such that knowledge of the antigen provides the necessary structure-identifying information about the corresponding antibodies. While noting that this had been a hotly contested issue in the case, the court determined that the ease by which antibodies are generated was irrelevant to the written description inquiry. *Id.*

After a new trial where the jury again held the challenged patent claims valid, the district court granted Sanofi's motion for judgment as a matter of law on enablement, but denied a second motion contending that the claims were invalid for a lack of written description. On appeal to the Federal Circuit for the second time, Amgen challenged the district court's determination that the claims were not enabled, while Sanofi, *inter alia*, argued that the claims were not enabled and also failed the test for written description. The patent specification at issue is 384 pages long and includes numerous examples, including one describing the generation of hundreds of blocking antibodies. It also includes complementarity determining region (CDR) sequences for 26 antibodies as well as crystal structures of two showing binding to PCSK9. In its brief, Sanofi contended that these 26 specific antibodies were not 'representative' of the entire claimed genus because they failed to reflect the diversity of possible combinations for binding to the specific amino acids recited in the claim. Sanofi also argued that there was a lack of structural similarity, either at the amino acid sequence level, or in the three-dimensional structure of the antibodies. Amgen countered that there is no correlation between the number of amino acids bound and the ability of an antibody to block binding to LDLR. Amgen went on to argue that binding even one of the specified amino acids would be enough to fulfill the claimed function.

In a precedential opinion issued February 11, 2021, the Federal Circuit affirmed the district court decision and held Amgen's claims invalid for lack of enablement, without addressing written description. The opinion emphasized the breadth of the functional requirements of the composition claims, explaining that the undue experimentation inquiry includes a consideration of the experimentation necessary to identify the compounds that meet the functional requirements from among "the many concretely identified compounds that meet the structural requirements". Slip Op. at 11 (quoting from a footnote in *McRO, Inc. v. Bandai Namco Games Am. Inc.*, 959 F.3d 1091 (Fed. Cir. 2020)). Agreeing with the district court that the specification did not enable the full scope of the claims, the Federal Circuit noted that the claims at issue were "indisputably broad", the concern being not "simply with the number of embodiments but also with their *functional* breadth." Slip Op. at 11–12. (emphasis in the original). In the court's view, the claims were "far broader in functional diversity than the disclosed examples." Slip Op. at 12. The Federal Circuit also agreed with the district court that the invention was in "an unpredictable field of science with respect to satisfying the full scope of the functional limitations." *Id.* In view of this unpredictability, the "roadmap" for producing antibodies described in the specification was deemed insufficient guidance beyond the comparatively narrow scope of the working examples. Slip Op. at 13.

Although the court's opinion in *Amgen* rested on lack of enablement, it seems reasonable to expect that where "the use of broad functional claim limitations raises the bar for enablement" (Slip Op. at 12) it will also raise the bar for written description. Although the written description issue was not dispositive of validity in *Amgen*, for unpredictable technologies, where the claims must rely on functional language to define a genus of compounds, it would be prudent to include at least one specific example representative of each species falling within the genus, in addition to methods for producing the full scope of compounds having the specified structural and functional elements.

In summary, these cases illustrate what may become a trend toward a higher bar for satisfying the written description requirement in unpredictable arts, which generally include the pharmaceutical and biotechnology

arts. For genus claims, satisfaction of the written description requirement may be found lacking where the specification fails to provide "meaningful guidance" or "blaze marks" pointing to a number of species representative of the entire scope of the claimed genus. Where the claim further relies upon functional language to define a genus of compounds, that bar is likely to be higher. In such cases, it would be prudent to include a number of specific examples of species that are representative across the entire scope of the claimed structural and functional elements. It is also important to keep in mind that sufficient written description must be present in the application as-filed, it cannot later be added without a loss of the filing date. So patentees and their counsel should consider the issues surrounding written description early, and preferably within the context of a comprehensive patent strategy for the technology involved.

Practice Areas

Patent Litigation

Peiyao Zhang

Federal Circuit Confirms That "Magnetic Fuzz" Is a Patent Claim

On September 15, 2020, the U.S. Court of Appeals for the Federal Circuit, in *IQASR v. Wendt*, found that a district court did not err in its scrutiny of the extrinsic and intrinsic evidence presented to find U.S. Patent No. 9,132,432 invalid for indefiniteness. The Federal Circuit did not perceive any clear error in the court's finding that the disputed term "magnetic fuzz" lacked a readily understood definition in its relevant field, as understood by a person of ordinary skill in the art as of the effective date of the patent application. The circuit court also reinforced a landmark U.S. Supreme Court ruling that "indefiniteness involves consideration of primarily the intrinsic evidence, viz., the claim language, the specification, and the prosecution history" which allow a person skilled in the art to recognize the scope of the claim term with reasonable certainty.

Reasonable Certainty Standard for Definiteness

In 2014, the Supreme Court, in its landmark ruling in *Nautilus v. Biosig Instruments*, held unanimously that "a patent is invalid for indefiniteness if its claims, read in light of the specification delineating the patent, and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention." Because patents possess a public service function, a patent's claims must be definite enough to apprise the public at large as to what has or has not been patented. Specifically, the claims must particularly point out and distinctly claim the invention to satisfy this requirement of 35 U.S.C. § 112. Accordingly, the Court declared that the definiteness inquiry is focused upon the understanding of the skilled artisan at the time the patent application is filed and not on the patent's ability to ascribe at least some meaning to the claim term.

IQASR v. Wendt

In 2016, IQASR sued Wendt Corporation for infringing U.S. Patent No. 9,132,432, which describes a method of sorting recyclable materials from nonrecyclable materials produced during the shredding of scrapped or junked automobiles. The method recited in the '432 patent allows for an enhanced separation of nonrecyclable materials like "trash and magnetic fuzz" from recyclable materials like "plastics and metals." After a Markman hearing, the district court found the disputed term "magnetic fuzz" indefinite and invalidated the '432 patent for indefiniteness.

IQASR appealed the district court's decision, arguing that the court committed multiple legal errors in applying the law of indefiniteness and in its findings on both the extrinsic and intrinsic evidence presented. The Federal Circuit rejected IQASR's arguments and affirmed the lower court holding. Specifically, the appellate court did not find any clear error in the district court's analysis or in its determination that the disputed term "'magnetic fuzz' lacks 'a readily-understood definition in [its] field.'"

Furthermore, the Federal Circuit supported the notion that, as the trier of fact, a lower court is "entitled to weigh the expert's testimony as it thought appropriate based on the expert's qualifications and experience." The court reasoned that an expert's opinion can be used to provide context for a disputed term as extrinsic evidence, but it alone cannot be used to rebut a party's evidence that a person of ordinary skill in the art lacks understanding of the claim scope with reasonable certainty. The Federal Circuit went on to state that "[e]ven if a claim term's definition can be reduced to words, the claim is still indefinite if a person of ordinary skill in the art cannot translate the definition into meaningfully precise claim scope." IQASR's inclusion of multiple layers of definition forced a skilled artisan to "wade through a morass of uncertainty and contradiction" and included a "word salad of inconsistent indirect definitions and examples that [] flummoxed the district court." IQASR failed to provide sufficient intrinsic evidence in its patent to support a reasonable certainty that those skilled in the art would be informed about the scope of the invention, and their reliance on the subjective opinion of an expert that can change daily, depending on the expert's

qualifications and experience, was insufficient to cure the defects for their patent's failure to inform a person of ordinary skill in the art about the scope of their invention, as 35 U.S.C. § 112 requires.

Takeaways

Ultimately, as noted above, the '432 patent's complex definitions prevented a person of ordinary skill in the art from understanding the claimed scope with reasonable certainty. The equivocation and subjectivity offered in the IQASR expert's opinion failed to cure the intrinsic ambiguities of the disputed term, "magnetic fuzz," and led to the district court discounting the importance of the more extensive use of the term "fuzz" prior to the invention date. Although the expert opinion offered context for the term, the context could not provide the precision required to define the boundaries of "magnetic fuzz." Accordingly, "a claim term does not become reasonably certain simply because a skilled artisan, when pressed, managed to articulate a definition for it."

Although the court's opinion in this case is nonprecedential, this decision further illustrates the test that the Supreme Court articulated in *Nautilus* for indefiniteness. The use of extrinsic evidence, such as an expert opinion, is, by itself, insufficient to resolve intrinsic ambiguities in a patent. As the Federal Circuit stated in *Teva Pharmaceuticals USA v. Sandoz*, "[a] party cannot transform into a factual matter the internal coherence and context assessment of the patent simply by having an expert offer an opinion on it." The determination of whether a disputed term is defined with reasonable certainty is a question of law. Expert opinions can be used to establish some context for the meaning of the term, but the expert opinion cannot be used to rebut evidence that the disputed term lacks ordinary meaning at the time the patent was filed. Accordingly, ambiguity within a patent cannot be cured just by a years-later opinion of someone with a technical degree or industry experience.

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Copyright Litigation

Adam Bobker and Martin Brandsma

Software-Generated "Infringement Report" Supports Remedies for Copyright Infringement

The unauthorized copying of software has long been held to constitute copyright infringement under Canada's *Copyright Act*. But such unauthorized reproductions often occur behind closed doors. How then can software owners obtain sufficient evidence to enforce their rights without access to the device(s) on which they believe illicit copies have been made? A recent decision from the Federal Court of Canada offers a possible efficient means for doing so. On a motion for default judgment, the Court assessed damages for copyright infringement in a computer program based on an infringement report generated by antipiracy software. The decision sets a highwater mark for the courts' embrace of such technology to enforce property rights.

In *Trimble Solutions Corporation v. Quantum Dynamics Inc.*, 2021 FC 63 (*Trimble*), the plaintiffs brought an *ex parte* motion for default judgment against the defendants for infringement of copyright by virtue of unauthorized use of their three-dimensional modelling software (the "Program"). After concluding the defendants were in default, the Court determined first, whether the plaintiffs had established that copyright subsisted in the Program, and second, whether the plaintiffs' evidence demonstrated infringement by the defendants and the extent of such infringement.

Copyright in the Program

Computer programs have long been protected as literary works

under Canada's *Copyright Act*. In *Trimble*, the plaintiffs provided evidence that copyright in versions 20.0 and 21.0 of the Program had been registered in Canada.

The Court noted that there were various "sub-releases" of the Program, including Version 20.1 which was the specific version at issue. Copyright was not registered on each sub-release because "they are modifications and improvements built entirely on the base code and documentation for the previous release". Without discussion, including how Version 20.1 differed from the registered versions, the Court concluded that Version 20.1 of the Program was an original work that fit within the definition of "literary work" as set out in the *Copyright Act*.

Infringement

The plaintiffs' evidence of unauthorized copying is notable. There were two third-party antipiracy products built into the Program to detect unauthorized use. One of the products from SmartFlow Compliance Solutions Ltd. (SmartFlow), provided a range of information once it detected an unauthorized use, including time and date of the event, the IP address associated with the user, a "unique MAC" identifier associated with the user's device, and information about the user's Wi-Fi signal. This information was then sent to SmartFlow's servers and an "infringement report" was subsequently generated by the software.

In February 2018, the plaintiffs became aware of a series of unlicensed uses of the Program. An infringement report was then generated in December 2019 that showed 335 unlicensed uses of the Program from January 2015 to March 2019, originating from six discrete devices. On the motion, the plaintiffs filed an affidavit from SmartFlow's CEO who explained that from the infringement report, he was able to connect the six devices to the defendants including from the generated IP addresses, the Wi-Fi broadcast information, and using Google Maps.

The plaintiffs had attempted to contact the defendants in February 2018. After a year without response, the plaintiffs retained a third-party agency (IT Compliance Association (ITCA)) to attempt contact. Nine days after ITCA contacted the defendants, it purportedly received an e-mail response from the individual defendant apologizing for the "unlicensed copies" and stating all were destroyed. After a follow-up, the defendant also returned to ITCA a signed licence agreement, but no payment. The plaintiff asserted no payment was ever received and that the unauthorized copies were never deleted. The decision makes no reference to whether an affidavit was provided by ITCA on the motion.

Based on the infringement report generated by SmartFlow's antipiracy software, along with the purported defendant e-mails to ITCA, the Court found on a balance of probabilities that the six devices identified in the infringement report were owned or used by the defendants, that they were repeatedly used to execute and use the Program, and that each use constituted an infringement of copyright in the Program "because every time the unlicensed software was opened a copy of it was made on the defendants' device". The plaintiffs did not have access to the devices identified in the report as having made the copies and therefore could not actually put any illicit copies into evidence on the motion.

Despite the Court acknowledging that "from a practical perspective, [it is] impossible to know who was using the devices at the precise times indicated in each incident report," the Court unfortunately provides no discussion to explain the rigor in which the plaintiffs' evidence was scrutinized. For example, there is no comment on:

- the accuracy and error rate of SmartFlow's infringement detection system;
- whether there was verifiable evidence to demonstrate the system detects a target correctly, consistently, and reliably, and whether there was a potential for false positives;
- available academic papers on, or security audit of, the detection software system in question;
- the integrity and chain of custody of the infringement report, including who ran the report and tracing its subsequent history up to the time of trial;
- evidence that the infringement report was routine business data and information;
- the system used to store the infringement report on the SmartFlow servers, including whether it was secure, and whether it was at all material times operating properly;
- whether the defendants' Wi-Fi was or was not secure;
- the chance of whether the defendants network could have compromised and used as a conduit for another user's traffic;
- evidence regarding contemporaneity since the decision notes the infringement report was ran in December 2019, but had

identified unauthorized uses dating back to January 2015;

- evidence of industry standard, including information to databases conformed to the standard practice in the industry; or

- evidence showing the origin and integrity of the defendants' e-mails with the third-party ITCA, including whether the content was complete in the form intended, and free from error or fabrication.

Remedies

As for remedies, the plaintiffs sought general damages (as opposed to statutory damages), reflecting the cost of their typical licences during the infringing period. The Court was satisfied that the licensing fees were an appropriate proxy for damages, which amounted to $212,931 for all six devices.

The Court also held that a $50,000 punitive damage award was appropriate in light of the emails in which the individual defendant purports to admit to copyright infringement, fails to delete the infringing programs despite promises to do so, and his failure to pay after completing and enclosing the licence agreement.

It is difficult to know what impact, if any, there would have been on the case's outcome had the plaintiffs' motion been contested. For example, perhaps errors in the plaintiffs' evidence could have been brought to light through cross-examination. The Court did note as a factor in awarding punitive damages the defendants' failure to participate. Consequently, the case illustrates the importance of retaining experienced counsel for intellectual property disputes when the potential exposure to damages is high.

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Praxis

PTO Practice

Rich Kurz and Ali Berkin

USPTO Updates Indefiniteness Standard in AIA Post-Grant Proceedings to Match *Nautilus*

On January 6, 2021, the United States Patent and Trademark Office (USPTO) published a Memorandum that changed the indefiniteness analysis under 35 U.S.C. § 112 that the Patent Trial and Appeal Board (PTAB) applies in post-grant proceedings under the America Invents Act (AIA) so that it conforms with the standard that the district courts apply, that is, based on the U.S. Supreme Court's *Nautilus* decision.[1] Before now, the PTAB and district courts have analyzed the indefiniteness of a claim using two different legal standards, which were generally referred to as the *Packard* and *Nautilus* standards, respectively.[2,3] The Memorandum was spurred by the USPTO's 2018 decision to align the claim construction standard used in AIA post-grant proceedings with that of the district courts, thus shifting the PTAB from using the broadest reasonable interpretation (BRI) standard to the district courts' *Phillips* standard.[4] The Memorandum stated that it decided to also change the indefiniteness standard because, in part, "indefiniteness questions are generally considered as part of the claim construction process."[5] Thus, the USPTO's decision to align the indefiniteness standards in AIA post-grant proceedings with those of the district court may resolve "confusion as to whether *Nautilus* or *Packard* applies."[6] The Memorandum explained that "the rule change promotes consistency and efficiency between coordinate branches of the government that analyze the same claims in co-pending proceedings."[7]

Background

Indefiniteness is governed by 35 U.S.C. § 112, second paragraph (pre-AIA) or 112(b) (post-AIA). Both provisions are nearly identical and the AIA version states that "[t]he specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor or a joint inventor regards as the invention."[8]

In 2014, the Supreme Court issued the *Nautilus* decision, which set a revised standard for determining whether a patent claim is invalid for being indefinite.[3] Under *Nautilus*, a "patent is invalid for indefiniteness if its claim, read in light of the specification delineating the patent, and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention."[3] At the time, the USPTO was analyzing indefiniteness using the prior Packard standard for both prosecution and AIA post-grant proceedings.[9] Under *Packard*, a claim is indefinite "when it contains words or phrases whose meaning is unclear."[2] After *Nautilus*, the district courts followed the Supreme Court's standard while the USPTO continued to use the *Packard* standard for determining indefiniteness; the USPTO nonetheless recognized that there were fundamental differences between its approach and the district court's approach.[10]

In 2018, the USPTO revised the claim construction standard used in post-grant proceedings to align with the standard used by the district courts.[11] The PTAB was using the BRI standard for claim construction in post-grant proceedings, while the district court was using the Phillips standard.[12] Under the BRI standard, "claims must be given their broadest reasonable interpretation in light of the specification."[13] Under *Phillips*, the claims are given a narrower interpretation, that is, "the meaning that the term would have to a person of ordinary skill in the art in question at the time of invention."[14]

As the question about whether a claim is indefinite is often linked to claim construction, the PTAB and district courts were thus using the same *Phillips* standard for claim construction, but differing standards for indefiniteness, namely *Packard* versus *Nautilus*, respectively. As such, the Memorandum noted that confusion arose as to which indefiniteness standard should be used by the PTAB.[15] Furthermore, the Federal Circuit had declined to decide which standard applies in the post-grant review process.[16]

The Memorandum aligns the indefiniteness standard between the PTAB and district courts, such that both will now be using the same Nautilus standard

for indefiniteness. Notably, the USPTO's Memorandum does not affect the USPTO's approach to indefiniteness outside of the AIA post-grant proceeding context.[17] However, substitute claims under any proceeding may be challenged as indefinite.[18]

The Memorandum stated that it will "lead to greater uniformity and predictability, improve the integrity of the patent system, and help increase judicial efficiency" by "eliminating the differences between indefiniteness approaches used in the district courts and before the [PTAB] in AIA post-grant proceedings."[19]

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1. U.S.P.T.O. Memorandum, Approach to Indefiniteness under 35 U.S.C. § 112 in AIA Post-grant Proceedings, Jan. 6, 2021 (Memorandum).
2. *See In re Packard*, 751 F.3d 1307, 1310 (Fed. Cir. 2014) (per curiam).
3. *See Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 901 (2014).
4. *See* 37 C.F.R. § 42.100(b), 200(b), and 300 (AIA trials).
5. Memorandum at 5.
6. *Id.* at 4.
7. *Id.*
8. 35 U.S.C. § 112(b).
9. Memorandum at 2–3.
10. *Id.* at 3; *see Ex Parte McAward*, 2017 WL 3947829, at *4 ("The Office's application of the broadest reasonable interpretation for pending claims and its employment of an interactive process for resolving ambiguities during prosecution naturally results in an approach to resolving questions of compliance with § 112 that fundamentally differs from a court's approach to indefiniteness.").
11. *See* Changes to the Claim Construction Standard for Interpreting Claims in Trial Proceedings Before Trial and Appeal Board, 83 FR 51340 (Oct. 11, 2018).
12. Memorandum at 3.
13. Manual of Patent Examining Procedure (MPEP) § 2111.01 (9th ed. Rev. 10, Jun. 2020).
14. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005) (en banc).
15. Memorandum at 4.
16. *Tinnus Enters., LLC v. Telebrands Corp.*, 733 F. App'x 1011, 1018 (Fed. Cir. 2018).
17. Memorandum at 1.
18. *Id.* at 2 n.2.
19. *Id.* at 5.

Counterfeit Corner

Morgan Nickerson and Jack Brodsky

Manufacturers Have Rights against Counterfeiters: *Omega* a Reminder That "Willful Blindness" Is Never a Defense to Contributory Infringement

Willful blindness is never a defense to contributory trademark infringement or counterfeiting. This has been the standard ever since the 2010 decision in *Tiffany (NJ) Inc. v. eBay, Inc.,* 600 F.3d 93 (2nd Cir. 2010), when the U.S. Court of Appeals for the Second Circuit established that Internet marketplaces cannot avoid contributory trademark infringement and counterfeiting when they turn a blind eye to specific conduct of others on their platform. The Second Circuit's decision in early January in *Omega SA v. 375 Canal, LLC,* No. 19-969 (2d Cir. 2021) serves as a reminder for manufacturers that service providers, property owners, and others cannot escape liability for contributory trademark infringement or counterfeiting by claiming to lack knowledge of a specific infringer, where the defendant was willfully blind as to the identity of the potential infringer. Manufacturers must be aware of their right and ability to enforce their trademarks against those who permit infringement and counterfeiting of their marks and allow infringers to trade off of the goodwill developed in the manufacturer's products and services—whether that be on the Internet or Canal Street, as was the case in *Omega.*

Second Circuit Reaffirms the "Willful Blindness" Standard a Decade Later

In 2010, the Second Circuit found that eBay, one of the largest Internet marketplaces, was not liable for contributory trademark infringement for the sale of counterfeit Tiffany products on the Web site, as eBay did not have reason to know of specific instances of infringement.[1] The Court required Tiffany to prove that eBay had "more than general knowledge" that its platform was being used to sell counterfeit goods.[2] However, the Court clarified that where eBay, or another service provider, knows of specific instances of infringing product listings, eBay can be held contributorily liable for failing to take action.[3] Specifically, the Court explained that "if eBay had reason to suspect that counterfeit Tiffany goods were being sold through its website, and intentionally shielded itself from discovering the offending listings or the identity of the sellers behind them, eBay might very well have been charged with knowledge of those sales…."[4] This, the Court coined, is "willful blindness."[5]

More than ten years after the *Tiffany v. eBay* decision, the Second Circuit reminded both manufacturers and defendants of the "willful blindness" standard last week when it found 375 Canal, LLC ("375 Canal") to be liable for contributory trademark infringement and counterfeiting of Omega brand watches, based on the conduct of its vendors operating at its property on Canal Street.[6]

In *Omega SA v. 375 Canal, LLC,* Omega sued 375 Canal, the property owner at 375 Canal Street in Manhattan, claiming that 375 Canal "continued to lease space at 375 Canal despite knowing that vendors at the property were selling counterfeit Omega goods."[7] Based upon the standard for contributory infringement previously established by the Second Circuit's discussion in *Tiffany v. eBay*, 375 Canal argued that it could not be held liable because Omega had not identified a specific vendor selling counterfeit goods.[8] The Court, however, squarely rejected this argument in light of the *Tiffany* willful blindness standard. The Court, ultimately relying on the holding in *Tiffany v. eBay* discussed above, concluded:

> In *Tiffany*, we held that a defendant may be liable for contributory trademark infringement if it was willfully blind as to the identity of potential infringers—that is, under circumstances in which the defendant did not know the identity of specific infringers. That holding precludes Canal's argument that Omega needed to identify a specific infringer to whom Canal continued to lease property.[9]

Based on this, the Court found 375 Canal to have been willfully blind to the trademark infringement and counterfeiting of Omega's watches

occurring at its property, as Canal had a "history of turning a blind eye toward counterfeiting at 375 Canal Street."[10]

Takeaways

The *Omega v. 375 Canal* case stands as a reminder to manufacturers of the extent of their tools to root out trademark infringement and counterfeiting of their products. As *Omega* makes clear, even in instances where a defendant claims to not know the identity of the direct infringer or counterfeiter of a manufacturer's products, the manufacturer may still hold the defendant liable for contributory infringement where the defendant is "willfully blind" as to the infringer's identity. Accordingly, when a manufacturer is stonewalled by service providers, property owners, or others providing a platform used by infringers and counterfeiters, manufacturers should continue to create a record that makes it clear that the provider is on notice of the counterfeiting activities taking place. With this record in hand, manufacturers can demonstrate that the provider has "turned a blind eye" to the specific acts of infringement or the identity of the infringer and gain the leverage they need to prevent further infringement. If the provider still does not assist in the removal of the counterfeiter, a manufacturer can hold that provider liable for the counterfeiting that is taking place.

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1. *Tiffany (NJ) Inc. v. eBay, Inc.*, 600 F.3d 93, 107 (2d Cir. 2010).
2. *Id.*
3. *Id.*
4. *Id.* at 109.
5. *Id.*
6. *Omega SA v. 375 Canal, LLC*, C.A. No. 19-969-cv, 2021 WL 42112, at *1 (2d Cir. Jan. 6, 2021).
7. *Id.* at *2.
8. *Id.* at *6 (quoting the portion of the *Tiffany v. eBay* decision that describes contributory trademark infringement as occurring when the defendant "continues to supply its products to *one* whom it knows or has reason to know is engaging in trademark infringement" (*Tiffany*, 600 F.3d at 108) (emphasis added)).
9. *Id.* at *1.
10. *Id.* at *7.

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