No. 19-GSR-4287

**UNITED STATES COURT OF APPEALS  
FOR THE FEDERAL CIRCUIT**

BALLISTIC HOLDINGS, INC. and BALLISTIC MEMORY, INC.

*Appellant,*

v.

CONSUMERCAM, LLC

*Appellee*.

*Appeal from the United States District Court   
for the District of Pennyston*

BRIEF FOR THE APPELLEE

COMPETITION NUMBERS  
Issue I (Enablement) – #7

Issue II (Patent Exhaustion) – #18

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# STATEMENT OF RELATED CASES

No other appeal or cross-appeal in or from this civil action was previously before this or any other appellate court under the same or similar title.

No case known to counsel is pending in this or any other court that will directly affect or be directly affected by this court’s decision in the pending appeal or cross-appeal.

# STATEMENT OF JURISDICTION

The statutory basis for jurisdiction of the United States District Court for the District of Pennyston is 28 U.S.C. § 1338(a). The statutory basis for jurisdiction of the United States Court of Appeal for the Federal Circuit is 28 U.S.C. § 1295(a)(1). ConsumerCam, LLC (“ConsumerCam”) timely filed a cross-appeal from the Summary Judgment of the District Court on January 12, 2018.

# STATEMENT OF ISSUES

## Invalidity for Lack of Enablement

Whether it was error for the district court to enter summary judgement of validity where patent-in-suit’s specification did not enable use of the invention at widths between 15 and 35nm without undue experimentation.

## Patent Exhaustion

Whether it was error for the district court to enter summary judgment that the rights of Ballistic Holdings, Inc., and Ballistic Memory Inc., (collectively “Ballistic”) in the ‘314 Patent were exhausted when it sold units of a semiconductor device (“Device”) to ConsumerCam, and in therefore holding that ConsumerCam was not liable for infringement.

# STATEMENT OF THE CASE

The ‘314 Patent is invalid because claim 1 would require undue experimentation to practice, claim 1 does not recite length, an essential element, and is therefore not enabled. Additionally, the limitations claim 3 do not allow switching speeds between 1 T Hz and 1.2 T Hz for all widths recited in independent claim 1, and therefore is invalid. Moreover, under *Impression Prods. v. Lexmark Int’l*, 137 S. Ct. 1523 (2017) Ballistic Memory’s authorized sale of the Devices to ConsumerCam exhausted all of Ballistic’s rights in the ‘314 Patent. Even assuming *arguendo* that the Agreement was a license, under *Lexmark*, ConsumerCam’s authorized resale of the Devices to OffTheBlockchain exhausted all of Ballistic’s rights in the ‘314 Patent. This case arose when Ballistic Holdings, Inc. wrongly sought to limit ConsumerCam’s use of the ‘314 Patent to implement blockchain technology. R. at Prompt 3. On October 5, 2015, ConsumerCam received authorization from Ballistic Memory to sell 2,000,000 to OffTheBlockChain, a Swedish Company. R. at Prompt 3-4. On October 28, 2015, the Swedish Government imposed a retroactive 50% tax on products sold for use in blockchain technology. R. at Prompt 4. This tax was to be paid by the seller. R. at Prompt 4. ConsumerCam paid the tax, taking a $1,000,000 loss. R. at Prompt 4. ConsumerCam reported to Ballistic Memory it would not make the required payment due to the considerable loss from the retroactive Swedish tax. R. at Prompt 4. 4.

On December 3, 2016, Ballistic Holdings sued ConsumerCam for patent infringement in the United States District Court for the District of Pennyston. R. at Prompt 4. Discovery occurred in December 2016. R. at Prompt 4. After Discovery, ConsumerCam moved for summary judgement on two grounds: 1) the ‘314 Patent is invalid under 35 U.S.C. § 112(a) for lack of enablement, and 2) Ballistic Holdings’ delivery of the devices to ConsumerCam exhausted its patent rights. R. at Prompt 5. The district court denied ConsumerCam’s motion for summary judgement on the enablement issue but granted it regarding patent exhaustion. R. at Prompt 5. Ballistic Holdings and Ballistic Memory appealed summary judgement to the United States Court of Appeals for the Federal Circuit, arguing that the holding on patent exhaustion was incorrect. ConsumerCam cross-appealed on the issue of enablement. R. at Prompt 5.

# STATEMENT OF THE FACTS

Ballistic Holdings, Inc., (“Ballistic Holdings”) is a U.S. company that owns the ‘314 Patent. R. at Prompt 2. Ballistic Memory, Inc., (“Ballistic Memory”) owns Ballistic Holdings and is the exclusive licensee of the ‘314 Patent. R. at Prompt 2. Ballistic Memory manufactures memory hardware and semiconductor devices, including a semiconductor device (“Device”) which practices a graphene nanoribbon field-effect transistor (“GNRFET”) claimed in the ‘314 Patent. R. at 2.

The ‘314 Patent discloses a GNRFET. R. at Appx6–7. The ‘314 Patent has three claims directed to a semiconductor device comprising a graphene nanoribbon channel. R. at Appx7. Claim 1 is independent and claims 2 and 3 each depend on claim 1. R. at Appx7. Claim 1 discloses a semiconductor device, with, *inter alia*, a graphene nanoribbon channel. R. at Appx7. The nanoribbon channel is configured for ballistic conduction of at switching speeds between 1 T Hz and 1.2 T Hz, and wherein a width is between 5 and 35nm. R. at Appx7. Claim 2 further describes the width of claim 1 as less than 15nm. R. at Appx7. Claim 3 describes the length as approximately 22nm. R. at Appx7.

The geometry of the nanoribbon enables ballistic conduction when “the width W and length L of the graphene nanoribbon are tuned to specific values.” R. at Appx6. The Specification discloses that “in some implementations, the measured switching speeds exceeded 1.048 T Hz, a critical frequency milestone in the semiconductors industry.” R. at Appx6.

The Specification discloses that “due to current manufacturing limitations, it may not always be practicable to manufacture graphene nanoribbons having lengths less than 20nm,” and that “It is foreseeable that these limitations will be overcome in the near future.” R. at Appx6. In tests, “switching speeds exceeding 1 T Hz were measured with a graphene nanoribbon width of 7nm +/- 1nm and a length of 22nm +/- 1nm.” R. at Appx6–7. The Specification does not provide any data for lengths outside of 22nm +/- 1nm. R. at Appx7. The GNRFET still exhibited semiconducting properties indicative of non-ballistic conduction and the transistor was still functional at lower speeds.” R. at Appx7.

On September 14, 2017, Professor Hendricks, provided a declaration on behalf of Ballistic and responded to the issues within ConsumerCam’s motion for summary judgment: (1) claim 1 recites switching speeds of 1–1.2 T Hz and a nanoribbon of 5–35nm, but Fig. 2 of the patent shows that these switching speeds are only achievable at nanoribbon widths of 5–15nm; and (2) the Specification does not enable claim 1 because it teaches only a limited range of L (15–25nm), but claim 1 covers any length. R. at Appx25.

In response to issue (1), Hendricks stated that that at the time of the invention, a person of ordinary skill in the art (POSITA) would have recognized that “switching speed increases as L is decreased” and would have recognized that switching speeds of 1–1.2 T Hz could be achieved over the full range of 5 < W < 35nm with minimal, routine experimentation”. R. at Appx25.

In response to issue (2), Hendricks stated that a POSITA would have recognized certain limits on length.

ConsumerCam is a U.S. company that manufactures microprocessors for use in high-end consumer grade cameras and manufactures and sells cameras containing these microprocessors. R. at Prompt 2. On May 29, 2015, Michael Toto, Assistant General Counsel for ConsumerCam, began negotiations to purchase the Devices from Ballistic Memory. R. at Appx13. On June 11, 2015, Toto emailed Henry Gale, General Counsel for ConsumerCam, and told him that Ballistic Memory wanted to limit how ConsumerCam could use and resell the Devices. R. at Appx11. In response, Gale wrote “Ballistic can’t restrict what we do with the Devices after we buy them,” and instructed Toto “don’t agree to anything less than all the rights. I don’t want Ballistic Memory to be able to control how we conduct our business.” R. at Appx11. Gale also wrote “if they won’t agree to all the rights, we can go buy semiconductor devices from someone else.” R. at Appx11.

On December 19, 2016, John Tinny, an engineering manager at Ballistic Memory and a named co-inventor in the ‘314 Patent, gave a deposition under oath about his knowledge of the negotiation process between Ballistic Memory and ConsumerCam and they agreement reached. R. at Appx17–Appx21. Tinny testified that when he spoke with Mira Gulch, Counsel for Ballistic Memory, during negotiations, she may have called the agreement a licensing agreement, but that he and others at Ballistic Memory referred to the agreement as a sale “all the time.” R. at Appx19. Tinny explained “we were selling the semiconductor devices to ConsumerCam, so obviously we used the word ‘sale’ a lot. It was a licensing agreement to sell the semiconductor devices to ConsumerCam.” R. at Appx19.

Tinny testified that saw the written agreement twice, first in early June 2015, while negotiations were still ongoing, and then a second time in late June 2015, after the written agreement was signed by ConsumerCam. R. at Appx17. During negotiations, he told Gulch to add a limitation in the written agreement so that ConsumerCam could not use and sell the Devices with blockchain technology without Ballistic Memory’s permission. R. at Appx13. Tinny explained that he was instructed by so Mark Marvel, Ballistic Memory’s CEO, to add this limitation. R. at Appx13. Although Tinny believed that Marvel called the written agreement a license, Tinny thought this meant a “license to sell the devices.” R. at Appx13. When Tinny was asked to recall if he was told anything else about the license and patent rights, Tinny responded, “I think they said something about making sure that the patent rights aren’t tired or expired or something like that” and “You keep asking me about licenses and sale, can you clarify what you mean?” R. at Appx21.

On June 18, 2015, Ballistic Memory delivered 4,000,000 units of the Device to ConsumerCam in exchange for ConsumerCam’s full payment of $8.00 per unit ($32,000,000 in total) for the Devices. R. at. Prompt 3. This deal was under a written agreement titled “Licensing Agreement” (“Agreement”). Two days later, Ballistic Memory published a press release which stated “ConsumerCam will purchase 2,000,000 semiconductor devices from Ballistic Memory and use the devices to manufacture its cameras.” R. at Appx12. Soon after the Agreement was made, Gulch sent Tinny the Agreement “to share the good news that we would be selling a lot of the devices to ConsumerCam.” R. at Appx18.

The Agreement contains three provisions in a section titled “Limitations on Use, Resale, and Possession” (collectively “Limitations”). R. at Prompt 3. The first provision states “ConsumerCam cannot not use the Device, or allow it to be used, in any product ConsumerCam knows to be an implementation of blockchain technology without prior authorization from Ballistic Memory.” R. at Prompt 3. The second provision states “In the event that Ballistic Memory authorizes ConsumerCam to resell the Device for use in a product implementing blockchain technology, ConsumerCam agrees to resell the Device for at least $15.00 per unit” and “ConsumerCam further agrees to pay Ballistic Memory $4.00 per unit resold, to be paid within 30 days of delivery of the resold units.” R. at Prompt 3. The third provision states “Upon termination of the Agreement, ConsumerCam agrees to either return or destroy any remaining units of the Device in its possession.” R. at Prompt 3.

On October 1, 2015, ConsumerCam sought authorization from Ballistic Memory to resell 2,000,000 of its purchased Devices to OffTheBlockChain. R. at Prompt 3. ConsumerCam was aware that OffTheBlockChain intended to use the Devices in graphics processor units (“GPUs”) for its bitcoin mining rigs. R. at Prompt 3. Ballistic Memory authorized this resale on October 5, 2013, with an express representation from ConsumerCam that it would pay the $4.00 per unit fee as required by the Agreement. R. at Prompt 4. On October 12, 2015, ConsumerCam delivered 2,000,000 units of the Device to OffTheBlockchain for a Swedish krona equivalent price of $15.00 per unit. R. at Prompt 4.

On October 28, 2015, the Swedish government imposed of 50% tax on products sold for any form of blockchain technology, to be paid by the seller, retroactive to all sales beginning on October 1, 2015. R. at Prompt 4. Because of this new tax, ConsumerCam did not pay Ballistic Memory the $8,000,000 required by the Agreement. On November 12, 2015, Ballistic Memory inquired ConsumerCam about the status of the payment, and ConsumerCam responded that it would not make the payment because the retroactive tax had forced ConsumerCam to take a $1,000,000 loss on the resale of the Device. R. at Prompt 4. On December 3, 2016, Ballistic sued ConsumerCam for patent infringement in the district court, alleging that ConsumerCam induced and contributed to the infringement of claims 1–3 of the ‘314 Patent by its sale of the Devices to OffTheBlockchain. R. at Prompt 4.

# SUMMARY OF THE ARGUMENT

## Invalidity for Lack of Enablement

The district court’s denial of summary judgement of non-enablement should be reversed. The claims at hand are not enabled because they would require undue experimentation to make and use. The claims recited widths of 5 to 15nm achieving speeds of 1 T Hz when the length is 22nm, +/- 1nm. R. at Appx7. However, nanoribbon widths 15-35nm, require undue experimentation to achieve switching’s speeds of 1 T Hz to 1.2 T Hz because the means of manufacturing nanoribbons of the length required to achieve those switching speeds is not practicable. Thus, because undue experimentation would be required for some of claim 1, the entirety of the scope of the claim is not enabled and the claim is invalid. Denial of summary judgement for lack of enablement was clear error.

Furthermore, holding claim 3 valid is clear error because Fig. 2 clearly shows that not all widths can achieve switching speeds from 1 T Hz to 1.2 Hz at lengths “approximately 22nm”. Claim 3 is dependent upon claim 1. Claim 1 recites nanoribbons with a width of 5 to 35nm achieving switching speeds 1 T Hz to 1.2 T Hz. R. at Appx7. Claim 3 recites the nanoribbons are “approximately 22nm”. R. at Appx7. It is clear from Fig. 2 of the patent that only widths of 5 to 15nm can achieve switching speeds of 1 T Hz to 1.2 T Hz when the length is “22nm +/- 1nm”. R. at Appx7; Appx9. Thus claim 3 is invalid because not all widths recited in claim 1 can achieve the recited switching speeds at lengths “22nm +/- 1nm”. The district court’s denial of summary judgement for lack of enablement was improper and should be reversed.

## Patent Exhaustion

The district court’s grant of summary judgment of patent exhaustion should be affirmed. Under *Lexmark*, Ballistic Memory’s authorized sale its Devices to ConsumerCam exhausted all of Ballistic’s rights in the ‘314 Patent. Although the Agreement purportedly grants ConsumerCam a non-exclusive license of the ‘314 Patent, evidence of the actual agreement between the parties strongly supports that Ballistic Memory authorized a sale the Devices to ConsumerCam. Even if the Limitations provisions in the Agreement are valid, they are post-sale restrictions that did not preserve Ballistic’s rights in the ‘314 Patent. The district court’s grant of summary judgment for patent exhaustion was proper and should be affirmed.

Even assuming *arguendo* that that the Agreement was a license rather than a sale, under *Lexmark*, ConsumerCam’s authorized resale of the Devices to OffTheBlockchain exhausted Ballistic Memory’s rights in the ‘314 Patent. Prior to the sale, ConsumerCam received authorization from Ballistic Memory, and at the time of sale, ConsumerCam complied with the Agreement. Therefore, the district court’s grant of summary judgment for patent exhaustion was proper and should be affirmed.

# STANDARD OF REVIEW

Summary judgment is appropriate if there is no genuine dispute of material fact and the moving party is entitled to judgement as a matter of law. *AK Steel Corp. v. Sollac and Ugine*, 344 F.3d 1234, 1238 (Fed. Cir. 2003).

Patents are presumed valid and invalidity must be proven by clear and convincing evidence. *Auto. Tech. Int’l, Inc. v. BMW of N. Am., Inc.*, 501 F.3d 1274, 1281 (Fed. Cir. 2007). Claim construction is a question of law and is reviewed *de novo.* *Interactive Gift Exp., Inc. v. Compuserve Inc.*, 256 F.3d 1323, 1331 (Fed. Cir. 2001).Whether an invention is enabled under 35 U.S.C. § 112(a) and would have required undue experimentation to practice is a question of law reviewed *de novo*, based on underlying factual inquiries reviewed for clear error. *ALZA Corp. v. Andrz Pharm., LLC*, 603 F.3d 935, 940 (Fed. Cir. 2014).

This Court reviews the district court's grant of summary judgment for patent exhaustion *de novo*. See *Keurig, Inc. v. Sturm Foods, Inc.*, 732 F.3d 1370, 1372 (Fed. Cir. 2013).

# ARGUMENT

## The District Court Erred by Denying Summary Judgement of Non-Enablement

### Construction of Claims 1 and 3 Show They are Invalid.

Words of a claim are generally given their ordinary and customary meaning as understood by a POSITA at the time of invention. *Phillips v. AWH Corp*., 415 F.3d 1303, 1312 (Fed. Cir. 2005); *Home Diagnostics, Inc. v. LifeScan, Inc.*, 381 F.3d 1352, 1358 (Fed. Cir. 2004). The claims should be construed in the context of the other claims, specification, and prosecution history. *Medrad, Inc. v. MRI Devices Corp.*, 401 F.3d 1313, 1319 (Fed. Cir. 2005); *Phillips*, 415 F.3d at 1313. Patents have a presumption of validity, and claims should, if possible, be interpreted to preserve validity. *Galderma Labs., L.P. v. Tolmar, Inc.*, 737 F.3d 731, 736 (Fed. Cir. 2013); *Rhine v. Casio, Inc.*, 183 F.3d 1342, 1345 (Fed. Cir. 1999).

Claim 1 does not recite any limitation regarding the length of the nanoribbon; only claim 3 only recites limitations regarding length, stating that the nanoribbon is “approximately 22nm”. R. at Appx7. In contrast, claim 1 explicitly recites limitations on width. Claim 1 should be construed to include any length, because the claims explicitly set a limit on width in claim 1, but do not recite limitations on length until claim 3.

Ballistic may argue an implied limitation within claim 1, as the Specification and expert state that it is not always practicable to manufacture nanoribbons less than 20nm or greater than 22nm. R. at Appx3, Appx6. However, this limit cannot be implied in claim 1 because it is explicitly recited in claim 3: “the length of the graphene nanoribbon is approximately 22nm.” R. at Appx7.

The length of the nanoribbon is a missing essential element of the invention. A specific width is not enough to create ballistic conduction within the nanoribbon channel. The Specification recites length and widths tuned to specific values. R. at Appx6. Fig. 2 of the Specification and Ballistic’s expert make clear the importance of length to achieve high switching speeds: “switching speed increases as L is decreased.” R. at Appx9; Appx25. Length of the nanoribbon is critical, and therefore an essential element. As claim 1 does not recite a requirement of length, it is not enabled. *See In re Mayhew*, 527 F.2d at 1233. In *In re Mayhew*, a method for producing corrosion-resistant, iron-zinc alloy coating required cooling baths, an essential element. The claims were held invalid for lack of enablement because they failed to recite a cooling zone in relation to the baths. Here, claim 1 does not recite length, which is essential to achieving ballistic conduction within the nanoribbon channel. Thus, claim 1 is not enabled because it is missing an essential element.

Claim 1 requires the nanoribbon channel to achieve switching speeds 1 T Hz to 1.2 T Hz, reciting, “the nanoribbon channel is configured for ballistic conduction at switching speeds between 1 T Hz and 1.2 T Hz”. R. at Appx7. Nanoribbon configurations with switching speeds outside of 1 T Hz and 1.2 T Hz are not within the scope of claim 1, even those that and allow the transistor to function at lower speeds. R. at Appx7. The Specification makes special note: “switching speeds exceeded 1.048 T Hz, a critical frequency milestone in the semiconductor industry. R. at Appx6. The Specification states that it is this switching speed that is novel and the important innovation of the invention; the high switching speed is the goal of the GNRFET, therefore any configuration that does not have speeds within the range of 1 T Hz and 1.2 T Hz are outside the scope of claim 1.

Claim 3 is invalid because the full scope of width recited in claim 1 cannot achieve recited switching speeds at lengths of “approximately 22nm”. Claim 1 does not recite any limitations regarding length of the nanoribbons, only requiring a width between 5 and 35nm, and “configured for” switching speeds between 1 and 1.2 T Hz. R. at Appx7. Fig. 2 shows that lengths within plus or minus 1nm (+/- 1nm) of 22nm when configured with widths from 15-35nm cannot achieve switching speeds above 1 T Hz. Claim 3 is dependent upon claim 1, which is states the nanoribbon channels are configured for switching speeds of 1 T Hz to 1.2 T Hz. R. at Appx7. However as shown in Fig. 2, widths of 15-35nm are not configured for switching speeds between 1 T Hz and 1.2 T Hz with lengths of 22nm +/- 1nm as recited in claim 1, only widths of 5 to 15nm. R. at Appx7, Appx9. Thus, claim 1 recites widths of 5 to 35nm, claim 3 is invalid because the specification gives no clues how speeds of 1 T Hz to 1.2 T Hz could be achieved when length is not 22nm +/- 1nm for widths 5 to 15nm.

Ballistic may argue that the meaning of “approximately” as used in claim 3 is broader than “+/- 1nm” and that claim 3 is not invalid as shown by Fig. 2. Here, such an interpretation to preserve validity is impossible. The Specification never recites “approximately 22nm” only “22nm +/- 1nm”, Terms, must be considered in context of their use within the Specification suggesting “approximately 22nm” means “22nm +/- 1nm”. R. at Appx6, Appx7, Appx9. *Ortho-McNeil Pharm., Inc. v. Caraco Pharm. Labs., Ltd.*, 476 F.3d 1321, 1326 (Fed. Cir. 2007).

“Approximately” is used exclusively in the context of switching speed: “approximately 1 T Hz”. R. at Appx7. Ballistic may argue that because “approximately” is used in the Specification in reference to 1 T Hz, it is used generally, showing that approximately has a broader meaning than “+/- 1”. While “approximately” can mean multiple things, it must be interpreted in relation to the measurement to which it describes. One imagines a broad range when reading “approximately one trillion hertz”, perhaps hundreds or thousands of hertz above or below one trillion. That broadness is constrained when used in reference to nanometers, an imperceptivity small and precise measurement. Thus, approximately must have a narrower meaning when applied to nanometers. The Specification repeated refers to “22nm +/- 1nm”, giving no other clues to meaning of approximate in this context. The only rational meaning of approximately in the context of 22nm is “+/- 1nm”. Claim 3 is invalid because the full range of widths recited in claim 1 cannot reach switching speed between 1 T Hz and 1.2 T Hz when the length of the nanoribbon is “approximately 22nm”.

In *Ortho-McNeil Pharm., Inc. v. Caraco Pharm. Labs., Ltd.*, 476 F.3d 1321 (Fed. Cir. 2007), the court determined the meaning of “about 1:5”. The appellant argued the proper construction was 1:5, subject to measuring errors of 5 or 10%. The appellee argued the meaning encompasses a range of ratios of at least 1:3.6 to 1:7.1. The court held “about 1:5” encompassed a range no greater than 1:3.6 to 1:71. *Id.* at 1324. The court reached this conclusion relying on the claims and specification. *Id.* In *Ortho-McNeil*, the court noted although a range of values could have been claimed (about 1:1 to about 1:5), the patentee chose a specific ratio. The dichotomy between the specific ratio and a broader range of other claims point to a narrow scope for that limitation. *Id.* at 1327-38. Likewise, here, Ballistic as claimed a specific measurement: “approximately 22nm”. In light of the lack of limitation on length in claim, “approximately 22nm” should be construed to a tight range close to 22nm: +/- 1nm. It follows that with this construction, claim 3 is invalid because widths of 15-35nm cannot reach the recited switching speeds when length is approximately 22nm.

### Claim 1 is Not Enabled for the Full Scope of the Invention at All Claimed Widths and Lengths Requires Undue Experimentation.

A patent must enable person skilled in the art to practice the invention. 35 U.S.C. § 112(a). The specification must enable the full scope of the claims, meaning it must enable all embodiments of a claim. *Genentech, Inc. v. Novo Nordisk A/S*, 108 F.3d 1361, 1365 (Fed. Cir. 1997); *Sitrick v. Dreamworks, LLC*, 516 F.3d 993, 1000 (Fed. Cir. 2008) (ruling because the asserted claims were broad enough to cover both movies and video games, it must enable both). The scope of claims must bear reasonable correlation to the scope of enablement within the specification. *In re Fisher*, 427 F.2d 833, 839 (C.C.P.A. 1970). The specification need not disclose what is well known in the art but must disclose the novel aspects of the invention. *Genentech*, 108 F.3d at 1366. Claims missing essential elements, are also invalid for non-enablement. *In re Mayhew*, 527 F.2d 1229, 1233 (C.C.P.A. 1976).

An enabling patent specification must allow a person of reasonable skill in the art to make and use the full scope of the claimed invention without undue experimentation. *Genentech, Inc. v. Novo Nordisk A/S*, 108 F.3d 1361, 1385 (Fed. Cir. 1997); *In re Wright*, 999 F.2d 1557, 1561 (Fed. Cir. 1993). Some experimentation is allowed and even expected, however the amount of experimentation must not be undue. *ALZA Corp. v. Andrx Pharm., LLC*, 603 F.3d 935, 940 (Fed. Cir. 2010); *In re Wands*, 858 F.2d 731, 736-37 (Fed. Cir. 1988).

The Federal Circuit set forth factors in *In re Wands* to consider in determining whether undue experimentation would be required:1) quantity of experimentation necessary; 2) amount of direction or guidance presented; 3) presence or absence of working examples; 4) nature of the invention; 5) state of the prior art; 6) relative skill of those in art; 7); predictability or unpredictability of the art; 8) breadth of the claims. *In re Wands*, 858 F.2d at 737. Each factor should (but not required) be considered to determine if a disclosure is sufficiently enabled. *Enzo Biochem, Inc. v. Calgene, Inc.*, 188 F.3d 1371 (Fed. Cir. 1999).

The Specification does not enable switching speeds at all lengths and widths as it would require undue experimentation. The Specification describes achieving switching speeds over 1 T Hz when width is greater than 5nm and less than 15nm when length is approximately 22nm (5nm < W < 15nm; L approximately 22nm). R. at Appx6, Appx9. The Specification states that the width and length are tuned to “specific values”. R. at Appx6. Within the claimed range of width, a there is a smaller range of length that will allow for switching speeds of 1 T Hz or higher. As shown in Fig. 2, for widths between 5 and 15nm, a length of 22nm achieves switching speed of 1 T Hz or higher. R. at Appx9. However, for over widths over 15nm, lengths of 22nm do not achieve the desired switching speed. R. at Appx9. Thus widths 5 to 15nm are tuned to length of 22nm, but widths greater than 15nm are not. Ballistic’s expert, Professor Hendricks, notes in his declaration that “[a]s for 15nm < W < 35nm, a person of skill in the art would have been able to find the operative range of L through routine experimentation”. R. at Appx25. Or in other words, he claims it would not require undue experimentation.

Ballistic’s expert states such experimentation would likely require adjusting the length, as a POSITA would recognize that switching speed increases as length decreases. R. at Appx25. Suggesting that all one would need make and use the claimed invention at widths between 15 and 35nm would be to vary the length. However, this variation of length would require undue experimentation. The Specification admits that it is not practicable to manufacture nanoribbons shorter than 20nm. R. at Appx6. Professor Hendricks also explains that a person of reasonable skill in the art would be aware that it is not practicable to manufacture nanoribbons “having lengths significantly greater than 22nm”. R. at Appx3. If a POSITA cannot manufacture the nanoribbons required to experiment because the knowledge to do so is outside of the current state of the art, making and using the invention would require undue experimentation, and the claim is invalid for non-enablement.

The specification must supply the novel aspects of the invention. *Genentech*, 108 F.3d at 1366. The use of this invention at widths between 15 and 35nm is novel. The specification and Ballistic’s expert admit the POSITA would not know how to manufacture the nanoribbons at the lengths required to make and use the invention. R. at Appx3, Appx6. Thus, the invention is not enabled across its entire scope because at the time of filing, it was not known how to make the invention and achieve the recited switching speeds at all widths. The conclusion of the district court that the claims were enabled was clear error, and summary judgement of invalidity for lack of enablement should not have been denied.

## The District Court Did Not Err by Granting Summary Judgement on Patent Exhaustion.

In *Impression Prods., Inc. v. Lexmark Int’l, Inc.*, the Supreme Court held that a patentee’s decision to sell a patented item exhausts all patent rights in that item, regardless of any restrictions the patentee purports to impose. *Lexmark*, 137 S. Ct. at 1525. Moreover, under *Lexmark*, when a licensee resells a patented item to a third party and complies with the license at the time of sale of the patented item, such resale exhausts all patent rights in that item. *See id.* at 1535. Under *Lexmark*, Ballistic Memory’s decision to sell the Devices to ConsumerCam exhausted all of Ballistic Memory’s patent rights in the ‘314 Patent. Even assuming *arguendo* that Ballistic Memory’s Agreement with ConsumerCam was a license, under *Lexmark*, ConsumerCam’s authorized resale of the Devices to OffTheBlockchain exhausted all of Ballistic’s rights in the ‘314 Patent.

### Ballistic Memory’s Sale of the Devices to ConsumerCam Exhausted All of Ballistic’s Rights in the ‘314 Patent.

The longstanding doctrine of patent exhaustion provides that the initial authorized sale of a patented item terminates all patent rights in that item and thereby freely permits the purchaser to resell the item free of patent infringement claims.” *Quanta Computer, Inc. v. LG Elecs., Inc.*, 553 U.S. 617, 625 (2008). Exhaustion is triggered only by a sale authorized by the patent holder. *Id*. at 636. Thus, an authorized sale of a patented item by a patent holder exhausts his patent rights.

On July 6, 2015, Ballistic Memory delivered 4,000,000 Devices to ConsumerCam in exchange for the full payment of $32,000,000. R. at Prompt 3. As explained below, the evidence strongly supports that this was Ballistic Memory’s authorized sale of the Devices to ConsumerCam that exhausted all its rights in the ‘314 Patent under *Lexmark*.

#### The Evidence Shows That the Parties Agreed to a Sale of the Devices.

Ballistic considered its Agreement with ConsumreCam to be a sale. Ballistic’s press release, published just two days after the Agreement was signed, states that “ConsumerCam will purchase 2,000,000 *semiconductor devices* from Ballistic Memory and use the devices to manufacture its cameras.” *See* R. at Appx4 (emphasis added). Moreover, soon after the Agreement was reached, Gulch contacted Tinny to share that Ballistic Memory “would be selling a lot of the devices to ConsumerCam.” R. at Appx18. Thus, as determined by the district court, Ballistic characterized its Agreement with ConsumerCam as a sale.

Moreover, the email exchange between Toto and Gale during negotiations supports that ConsumerCam intended to enter a sales agreements with Ballistic Memory, rather a license. For example, when Toto informed Gale that Ballistic Memory wanted to limit how ConsumerCam could use and resell the Devices, Gale responded “Ballistic can’t restrict what we do with the Devices *after we buy them*,” and instructed Toto “don’t agree to anything less than *all the rights*. *I don’t want Ballistic Memory to be able to control how ConsumerCam conducted its business*” (emphasis added). Gale’s response shows that ConsumerCam intended to buy the Devices from Ballistic Memory to gain all rights in the Devices. Moreover, when Gale responded “if [Ballistic Memory] won’t agree to all the rights*,* we can go buy semiconductor devices from someone else,” this shows that ConsumerCam would not accept less than “all the rights” in the Devices after buying them from Ballistic Memory. R. at Appx11.

The district court also cited the deposition of Tinny, a co-inventor of the ‘314 Patent who was instrumental during negotiations and in a key position to understand the intent of the parties. Tinny testified that he saw the written agreement both during negotiations and after the Agreement was signed by ConsumerCam. R. at Appx17, 20. Tinny testified that during negotiations, Gulch may have referred to the agreement as a license, but that others at Ballistic Memory referred to it as a sale “all the time.” R. at Appx19. According to Tinny, it was obvious that Ballistic Memory’s agreement with ConsumerCam was a sale since Ballistic Memory was “selling the semiconductor devices to ConsumerCam.” R. at Appx19. Moreover, Tinny testified that Ballistic Memory’s CEO called the agreement a license, but that Tinny understood this to mean a “license to sell the devices” R. at Appx13. Thus, as the district court properly concluded that Ballistic characterized the Agreement as a sale, rather than a license.

Ballistic may argue that Tinny testified that he told Gulch to add a limitation into the Agreement require to restrict ConsumerCam’s use and sale of the Devices with blockchain technology without Ballistic Memory’s permission. R. at Appx19. However, Tinny only did so because he was instructed to by Mark Marvel, and it is unlikely that Tinny even knew the difference between a license and a sale. R. at Appx19–20. Although Tinny thought that Gulch and Marvel “said something about making sure that the patent rights aren’t tired or expired or something like that,” he asked, “You keep asking me about licenses and sales, can you clarify what you mean?” R. at Appx21. Thus, the district court correctly determined that Ballistic framed the agreement a “license” as an attempt to preserve its patent rights, even though it was actually a sales agreement.

#### The Limitations Are Post-Sale Restrictions That Do Not Preserve Ballistic’s Rights in the ‘314 Patent.

As explained in *Lexmark*, the U.S. patent laws do not permit post-sale restrictions on a patented item once ownership passes to the purchaser, as this would run afoul to the common law’s refusal to permit restraints on the alienation of chattel. *See Lexmark*, 137 S. Ct. at 1526. Thus, post-sale restrictions do not affect whether a patentee’s rights have exhausted; what matters is his decision to make a sale. *Lexmark*, 137 S. Ct. at 1538.

Ballistic may argue that the Agreement is a license because it is titled “Licensing Agreement” and states that it grants a non-exclusive license to ConsumerCam of the ‘314 Patent. R. at Prompt 3. Moreover, Ballistic may argue that the third provision of the Limitations, requiring ConsumerCam “to either return to Ballistic Memory or destroy remaining units of the Devices in its possession” upon termination of the Agreement, preserved Ballistic Memory’s control over the Devices. R. at Prompt 3.

However, once Ballistic Memory decided to sell the Devices to ConsumerCam, any portions of the Agreement that sought to control the use or disposition of the Devices could not be enforced by patent law. *See* *Lexmark*, 137 S. Ct. at 1526. (“A patentee’sdecision to sell a patented item exhausts all patent rights in that item, regardless *of* any restrictions the patentee purports to impose”). Thus, the district court rightly concluded that Ballistic Memory exhausted its right to the ‘314 Patent.

### Even If the Agreement Was a License, ConsumerCam’s Resale of the Devices to OffTheBlockchain Exhausted Ballistic’s Rights In the ‘314 Patent.

When a patentee grants a license, the patentee is exchanging rights, not goods, and is free to relinquish only a portion of its patent rights. *Lexmark*, 137 S. Ct. at 1534. However, so long as a licensee complies with the license when selling an item, the patentee has, in effect, authorized the sale. *Id.* at 1535–36.

Ballistic may argue that under the Agreement, it never gave up ownership of the Devices to ConsumerCam, and thus, it retained its rights in the ‘314 Patent. However, even assuming *arguendo* that the Agreement was a license, Ballistic’s rights in the ‘314 Patent were exhausted when Ballistic Memory authorized ConsumerCam’s resale of the Devices ConsumerCam, and the resale complied with the Agreement at the time of resale.

#### Ballistic Memory Authorized ConsumerCam’s Resale of the Devices to OffTheBlockchain.

In *Lexmark*, the Supreme Court made no distinction between a patentee’s direct sale to a purchaser and an indirect sale to a purchaser via a licensee for determining exhaustion. *Lexmark*, 137 S. Ct. at 1535 (“Once a patentee *decides to sell – whether on his own or through a licensee – that sale exhausts the patents rights*”) (emphasis added). Thus, to determine whether a licensee’s sale of a patented item exhausts the patentee’s rights in that item, the Court must only determine whether the patentee authorized the licensee to make the sale. *See Quanta Computer*, 553 U.S. at 625.

On October 1, 2015, ConsumerCam sought authorization from Ballistic Memory to resell 2,000,000 of its purchased Devices to OffTheBlockChain. R. at Prompt 3. Ballistic Memory was informed of OffTheBlockChain intent to use the Devices in GPUs for its bitcoin mining rigs, and then authorized ConsumerCam’s resale on October 5, 2013. R. at Prompt 3-4. Thus, Ballistic Memory authorized ConsumerCam to sell the Devices to OffTheBlockchain.

Next, this Court must determine whether ConsumerCam’s resale complied with the Agreement at the time of resale.

#### ConsumerCam Did Not Knowingly Violate the Agreement At the Time of the Resale.

Under *Lexmark*, a sale by the licensee that is knowingly “outside the scope of the license” at the time of the sale does not exhaust the patentee’s rights in the patented item. *See Lexmark*, 137 S. Ct. at 1535–36. Thus, if a resale of a patented item complies with the license and is not knowingly outside the scope of the license at time of resale, such resale can exhaust the patentee’s rights in that item. *See Id*.

When ConsumerCam resold its purchased Devices to OffTheBlockchain, the resale complied with the Agreement and was not knowingly outside the scope of the Limitations. ConsumerCam complied with the first provision because, as noted above, it received Ballistic Memory’s authorization to resell the Devices to OffTheBlockchain. R. at Prompt 3–4. ConsumerCam complied with the second provision because at the time of resale, ConsumerCam delivered the Devices at the agreed-upon $15.00 per unit price and represented that it would pay Ballistic Memory its $4.00 per unit fee. R. at Prompt 4. The third provision did not apply here, since the resale did not terminate the Agreement. Thus, at the time of resale, ConsumerCam’s resale was compliant with the Agreement was not knowingly outside of its scope.

Ballistic may argue that ConsumerCam’s resale was outside the scope of the second provision of the Agreement because ConsumerCam failed to pay the agreed-upon $4.00 per unit fee by November 11, 2015. R. at Appx4. However, ConsumerCam did not knowingly violate the Agreement at the time of resale. The resale was completed on October 12, 2015, and then the retroactive tax took effect on October 28, 2015. R. at Prompt 3–4. Moreover, there is no evidence to suggest that ConsumerCam or OffTheBlockchain had any knowledge of this tax at the time of resale on October 12, 2015. Thus, ConsumerCam’s failure to pay the $4.00 per unit fee to Ballistic Memory by November 11, 2015, was not a knowingly outside the scope of the resale on October 12, 2015.

Under *Lexmark,* when a sale of a patented item is authorized by the patentee, “patent exhaustion is uniform and automatic.” *Lexmark*, 137 S. Ct. at 1535. Since ConsumerCam’s resale was authorized by Ballistic Memory, and since the resale was compliant with the Agreement at the time of resale, the resale exhausted Ballistic’s rights in the ‘314 Patent.

# CONCLUSION

For the foregoing reasons the district court’s denial of summary judgement for lack of enablement was clear error because the full scope of the asserted claims is not enabled. Appellee respectfully requests that the Court should reverse the district court’s grant of summary judgement of validity of the ‘314 Patent.

For the foregoing reasons the district court did not err in granting of summary judgment for patent exhaustion because under *Lexmark*, Ballistic’s authorized sale of the Devices exhausted its rights in the ‘314 Patent. Appellee requests the Court uphold the summary judgement of exhaustion.

CERTIFICATE OF SERVICE

I hereby certify that on this date, the 19 of February, 2019, a copy of the foregoing brief was served on Opposing Counsel via electronic delivery.

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Competitor Numbers