No. 19-GSR-4287

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

BALLISTIC HOLDINGS, INC. and BALISTIC MEMORY, INC.

*Appellant,*

v.

CONSUMERCAM, LLC

*Appellee*.

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

BRIEF FOR THE APPELLEE

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# TABLE OF AUTHORITIES

# STATEMENT OF RELATED CASES

(DENNIS)

# STATEMENT OF JURISDICTION

(DENNIS)

# STATEMENT OF ISSUES

## Exhaustion

## 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 35 nm without undue experimentation.

# STATEMENT OF THE CASE

# STATEMENT OF THE FACTS

# SUMMARY OF THE ARGUMENT

[UMBRELLA HERE]

# STANDARD OF REVIEW

## Exhaustion

## Invalidity for Lack of Enablement

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). Whether an invention 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).

# ARGUMENT

## Exhaustion

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

### Relevant Legal Standards

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). The specification must enable the full scope of the claims, meaning it must enable all embodiments of a claim. *Genentech*, 108 F.3d at 1365; *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. *Application of Fisher*, 427 F.2d 833, 839 (C.C.P.A. 1970).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* determining whether undue experimentation would be required. *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 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.

### Practicing the Invention at All Claimed Widths and Lengths Requires Undue Experimentation

The specification describes achieving switching speeds over 1 THz when width is greater than 5 nm and less than 15 nm when length is approximately 22 nm (5 nm < W < 15 nm; L ≈ 22 nm). (U.S. Pat. No. GSR,784,314, at 1, 4; J.A. at 6, 9). The specification states that the width and length are tuned to “specific values”. (U.S. Pat. No. GSR,784,314, at 1; J.A. at 6). 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 (U.S. Pat. No. GSR,784,314 at 4; J.A. at 9), for widths between 5 and 15 nm, a length of 22 nm achieves switching speed of 1 T Hz or higher. However, for over 15 nm, 22 nm does not achieve the desired switching speed. (J.A. at 9). Thus widths 5 to 15 nm are tuned to length of 22 nm, but widths greater than 15 are not. Ballistic’s expert, Professor Hendricks notes in his declaration that “As for 15 < W < 35 nm, a person of skill in the art would have been able to find the operative range of L through routine experimentation”. (Decl. of Robert Hendricks, at 4:19-20, J.A. at 25). Or in other words, it would not require undue experimentation.

Such experimentation would likely require adjusting the length, as a person of ordinary skill in the art would recognize that switching speed increases as length decreases. (Decl. of Robert Hendricks, at 4:7; J.A. at 25). Suggesting that all one would need make and use the claimed invention at widths between 15 and 35 nm 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 graphene nanoribbons shorter than 20 nm. (U.S. Pat. No. GSR,784,314, at 1; J.A. at 6). Professor Hendricks also explains that a person of reasonable skill in the art would be aware that it is not practicable to manufacture graphene nanoribbons “having lengths significantly greater than 22nm”. (Order on ConsumerCam’s Mot. Summ. J. at 3:8-10; J.A. at 3). If a person of ordinary skill in the art 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.

The specification need not state what is well known in the art, but it must supply the novel aspects of the invention. *Genentech*, 108 F.3d at 1366. The use of this invention at widths between 15 and 35 nm is novel, and the specification and Ballistic’s expert admit the person of ordinary skill in the art would not know how to manufacture the graphene nanoribbons at the lengths required to make and use the invention. The specification must do more than provide a starting point for further research. *See* *Genentech*, 108 F.3d at 1366 (stating that when there is no disclosure of how to carry out a process, undue experimentation is required, and there is lack of enablement). The invention must be enabled at the time of filing. *ALZA*, 603 F.3d at 940. According to Ballistic in the specification no one knew how to manufacture the lengths required to enable use of widths between 15 and 35 nm. 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 switching speeds of 1 T Hz or higher at all widths. This creates a genuine issue of material fact regarding enablement the district court should not have granted summary judgement.

[Relate to Wands Factors]

### The Meaning of Approximately as Used Within Claim 3 Raises a Dispute of Material Fact

The meaning of “approximately” as used in claim 3 is unclear, and crucial to determine if claim 3 is enabled. Claim 3 recites, “[t]he semiconductor device of claim 1, wherein the length of graphene nanoribbon is approximately 22nm”. (J.A. at 7). The specification never describes what “approximately 22 nm”. It only refers “22 nm +/- 1 nm”. (J.A. at 6, 7, 9). The specification reciting “22 nm +/1” might lead a reader believe that approximately means “+/- 1 nm”, however this cannot be the case. “Approximately” is used distinctly in relation to 1 T Hz. (J.A. at 7). These units not comparable, and neither are the raw numbers themselves, as they are orders of magnitude apart. 1 T Hz (1 Hz \* 1012) is a frequency of 1 trillion. 1 nm (1 meter \* 10-9), is one billionth of a meter, an imperceptible distance. When dealing with numbers of such immense and minute scale, approximately cannot mean the same thing. 1 billion is so large that one more or less would greatly affect its value (an imperceptible change – 0.0000001%). With so few nanometers, a change of 1 nm a substantial change. (1 / 22 = 0.045, or a 4.5% change). Thus claim 3 is not enabled because, “approximately” must have a distinct meaning from “+/- 1 nm” and meaning of “approximately 22nm” is a dispute of material fact.

Assuming, *arguendo*, that “approximately 22nm” does mean “+/- 1nm”, claim 3 is invalid on its face. Claim 1 does not recite any limitations regarding length of the graphene nanoribbons, only requiring a width between 5 and 35 nm, and “configured for” switching speeds between 1 and 1.2 T Hz. (J.A. at 7). Fig. 2 shows that lengths within one less or one more nm (+/- 1nm) of 22 nm, widths from 15 to 35 nm cannot achieve switching speeds above 1 T Hz. [expert opinion – inherenet limits: expert says can find operative range of L for 15 < W < 35 through routine experimentation (ja 25); can’t make it more than 22nm (ja 3). Says people would recognize the inherent limits, but approximately is unclear.] 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 (J.A. at 7), however as shown in Fig. 2 (J.A. at 9). Lengths of 22 nm +/- 1 nm only give switching speeds over 1 T Hz when combined with widths of 15 to 35 nm. Thus, because claim 1 recites widths of 5 to 35 nm, claim 3 is invalid.

[try to find a case with some facts to compare to]

### Over qualified expert

[Expert Argument]

# CONCLUSION

For the foregoing reasons there is a genuine dispute of material fact that the full scope of the assert claims is not enabled. Appellees respectfully request that the Court should reverse the district court’s grant of summary judgement of validity of the ‘314 patent.

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