

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

TRUSTEES OF BOSTON UNIVERSITY,
Plaintiff-Cross-Appellant

v.

**EVERLIGHT ELECTRONICS CO., LTD., EVERLIGHT AMERICAS, INC., EPISTAR
CORPORATION, LITE-ON INC., LITE-ON SERVICE USA, INC., LITE-ON
TECHNOLOGY CORPORATION, LITE-ON TRADING USA, INC.,**
Defendants-Appellants

2016-2576, -2577, -2578, -2579, -2580, -2581, -2582,
-2591, -2592, -2593, -2594, -2595

Appeal from the United States District Court for the District of Massachusetts,
Case No. 1:12-cv-11935-PBS, Hon. Patti B. Saris, Chief District Judge

**RESPONSE AND REPLY BRIEF OF DEFENDANTS-APPELLANTS
EVERLIGHT AND LITE-ON**

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May 26, 2017

CERTIFICATE OF INTEREST

Counsel for Everlight Americas, Inc., Everlight Electronics Co., Ltd., Lite-On Inc., Lite-On Service USA, Inc., Lite-On Technology Corp., and Lite-On Trading USA, Inc. certifies the following:

1. The full name of every party or amicus represented by me is:

Everlight Americas, Inc., Everlight Electronics Co., Ltd., Lite-On Inc., Lite-On Service USA, Inc., Lite-On Technology Corp., Lite-On Trading USA, Inc.

2. The name of the real party in interest (if the party named in the caption is not the real party in interest) represented by me is:

Everlight Americas, Inc., Everlight Electronics Co., Ltd., Lite-On Inc., Lite-On Service USA, Inc., Lite-On Technology Corp., Lite-On Trading USA, Inc.

3. All parent corporations and any publicly held companies that own 10 percent or more of the stock of the party or amicus curiae represented by me are:

Everlight Electronics Co., Ltd. is a parent corporation that owns 10 percent or more of Everlight America's, Inc.'s stock. Everlight Electronics, Co., Ltd. is publicly listed on the Taiwan Stock Exchange. Lite-On Technology Corp. is a parent corporation that owns 10 percent or more of Lite-On Inc., Lite-On Service USA, Inc., and Lite-On Trading USA, Inc. Lite-On Technology Corp. is publicly listed on the Taiwan Stock Exchange.

4. The names of all the partners or associates that appeared for the party or amicus now represented by me in the trial court or agency or are expected to appear in this court are:

Finnegan, Henderson, Farabow, Garrett & Dunner, LLP: Christopher S. Schultz, E. Robert Yoches, Jeffrey D. Smyth, Kenneth M. Frankel, MingTao Yang, Tina Hulse

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May 26, 2017

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STATEMENT OF THE ISSUES

Cross-Appeal

1. Whether the district court abused its discretion in refusing to award BU prejudgment interest against Defendant Lite-On for periods outside the statute of limitations.

SUMMARY OF THE ARGUMENT

I. Reply on Appeal

Enablement. BU provides no convincing response to either of Defendants' enablement arguments.

Amorphous Buffer Layer. Defendants' expert demonstrated that, consistent with the '738 Patent's own observations, heating the buffer layer to the temperatures prescribed in the specification would at least partially crystallize the buffer layer, rendering it non-amorphous. BU says there is no evidence that such crystallization will *always* occur, and points to testimony from its expert that perhaps a person of skill in the art ("POSITA") could avoid that result by varying the thickness of the buffer or the duration of the heating stage. But that conclusory testimony failed to acknowledge that at the very least, the GaN buffer layer must be heated long enough and hot enough to crystallize the GaN growth layer above it. And because the Patent calls for heating the device from the bottom up, the GaN buffer layer will necessarily be as hot (or hotter) than the GaN growth layer

above it. If enough heat passes all the way through the buffer layer to crystallize the growth layer, it will necessarily crystallize the buffer layer as well.

Monocrystalline Growth Layer On An Amorphous Buffer Layer. Even if an amorphous buffer layer was enabled, the district court found that both sides' experts agreed that it is impossible to form a monocrystalline growth layer directly on top of an amorphous buffer layer using epitaxy. Although BU now attempts to suggest the district court's finding was wrong, its claims are unsupported. The inventor's description of "lateral epitaxial growth," for example, described a process for creating a buffer layer of mixed crystallinity, not one that is completely amorphous. And his testimony did not address what would happen when that buffer layer was exposed to heat sufficient to create a monocrystalline growth layer above it. As discussed, the only evidence on that question clearly and convincingly showed that any amorphous buffer layer would be crystallized.

BU also claims that a POSITA could figure out how to create such a device through non-epitaxial means. BU does not claim that the specification provides any insight on how to do this; it simply claims that a POSITA could figure it out on her own, pointing to its experts' statement to that effect and their claims to have created such devices themselves in the past. But the cited testimony is completely conclusory and therefore irrelevant. And BU simply ignores Defendants' observation in their opening brief that the experts' claims to have created devices

themselves were describing events that took place *years* after the patent application was filed. If anything, then, that evidence tends to prove that a POSITA could *not* have created the device without undue experimentation at the time of the patent application.

Finally, perhaps recognizing the difficulty it is in, BU insists it was not required to enable a version of the device with a monocrystalline growth layer directly on top of an amorphous buffer layer, even though the Patent claims it. But that assertion runs headlong into this Court's established precedent to the contrary. BU's only attempt at providing contrary authority relies on a misleading quotation of an unpublished decision that, in fact, teaches the opposite.

Written Description. Even if BU could survive the enablement inquiry by showing that a POSITA could figure out how to create every claimed version of the device without undue experimentation, the Patent would still be invalid for lack of an adequate written description. That aspect of Section 112(a) requires proof that the inventor himself was in possession of the full scope of the claimed device at the time of the patent application. BU's expert testimony on this separate requirement was completely conclusory. And because its enablement testimony relied chiefly on the claim that a POSITA could create the devices through reasonable experimentation, the enablement testimony does not fill the void. BU therefore is forced to point to what it calls the "original claims" as purportedly

showing Moustakas “possessed the claimed inventions at the filing date.” BU Br. 16. The first claim BU points to, however, shows nothing of the sort. And the second set of claims are not, in fact “original claims,” but rather were submitted as part of a continuation application filed four years after the original patent application. They show nothing about what the inventor possessed at the time of the original application, which is the only time that counts.

II. Response To Cross Appeal

The Patent Act limited BU’s damages claims against Lite-On to compensation for infringement occurring after the suit was filed in 2012. BU nonetheless requested prejudgment interest running back to 2000, more than a decade earlier. The district court did not abuse its discretion in denying that request.

The Act prohibits the court from awarding any “recovery” or “damages” for “infringement” occurring outside statute of limitations. 35 U.S.C. §§ 286, 287(a). Because prejudgment interest is an element of the recovery for specific acts of infringement, it is available as part of the compensation for only those acts of infringement falling within the statute of limitations.

This is true whether damages are measured under the running royalty or lump sum methodology. To be sure, the amount of a lump sum award generally does not vary depending on how long the infringement persists, and therefore is

not reduced when the infringement began outside the limitations period. But the lump sum is nonetheless compensation only for the infringement that occurred during the limitations period. Prejudgment interest is likewise available only for the infringement occurring during that time of actionable infringement.

Any other rule would lead to absurd results. For example, it would make the amount of prejudgment interest vary wildly depending on whether a jury calculates damages based on a running royalty or lump sum method. And it would reward plaintiffs for their lack of diligence, leading to interest awards that (as requested in this case) could dwarf actual damages. Indeed, BU's theory effectively repeals the statutes of limitations whenever a jury awards lump sum damages, as neither the damages nor the prejudgment interest is affected by the plaintiff's delay in filing suit.

STANDARD OF REVIEW

This Court “review[s] the district court’s award of prejudgment interest for an abuse of discretion.” *Comcast IP Holdings I LLC v. Sprint Comm’ns Co.*, 850 F.3d 1302, 1313 (Fed. Cir. 2017).

ARGUMENT

REPLY ON APPEAL

I. The '738 Patent Fails The Enablement Requirement of Section 112(a).

Section 112(a) of the Patent Act requires that a patent enable the creation of the full scope of the invention over which a patent monopoly is claimed. Everlight Br. 11-34. This Court has explained that in a “new [scientific] field,” it is “especially important for the specification to discuss how [the claimed device] would operate . . . and to provide details of its construction” to meet the requirements of § 112(a). *Auto. Techs. Int’l, Inc. v. BMW of N. Am., Inc.*, 501 F.3d 1274, 1284 (Fed. Cir. 2007). Here, the inventor insisted that the relevant field (using GaN for semiconductors) was “very immature” when he conducted the research that led to the Patent. Appx2234 (Trial Tr. 2 at 48). Yet, as our opening brief explained, the Patent does not enable two versions of the claimed device: (1) devices with an amorphous buffer layer; or (2) devices with a monocrystalline GaN growth layer grown on an amorphous buffer layer. Everlight Br. 12-34. BU offers no convincing response.

A. The Specification Does Not Enable An Amorphous Buffer Layer.

BU acknowledges Fitzgerald’s explanation that because of the “griddle effect,” using the methods the Patent teaches will inevitably crystallize any initially amorphous buffer layer during the second high-temperature step for creating the

buffer layer and the subsequent process of depositing and crystallizing the growth layer. BU Br. 54; Everlight Br. 13-14. BU's claim that a POSITA could nonetheless figure out a way to avoid this result without undue experimentation is unsupported.

First, BU says that “no evidence at trial demonstrated that the second step would *always* crystallize the amorphous *buffer* layer.” Br. 54 (emphasis added). But even if that were right, *but see* Everlight Br. 13-14, Fitzgerald explained that the method taught by the Patent for crystallizing the *growth* layer involves heating the layers from the substrate up, through the GaN buffer layer and into the GaN growth layer. *See id.*¹ Thus, even though it “requires a lot of temperature” to crystallize an amorphous buffer layer, BU Br. 56 (quoting Fitzgerald), the buffer layer will not be cooler than the growth layer above it. And if the GaN growth layer is hot enough to crystallize, the GaN buffer layer necessarily will crystallize as well. Appx2317-2318 (Trial Tr. 6 at 232-233).² BU seemingly agreed at the

¹ There is no basis for BU's suggestion that the jury would have discounted Fitzgerald's testimony because his field of specialty was not limited to “research relating to GaN.” BU Br. 53 n.18. *See* Appx14-15 (district court acknowledging Fitzgerald's expertise in materials science and semiconductor technology).

² BU's claim that Fitzgerald testified to the contrary (Br. 54-55) is based on a mischaracterization of his answer to a question from a juror. Fitzgerald was asked whether the buffer layer would “be monocrystalline or polycrystalline” “when it crystallizes at that temperature.” Appx2309 (Trial Tr. 6 at 224). Fitzgerald responded that “it could be anything . . . it could be polycrystalline, it

summary judgment stage, when it told the court that the “specification discloses that during the high-temperature growth step the increased temperature causes the amorphous gallium nitride layer to crystallize into a polycrystalline or mixture of polycrystalline and amorphous layer of gallium nitride.” Appx6200.

Second, BU cites to testimony by Piner which, it says, suggests that a POSITA could vary the thickness of the buffer layer and time of heating at the lowest listed temperatures to avoid crystallization. BU Br. 56-57. That conclusory statement, however, was wholly unsupported. Piner never identifies what combination of thickness, temperature and time would produce such a device, or claims that he or anyone else had ever maintained an amorphous buffer layer through such manipulations. Moreover, claiming that there is some combination of conditions under which the buffer layer will not crystallize is an incomplete response—the question is whether there is some combination under which the buffer layer will not crystallize *but the growth layer above it will*. And Piner offered no explanation how, within the laws of physics, this would be possible using epitaxy. Piner does not say, for example, how modifying the temperature or heating time could make a difference, given that both the buffer layer and the growth layer are made of the same material and would be subject to the same

could be single crystalline.” Appx2309-2311 (Trial Tr. 6 at 224-226). Fitzgerald never implied it could be amorphous.

temperatures, for the same amount of time. Nor did he explain how the thickness of the buffer layer could prevent its crystallization when, in the end, the top of the buffer layer must be hot enough to crystallize the growth layer sitting above it, and the lower portion of the buffer layer must, therefore, be even hotter. *Cf.* Appx2317-2318 (Fitzgerald describing the griddle effect).

Certainly nothing in the embodiment in column 2, to which Piner referred, supports his testimony. *Contra* BU Br. 56. It specifically contemplates crystallizing the buffer layer by heating it to 600–900°C, the same temperature range at which it says the subsequent growth layer will crystallize completely. *See* Appx213. And rather than suggest using an especially thick buffer layer in order to preserve its amorphous nature, it calls for a buffer layer that is, at most, 5% of the thickness of the growth layer. *Id.*

Dr. Piner’s statement that “when the crystallization process happens, it doesn’t necessarily have to occur throughout the entire thickness of the buffer layer,” BU Br. 56, is likewise insufficient. Even if one could discover how to prevent the “entire thickness of the buffer layer” from crystallizing, unless the layer is prevented from crystallizing *at all*, the result would be a buffer layer that was mixed polycrystalline/amorphous, not the purely amorphous buffer layer the Patent lays claim to. Everlight Br. 22-23; Appx2309-2318 (Trial Tr. 6 at 224-233).

BU's reliance on Moustakas's testimony regarding "lateral epitaxial growth" is similarly misplaced. BU Br. 57. As we have explained, Moustakas did not testify that lateral epitaxial growth would result in an amorphous buffer layer; instead, he described a process that would produce a mixed polycrystalline-amorphous buffer layer. *See* Everlight Br. 21-22; Appx2243 (Trial Tr. 2 at 81).³ Moreover, Moustakas's discussion of lateral epitaxial growth concerned only the initial step of creating the buffer layer. *See* Appx2247-2248 (Trial Tr. 2 at 85-86), Appx2250-2251 (Trial Tr. 2 at 88-89). He did not address what would happen to the buffer layer later, when the substrate (and buffer layer above it) was heated to a temperature sufficient to crystallize the growth layer. He thus said nothing to contradict Fitzgerald's testimony that any initially amorphous buffer layer would be at least partially crystallized in the final product.

B. The Specification Does Not Enable A Monocrystalline GaN Growth Layer Directly On Top Of An Amorphous Buffer Layer.

The evidence also clearly and convincingly proved that even if the Patent enabled a device with an amorphous buffer layer, the phenomenon of "lattice mismatch" makes it impossible to grow a monocrystalline layer on top of an

³ BU has never argued that the Patent enabled creation of an amorphous buffer layer through non-epitaxial methods. *See* Br. 58 (arguing only that it is possible to create a monocrystalline GaN growth layer directly on an amorphous buffer layer through non-epitaxial methods).

amorphous buffer layer using the epitaxial methods taught by the Patent. *See* Everlight Br. 27-28; Appx17-18. BU's attempted responses have no merit.

1. *The Specification Does Not Enable This Version Of The Device Using The Epitaxial Method Described In The Specification.*

Dr. Fitzgerald explained to the jury that it is impossible to epitaxially create a monocrystalline growth layer on top of an amorphous buffer because the lattice mismatch between the two layers prevents the consistent crystallization of the growth layer. Appx2311-2314 (Trial Tr. 6 at 226-229). The district court found that "Dr. Piner agreed with Dr. Fitzgerald's view that one cannot epitaxially grow a monocrystalline layer on an amorphous structure." Appx17-18. BU, however, seemingly argues that the district court's finding was wrong and that Dr. Piner, along with the inventor, testified that that creating such a device through epitaxy was possible. BU Br. 59. The cited testimony, however, does not support BU's claims.

BU points to Piner's testimony that a POSITA could create this version of the device "with not much experimentation" and that the "elements of the claim itself teaches how to do that accurately." BU Br. 59. That statement in itself is completely conclusory and insufficient. *In re Buchner*, 929 F.2d 660, 661 (Fed. Cir. 1991). And the surrounding testimony BU cites at best attempts to explain how one might create an amorphous buffer layer using the methods taught in the Patent; it says nothing about how one could then overcome the lattice mismatch

problem and lay down a monocrystalline growth layer on top that amorphous buffer layer. *See* BU Br. 59 (citing Appx2268-2269 (Trial Tr. 4 at 49-50)).

BU's reliance on Moustakas's discussion of "lateral epitaxial growth" is similarly inapt. *See* Everlight Br. 21-22. As we have explained, Moustakas did not purport to describe the creation of a purely amorphous buffer layer. Rather, he described a process that results in, at best, a buffer layer with mixed polycrystalline/amorphous GaN. *Id.* But even if Moustakas had credibly testified that it was possible to create a buffer layer that had a distinct amorphous sublayer at the bottom, this would do BU no good. Assuming that the sublayer would qualify as a "layer," it would not be in *direct* contact with the monocrystalline growth layer as required to enable the challenged version of the device. Finally, Moustakas's discussion of lateral epitaxial growth concerned only the initial step of creating the buffer layer. *See supra* p. 10. And, as just discussed, the evidence was clear that any portion of the buffer layer that remained amorphous in the early stages would become at least partially crystallized through the griddle effect when the monocrystalline growth layer was created.

2. *The Specification Does Not Enable Through Non-Epitaxial Means.*

BU insists that the the Patent is not limited to devices produced through epitaxy. Br. 58. This is not correct. *See* Everlight Br. 30-34. But even if it was, BU cites no evidence that the Patent teaches any non-epitaxial means for creating a

device with a monocrystalline growth layer on top of an amorphous buffer layer, or that a POSITA could figure out how to do so without undue experimentation.

In fact, Fitzgerald testified that at the time of filing, there were no techniques (epitaxial or non-epitaxial) to create such a device. Appx2331 (Trial Tr. 7 at 29).⁴ Conclusory statements by BU's experts to the contrary, BU Br. 58-59, are insufficient as a matter of law to rebut that testimony. *Buchner*, 929 F.2d at 661. BU says that the inventor and its expert testified that they had created such devices through non-epitaxial means. BU Br. 58. But they did so *years* after the Patent was filed, rendering that testimony irrelevant. *See* Everlight Br. 28-30; *Application of Glass*, 492 F.2d 1228, 1232 (C.C.P.A. 1974) (the "sufficiency [of the specification] must be judged as of the filing date"). If anything, these experts' reliance on evidence post-dating the application by several years strongly supports the conclusion that even a person with far more than ordinary skill in the art could not have figured out how to do so at the time of the Patent.

⁴ Fitzgerald also testified that it is *now* possible to make such a device with a non-epitaxial method, BU Br. 58, but that is not to say that it was possible to do so at the time of the Patent, much less that a POSITA could have figured out how to do so without undue experimentation.

3. *The Patent Was Required To Enable All Claimed Versions Of The Device.*

Unable to convincingly argue the Patent enables this version of the device, BU Br. 57-59, BU argues that enablement was unnecessary, *id.* 59-60, but to no avail.

First, BU argues that the term “growth layer” is not *limited* to a monocrystalline growth layer. BU Br. 59-60. But even if that were true (and, as discussed next, it is not), it would be beside the point – BU does not contest that “growth layer” at least *includes* monocrystalline GaN layers, even if it might include something else as well. And so long as the Patent *encompasses* a version of the device with a monocrystalline GaN growth layer directly on top of an amorphous buffer layer, the Patent was required to enable it. Everlight Br. 23-26.

Second, BU claims that Defendants “waived any argument that the term ‘growth layer’ should be construed to be single crystalline because it was raised for the first time after trial.” BU Br. 60. Not so. Defendants did not ask for a construction of “grown on” because at the claim construction stage, BU acknowledged that the growth layer would be monocrystalline, as did the experts throughout the case. Appx258-259, Appx262; *see also* Appx2305-2306 (Trial Tr. 6 at 220-221) (Fitzgerald explaining that growth layer must be monocrystalline); Appx3938-3939 (BU counsel admitting growth layers are monocrystalline at *Markman* hearing); Appx6241 (Piner admitting that “the ’738 patent is clear

that . . . growth layer(s) is (are) monocrystalline, not highly defective, and may be doped n-type or p-type.”); Appx15014-15017 (summarizing BU’s statements regarding structure of growth layer). The claim construction order reflects that common understanding, stating “the specification—in fact, the title of the Patent—makes clear that the growth layers are monocrystalline.” Appx261. When BU attempted to argue for the first time at summary judgment that the growth layer need not be monocrystalline, the district court admonished BU’s counsel for “pop[ping] up these new arguments that I’ve never thought about before” and then made clear that the growth layer “for purposes of everything you have given me,” is monocrystalline. Appx15015. Thus, both parties and the court agreed at the time of claim construction and up until the summary judgment hearing that the growth layer was monocrystalline. If BU changed its mind and wanted the court to adopt a different construction, it bore the obligation of asking the court to re-open the claim construction proceedings.⁵

⁵ In its Statement, BU implies Defendants failed to preserve any enablement argument at all. Br. 16. But it does not actually make that claim in its argument section, for good reason – the court later realized her statements on the sixth day of the trial were incorrect and went on to rule on the objection on the merits in the post-trial motions. *See* Appx14, Appx16-20; *see also* Appx274 (ruling on enablement objections at summary judgment); Appx15023 (denying BU motion to strike (Appx7369-7384) on ground that enablement and written description arguments had been fully argued at summary judgment); Appx7377-7378 (BU memorandum in support of motion to strike certain invalidity theories which argued that Defendants’ enablement theory was “new”).

Third, BU argues that it was “sufficient” for the Patent to teach “5 out of the 6 permutations” of the device. BU Br. 60. But as discussed in the opening brief, it is black letter law that a patent can only claim the versions of an invention enabled by the written description. Everlight Br. 24-26. A patent need not expressly teach how to make versions that could be created by applying common knowledge to the teaching of the specification. But a patent cannot claim versions of the device whose method of creation is neither taught nor discoverable through reasonable experimentation. See *AK Steel Corp. v. Sollac & Ugine*, 344 F.3d 1234, 1244 (Fed. Cir. 2003); *Nat’l Recovery Techs., Inc. v. Magnetic Separation Sys., Inc.*, 166 F.3d 1190, 1196 (Fed. Cir. 1999).

BU responds that this is not the rule, but its only authority is a misleading quotation from a single unpublished decision. BU Br. 60 (quoting *Pfizer, Inc. v. Teva Pharm. USA, Inc.*, 555 F. App’x 961 (Fed. Cir. 2014)). BU’s quotation leaves out the immediately prior sentence that makes clear the Court was simply applying the settled rule that a patent need not teach how to create versions of the device that could be made based on the specification without undue experimentation. See *Pfizer*, 555 F.App’x at 967 (“*In view of the finding that enantiomer separation methods are well-known and routine to a person of ordinary skill*, we agree with the district court that the inventors were not required to provide a detailed recipe for preparing every conceivable permutation of the

compound they invented to be entitled to a claim covering that compound.” (emphasis added); *see also id.* at 966 (“[T]here is no requirement that a specification ‘disclose what is routine and well known in the art.’” (citation omitted)).

In any event, even if there were some point at which full enablement could be excused as too burdensome, BU cannot explain why having to enable six permutations of a device is too much to ask in exchange for a patent monopoly over all six versions. Everlight Br. 23-24.

II. The '738 Patent Fails The Written Description Requirement of Section 112(a).

Claim 19 also fails the separate written description requirement of 35 U.S.C. § 112(a). *See* Everlight Br. 35-39. BU raises four responses, none of which has merit.

First, BU claims (Br. 61) that Defendants cite “no affirmative expert testimony” to support their argument. Not so. Defendants made express reference to the testimony described in the enablement section of their brief. *See* Everlight Br. 36-38. In that testimony, Fitzgerald explained that although the Patent mentions depositing an amorphous buffer layer at *step one* of the two-step process, it uniformly describes that buffer as crystallizing in the subsequent steps. Appx2309-2318 (Trial Tr. 6 at 224-233). He further clarified that this was unsurprising because the whole point of the Patent was to create a monocrystalline

growth layer, which requires at least some crystallization of the buffer layer to support epitaxial growth. *Id.* For that reason, and because heating the buffer to a temperature sufficient to crystallize the growth layer will create at least some crystallization in the buffer layer, Fitzgerald testified that Moustakas could not have had possession of a device with an amorphous buffer layer – and particularly not one with a monocrystalline growth layer on top of it – because it was physically impossible to create such a device through the methods discussed in the Patent. *See* Everlight Br. 13-14, 18-20, 27-28. That testimony was confirmed by the specification itself, which indicates that the inventor only had possession of devices with at least partially crystallized buffer layers. Appx214 col.4 ll.23-40.

Second, BU acknowledges our assertion that *its* expert testimony was completely conclusory, but its only response is the equally conclusory assertion that “this testimony is more than sufficient.” Br. 61. The Court can read the testimony and make its own judgment—it is exceedingly short:

Q. Also as an expert, is it -- in your opinion does the written description contained in the [P]atent -- would a person of ordinary skill have recognized that it describes the full scope of the claimed invention as it was claimed back in 1991?

A. Yes, it does.

Q. Do you have any difficulty understanding what the ‘738 [P]atent is teaching?

A. No, there’s no difficulty at all.

Q. Would it be clear to anyone with ordinary skill in the art?

A. I believe so, yes.

Appx2271 (Trial Tr. 4 at 52).⁶

Third, BU refers back to its enablement discussion (Br. 61-62), but those arguments fail for the reasons discussed above. *See supra* pp. 6-17. In addition, those arguments depend substantially on the claim that a POSITA could discover how to produce the challenged versions of the device without undue experimentation. *See* BU Br. 55-57, 58-59. But the written description inquiry “looks to the four corners of the specification The knowledge of ordinary artisans may be used to inform what is actually in the specification . . . but not to teach limitations that are not in the specification” *Rivera v. Int’l Trade Comm’n*, No. 16-1841, slip op. at 13 (Fed. Cir. May 23, 2017) (internal quotation marks omitted).

Fourth, BU claims that, even if the ’738 Patent does not show Moustakas possessed the devices at issue, “the originally filed claims objectively prove the investors possessed the claimed inventions at the filing date.” BU Br. 62. They do not.

⁶ In surrounding testimony, Piner addressed whether the full scope of the Patent was *enabled*, but as discussed next, enablement poses a materially different question and Piner’s enablement testimony was insufficient to support the jury’s written description finding.

BU begins by misreading original Claim 19 (OC19). Appx2087. OC19 claims the “method of claim 18 wherein an amorphous or poorly crystallized film of GaN is formed.” *Id.* BU implies this is a reference to a final device with an amorphous buffer layer. But it is not. OC19 depends on original Claim 18 (OC18), which depends on original independent Claims 1-3 (OC1-3). The original independent claims describe a “method of preparing insulating monocrystalline GaN films . . . using a two-step growth process comprising a low temperature nucleation step and a high temperature growth step.” Appx2085 (OC1).⁷ OC18 then claims “the method of claim 1 . . . wherein said *low temperature nucleation step* is carried out with said substrate heated in the range of 100-400°C.” Appx2087 (emphasis added). OC19 claims a version of this first, low-temperature step in which an amorphous GaN layer is formed. That is, like Claim 19 in the final Patent, the original patent application contemplated that the buffer layer would be amorphous *at step one*. But the *rest* of the independent claims makes clear that *after* that amorphous buffer layer is formed, the device is subject to a “high temperature growth step,” Appx2085, during which, as discussed, the buffer layer is crystallized.

⁷ OC2 and OC3 likewise claim a two-step, low and high temperature process. Appx2085.

BU's assertion that Claims 45 and 46 are "original claims" that "prove the inventors possessed the claimed inventions at the filing date," Br. 62, is simply false. In fact, both were introduced in a 1995 continuation application filed *four years* after the filing date. Appx2066; BU Br. 63 (acknowledging post-dating). They prove nothing about what the inventor possessed "at the filing date." BU Br. 62. The fact that "priority is not at issue," *id.* 63 n.20, does not bend time and make a 1995 filing proof of what the inventor possessed in 1991.

RESPONSE TO CROSS APPEAL

I. The District Court Did Not Abuse Its Discretion In Refusing To Award Prejudgment Interest For Periods Outside The Statute Of Limitations.

BU requested more than \$1 million in prejudgment interest on the \$365,000 damages award against Lite-On, claiming it was entitled to recover interest on the lump sum award for a period stretching back *twelve years* beyond the statute of limitations. As the district court observed, BU can cite no decision of this or any other court accepting (or even considering) the argument. *See* Appx2440-2441. The district court did not abuse its discretion in rejecting it.

A. Awards Of Prejudgment Interest Are Necessarily Limited By Statutes Of Limitations.

The Patent Act mandates that “[e]xcept as otherwise provided by law, *no recovery* shall be had for any infringement committed more than six years prior to the filing of the complaint.” 35 U.S.C. § 286 (emphasis added). Likewise, the Act provides that when a plaintiff has failed to mark its product, as was the case here, “damages may be recovered only for infringement occurring after [] notice.” *Id.* § 287(a).

Prejudgment interest is a portion of the “recovery” and “damages” for infringement. *See, e.g., West Virginia v. United States*, 479 U.S. 305, 310-11 & n.2 (1987) (prejudgment interest “is an element of complete compensation,” aimed at “achieving full compensation for the injury those damages are intended to

redress”); *see also Gen. Motors Corp. v. Devex Corp.*, 461 U.S. 648, 655-56 (1983) (same). Just as a plaintiff is not entitled to recover the underlying damages for infringement occurring outside of the limitations period, it is not entitled to receive the prejudgment interest accruing outside this period either. *Cf. Bridgeport Music, Inc. v. Justin Combs Pub.*, 507 F.3d 470, 485 (6th Cir. 2007) (“Because plaintiffs could not recover [copyright] damages for infringement that occurred outside of the limitations period, they likewise could not receive prejudgment interest on damages incurred outside of the limitations period.”).⁸

B. Prejudgment Interest Awards Do Not Escape The Statute Of Limitations Simply Because A Jury Calculates Damages Using A Lump Sum, Rather Than A Running Royalty, Methodology.

BU does not dispute that these principles limit prejudgment interest in running royalty cases to interest on payments that would have been due during the limitations period. *See* BU Br. 30-32. BU nonetheless insists that interest on a lump sum award must run to the date of the first infringement, when the hypothetical lump sum presumably could have been paid, regardless of any statute of limitations. BU Br. 31-32. That argument is baseless.

First, BU’s argument is premised on the claim that it “lost the value of [the lump sum] payment from the date of the would-be payment to the present.” BU

⁸ For these reasons, the date on which infringement commenced is irrelevant. *Cf.* BU Br. 32-33.

Br. 31. But prejudgment interest is not compensation for the failure to pay the hypothetical lump sum at the time it was hypothetically due, as if that failure to pay gave rise to some independent cause of action (say, “breach of hypothetical contract”) with no statute of limitations. Prejudgment interest is authorized only as a component of the compensation for specific acts of infringement. *See* 35 U.S.C. § 284. And that infringement must occur within the statute of limitations to be compensable through an award of damages or prejudgment interest on those damages.

To be sure, lump sum awards are unusual in that their amounts typically do not vary depending on the duration of the infringement. In this case, for example, the jury assumed that the parties would have agreed to a lump sum payment of \$365,000 for a license running the full remaining term of the Patent. But the award still represents compensation *solely* for the infringement occurring within the limitations period. Otherwise, the lump sum methodology could not be squared with the plain text of Sections 286 and 287, which forbid providing plaintiffs any “recovery” or “damages” for “infringement” falling outside their limitations periods. 35 U.S.C. §§ 286, 287(a). As a consequence, interest on the lump sum only extends back only as far as the compensable infringement (*i.e.*, to the end of the limitations period).

The only case BU even claims to support its contrary position is *Comcast IP Holdings I LLC v. Sprint Communications Co.*, 850 F.3d 1302 (Fed. Cir. 2017). *See* BU Br. 30-31. But the Court was not confronted with any statute of limitations question in that case, no doubt because all of the infringement occurred within the applicable six-year statute of limitations.⁹

Second, BU's lack of authority is unsurprising, as its theory leads to a variety of untenable consequences Congress could not have intended.

To start, applying BU's theory would make the amount of prejudgment interest vary enormously depending on the jury's choice between running royalty and lump sum measures of damages. But a jury's choice in damages methodologies should not predictably result in massively disparate overall awards. *See* 35 U.S.C. § 284 (requiring court to award each "claimant damages adequate to compensate for the infringement").

In addition, BU's theory would also have the perverse effect of inflating awards to plaintiffs who sit on their rights, when the law generally is intended to encourage prompt assertion of patent claims (*e.g.*, by imposing statutes of limitations). Indeed, as this case illustrates, under BU's theory, the prejudgment

⁹ The hypothetical negotiation occurred in "late 2006," *id.* at 1313-14, while the complaint was filed in February 2012, *see* Complaint, *Comcast IP Holdings I LLC v. Sprint Comm'ns Co.*, No. 1:12-cv-00205-RGA (D. Del. Feb. 21, 2012) (Dkt. No. 1) (initial complaint).

interest could dwarf the damages award. Here, the jury assessed \$365,000 in damages against Lite-On, but BU has asked for up to \$1.8 million in prejudgment interest. *See* Appx15028. And the longer a plaintiff waits to sue, the greater the disproportionality would be.

Previously, this prospect would have been blunted by the availability of a laches defense, but the Supreme Court recently eliminated that protection. *See SCA Hygiene Prods. Aktiebolag v. First Quality Baby Prods., LLC*, 137 S. Ct. 954, 959 (2017). The Court did so in deference to “a judgment by Congress that a patentee may recover damages for any infringement committed within six years of the filing of the claim.” *Id.* at 961. BU’s theory, however, effectively jettisons that limitation whenever a plaintiff can convince a jury to award lump-sum damages: a plaintiff’s decade-long delay in filing suit will affect neither the lump sum award nor the amount of prejudgment interest on it.

Third, even if it were sometimes *permissible* to award prejudgment interest beyond the limitations period, BU must show that the district court abused its discretion in declining to do so here. *See Gen. Motors Corp.*, 461 U.S. at 656-57 (award of prejudgment interest is discretionary). Other than wrongly claiming that the court was *compelled* to award interest to the initial date of infringement, BU identifies no reason why the district court exceeded its discretion here.

II. Everlight And Lite-On Defendants Incorporate By Reference Arguments Made In Epistar's Response and Reply Brief.

Everlight incorporates by reference Epistar's arguments in response to BU's cross-appeal claims for enhanced damages. *See* Epistar Response § I. Everlight and Lite-On incorporate by reference Epistar's cross-appeal arguments regarding attorney's fees, *see* Epistar Response § II, and reply arguments on claim construction, *see* Epistar Reply § I.

Respectfully submitted,

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May 26, 2017

CERTIFICATE OF SERVICE

I, Kevin K. Russell, a member of the Bar of this Court, hereby certify that on this 26th day of May, 2017, I electronically filed the foregoing brief with the Court using the CM/ECF system. The following counsel are registered CM/ECF users and will be served by the appellate CM/ECF system:

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CERTIFICATE OF COMPLIANCE

Pursuant to Federal Rules of Appellate Procedure 28.1(e)(3) and 32(a)(7)(C), the undersigned hereby certifies that this brief complies with the type volume limitation of Federal Rule of Appellate Procedure 28.1(e)(2)(A)(i).

1. This brief complies with the type-volume limitation of Federal Rule of Appellate Procedure 28.1(e)(2)(A)(i) because this brief contains 6,054 words, excluding the parts of the brief exempted by Federal Rule of Appellate Procedure 32(a)(7)(B)(iii) and Federal Circuit Rule 32(b)(1)-(3).
2. This brief complies with the typeface requirements of Federal Rule of Appellate Procedure 32(a)(5) and the type style requirements of Federal Rule of Appellate Procedure 32(a)(6) because this brief has been prepared in a proportionally spaced typeface using Microsoft Word 2013 in 14-point Times New Roman Font.

Dated: May 26, 2017

/s/ Kevin K. Russell