

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD.,
SAMSUNG ELECTRONICS AMERICA, INC.,
Petitioner,

v.

NANOCO TECHNOLOGIES LTD.,
Patent Owner.

IPR2021-00182
Patent 9,680,068 B2

Before ERICA A. FRANKLIN, GRACE KARAFFA OBERMANN,
and CHRISTOPHER M. KAISER, *Administrative Patent Judges*.

KAISER, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining No Challenged Claims Unpatentable
35 U.S.C. § 318(a)

INTRODUCTION

A. Background

Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc. (collectively, “Petitioner”) filed a Petition (Paper 1, “Pet.”) requesting an *inter partes* review of claim 1 of U.S. Patent No. 9,680,068 B2 (Ex. 1001, “the ’068 patent”). Nanoco Technologies Ltd. (“Patent Owner”) filed a Preliminary Response. Paper 12 (“Prelim. Resp.”). With our authorization, Petitioner filed a Preliminary Reply (Paper 14), and Patent Owner filed a Preliminary Sur-Reply (Paper 15).

On May 19, 2021, we instituted *inter partes* review of claim 1 of the ’068 patent on all grounds set forth in the Petition. Paper 17 (“Inst. Dec.”). After institution of trial, Patent Owner filed a Response (Paper 25, “PO Resp.”), Petitioner filed a Reply (Paper 28, “Reply”), and Patent Owner filed a Sur-Reply (Paper 35). On the requests of both parties, we held an oral hearing, the transcript of which has been entered into the record. Paper 41 (“Tr.”).

We have jurisdiction under 35 U.S.C. § 6. This is a Final Written Decision under 35 U.S.C. § 318(a) as to the patentability of the challenged claim of the ’068 patent. For the reasons discussed below, we determine Petitioner has not established by a preponderance of the evidence that claim 1 of the ’068 patent is unpatentable on any asserted ground.

B. Related Matters

The parties identify *Nanoco Technologies Ltd. v. Samsung Electronics Co., Ltd. et al.*, No. 2:20-cv-00038-JRG (E.D. Tex.) (“the District Court proceeding”), as a matter related to the present proceeding. Pet. 43; Paper 6,

2–3. In addition, Petitioner challenges several patents related to the '068 patent in IPR2021-00183, -00184, -00185, and -00186. *Id.*

C. The Asserted Grounds of Unpatentability

Petitioner contends that claim 1 of the '068 patent is unpatentable based on the following grounds (Pet. 20–38):¹

Claim Challenged	35 U.S.C. §	References/Basis
1	102	Dubrow ²
1	103(a)	Dubrow
1	103(a)	Dubrow, Nelson ³

D. The '068 Patent

The '068 patent, titled “Quantum Dot Films Utilizing Multi-Phase Resins,” issued on June 13, 2017. Ex. 1001, codes (45), (54). The patent “relates to materials comprising light emitting semiconductor quantum dots.” *Id.* at 1:6–7.

According to the '068 patent, light-emitting diodes (LEDs) “that produce white light . . . or that produce light not available using the usual LED semiconductor materials” can be produced by placing “a combination of phosphorescent materials . . . on top of the solid-state LED.” *Id.* at 1:12–31. “[T]he light from the LED (the ‘primary light’) is absorbed by the phosphorescent material and then re-emitted at a different frequency (the ‘secondary light’).” *Id.* at 1:31–33. The absorption of primary light and re-emission of secondary light is referred to as down-conversion of the light.

¹ Petitioner relies on a declaration and a reply declaration by Matthew G. Moffitt, Ph.D. Ex. 1002; Ex. 1027. Patent Owner relies on a declaration by Timothy Swager, Ph.D. Ex. 2033.

² US 2012/0113672 A1, published May 10, 2012 (Ex. 1005).

³ US 10,316,245 B2, issued June 11, 2019 (Ex. 1006).

Id. at 1:33–35. One type of material used for the down-conversion process is a film containing quantum dots (QDs). *Id.* at 1:66–2:2.

“Rudimentary QD-based light-emitting devices have been made by embedding colloiddally produced QDs in an optically clear LED encapsulation medium, typically a silicone or an acrylate, which is then placed on top of a solid-state LED.” *Id.* at 3:36–40. This provides several advantages over other down-conversion materials, including “the ability to tune the emission wavelength, strong absorption properties, improved color rendering, and low scattering.” *Id.* at 3:40–44. When using known LED encapsulants, however, “QDs can agglomerate . . . , thereby reducing the optical performance of the QDs,” and “once the QDs are incorporated into the LED encapsulant, oxygen can migrate through the encapsulant to the surfaces of the QDs, which can lead to photo-oxidation and, as a result, a drop in quantum yield.” *Id.* at 3:51–57.

Because “QDs are generally more compatible with hydrophobic resins, such as acrylates, compared to more hydrophilic resins, such as epoxies,” QD films made from acrylates “tend to have higher initial quantum yields . . . than QD films using hydrophilic resins.” *Id.* at 4:14–20. But “acrylates tend to be permeable to oxygen, while epoxy resin polymers and similar hydrophilic polymers tend to be better at excluding oxygen,” so acrylate films see their quantum yield decrease over time. *Id.* at 4:20–25.

One way to solve this problem is by “insulat[ing] the [hydrophobic] film from oxygen by sandwiching the film between gas barrier sheets.” *Id.* at 4:23–26. This solution does not prevent oxygen from “permeat[ing] into the film at [the] edges,” however, so it still may “result[] in a deterioration of the [quantum yield] of the film.” *Id.* at 4:30–34. This can be avoided by

sealing the edges of the film “with an oxygen barrier,” which increases costs, or by using a hydrophilic polymer “that is less permeable to oxygen,” which has a lower initial quantum yield. *Id.* at 4:35–41.

The '068 patent proposes to resolve this dilemma by using a multi-phase film in which a first phase contains a “resin that is compatible with the QD material” and a second phase contains a “resin that is efficient at rejecting O₂.” *Id.* at 4:42–45. The patent describes a process for making such a film in which (1) “[t]he QDs are dispersed in a solution of the phase 1 resin,” (2) “[t]he QD-phase 1 resin dispersion [is] then . . . mixed with a solution of the phase 2 resin,” (3) “the phase 1-phase 2 mixture forms an emulsion,” (4) “the resin mixture is laminated between gas barrier films,” and (5) the resin mixture is cured. *Id.* at 4:59–5:59, Fig. 4. The resulting film contains “QD-rich domains of QDs dispersed in the QD-compatible polymer, those domains being surrounded by QD-poor domains of the oxygen-excluding polymer.” *Id.* at 2:10–14. “Thus, the QDs are suspended in a medium with which they are highly compatible and are protected from oxygen by the oxygen-excluding domains.” *Id.* at 2:14–16.

E. Illustrative Claim

Claim 1 is the only claim of the '068 patent. It recites:

1. A method of preparing a film, the method comprising:
forming an emulsion comprising a first phase that comprises a first polymer and quantum dots and a second phase that comprises a second polymer;
depositing the emulsion between gas barrier sheets to form a film; and
curing the first and second polymers.

Ex. 1001, 8:54–60.

ANALYSIS

A. Claim Construction

In an *inter partes* review, we construe a claim in an unexpired patent “in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent.” 37 C.F.R. § 42.100(b) (2020). “[T]he ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005) (en banc). “Importantly, the person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification.” *Id.* “[W]e need only construe terms ‘that are in controversy, and only to the extent necessary to resolve the controversy.’” *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

We previously construed the claim term “emulsion” as “a suspension of a first liquid phase in a second liquid phase” and invited the parties to address at trial whether that construction is correct. Inst. Dec. 16. In the parallel proceeding in the Eastern District of Texas, the court construed “emulsion” as “a colloidal dispersion of two or more immiscible liquids.” Ex. 2022, 35. Patent Owner argues that, for the purpose of resolving the unpatentability issues presented in this proceeding, “there is not a meaningful distinction between the Board’s or District Court’s construction of ‘emulsion,’” because “[b]oth constructions require the presence of two

immiscible liquids (e.g., a suspension of a liquid in another liquid).” PO Resp. 14 (emphases omitted). Petitioner agrees that the unpatentability issue should be resolved identically under both our previous construction and that adopted by the District Court. Reply 2 n.2 (“Claim 1 is . . . unpatentable under [either] the district court’s construction [or the Board’s construction].”).

Thus, both parties agree that there is no meaningful distinction between our previous construction and that adopted by the District Court. Accordingly, we maintain our previous construction, and we note further that the two liquid phases in the “suspension of a first liquid phase in a second liquid phase” must be immiscible. *See* Ex. 2022, 31–35.

B. Asserted Anticipation by Dubrow

Petitioner argues that claim 1 was anticipated by Dubrow. Pet. 20–27.

1. Dubrow

Dubrow “relates to quantum dot (QD) phosphor films, QD lighting devices, and related methods.” Ex. 1005 ¶ 3. Specifically, Dubrow describes a “QD film suitably comprising a film or layer of a QD phosphor material disposed between barrier layers on each of the top and bottom sides of the QD phosphor material layer.” *Id.* ¶ 9. These barrier layers “protect the QDs and the QD phosphor material from . . . oxygen and moisture.” *Id.* ¶ 140. The QD phosphor material layer includes a “polymeric matrix surrounding the QDs” that “is a discontinuous, composite matrix comprising at least two materials.” *Id.* ¶ 11. “[S]uitable methods for preparing the QD phosphor material comprise dispersing a plurality of luminescent nanocrystals in the first polymeric material . . . , adding the second material, forming the mixture into a film, and then curing the film.” *Id.* The first

material may include “amino polystyrene,” and the second material may include “an epoxy.” *Id.*

Dubrow describes the mixture of QDs, amino polystyrene, and epoxy in various ways. First, Dubrow refers to this mixture as “an APS-epoxy QD phosphor material,” contrasting it with “a QD phosphor material comprising an AMS-epoxy emulsion” made using epoxy and amino silicone. *Id.* ¶ 125. Second, Dubrow describes the mixture as “domains of APS-coated QDs dispersed throughout the epoxy matrix to form a multi-phase material.” *Id.* Third, Dubrow refers to “APS-coated QDs . . . located in spatial domains throughout the epoxy matrix material,” with “[t]he QD phosphor material [being] formed from this QD-APS-epoxy mixture.” *Id.* ¶ 128. Finally, Dubrow discusses “curing the QD-APS-epoxy emulsion.” *Id.* ¶¶ 187–188.

2. *Analysis*

Petitioner argues that Dubrow discloses the limitations of claim 1, arranged as in the claim. Pet. 20–27. Patent Owner disagrees. PO Resp. 15–29. We agree with Patent Owner that Petitioner has not shown by a preponderance of the evidence that Dubrow discloses all limitations of claim 1 arranged as in the claim.

a. Petitioner relies on multiple portions of Dubrow

As noted above, claim 1 recites “forming an emulsion comprising a first phase that comprises a first polymer and quantum dots and a second phase that comprises a second polymer.” Ex. 1001, 8:55–57. Petitioner argues that Dubrow discloses this limitation of claim 1. Pet. 21–23; Reply 1–14.

Two portions of Dubrow discuss the mixture of QDs, amino polystyrene, and epoxy. First, in paragraphs 125–128, Dubrow discusses a

preferred embodiment of its invention. Ex. 1005 ¶¶ 125–128. In these paragraphs, Dubrow teaches adding “a QD-toluene mixture . . . to a mixture of APS and toluene to provide APS-coated QDs.” *Id.* ¶ 128. Dubrow teaches adding “[a] matrix material,” preferably “an epoxide polymer,” to the mixture of toluene, QDs, and APS, causing the “APS-coated QDs [to be] located in spatial domains throughout the epoxy matrix material.” *Id.* “[T]his QD-APS-epoxy mixture . . . is preferably mixed with additional base epoxy material, which is wet-coated onto a substrate and cured to form the QD film.” *Id.* Second, in paragraphs 187–188, Dubrow describes an “experimental example” of its invention. *Id.* ¶¶ 187–188. In this example, Dubrow teaches forming “a QD film . . . in an inert environment using Loctite™ epoxy E-30CL.” *Id.* ¶ 187. To do so, “QDs embedded in APS particles were mixed into the epoxy to form a transparent two-phase system upon curing the QD-APS-epoxy emulsion into a 250 µm thick layer.” *Id.*

Petitioner relies on both the “preferred embodiment” portion of Dubrow and the “experimental example” portion of Dubrow to support its anticipation argument. Pet. 20–27 (citing, *inter alia*, Ex. 1005 ¶¶ 125, 127–128, 187); Reply 1–15 (citing, *inter alia*, Ex. 1005 ¶¶ 128, 187–188). Moreover, Petitioner relies on both portions of Dubrow to show disclosure of just the emulsion limitation of the challenged claim. Pet. 21–23 (citing, *inter alia*, Ex. 1005 ¶¶ 125, 127–128, 187); Reply 1–14 (citing, *inter alia*, Ex. 1005 ¶¶ 128, 187–188).

b. To show anticipation, Petitioner must show that the separate portions of Dubrow on which it relies refer to the same embodiment

When a prior-art reference discloses every limitation of the challenged claim only through a combination of multiple embodiments, it does not

anticipate the challenged claim. *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1370–71 (Fed. Cir. 2008) (“it is not enough that the prior art reference discloses . . . multiple, distinct teachings that the artisan might somehow combine to achieve the claimed invention”). Accordingly, to prevail on its anticipation argument, Petitioner must show that both the “preferred embodiment” disclosure of Dubrow and the “experimental example” portion of Dubrow describe the same embodiment.

c. Petitioner has not shown by a preponderance of the evidence that the separate portions of Dubrow on which it relies refer to the same embodiment

We are not persuaded that Petitioner has shown that the two portions of Dubrow discussing the combination of QDs, amino polystyrene, and epoxy both discuss the same embodiment.

First, Petitioner does not expressly allege that the two relevant portions of Dubrow are the same embodiment. Pet. 20–27; Reply 1–14. Petitioner does address the issue of whether certain portions of Dubrow constitute separate embodiments, *see* Pet. 27–28 (citing Pet. 23–27; Ex. 1005 ¶ 11), but it does not address the question of whether paragraphs 125–128 and paragraphs 187–188 describe the same or separate embodiments.⁴ Because “the petitioner’s contentions . . . define the scope of the litigation all the way from institution through to conclusion,” we may not

⁴ At the hearing, Petitioner argued that paragraphs 128, 187, and 188 of Dubrow all relate to the same embodiment. Tr. 11:16–13:23. This argument does not, however, appear in either the Petition or the Reply. Although there are situations in which a party may raise a new argument at the hearing, *Chamberlain Group, Inc. v. One World Techs., Inc.*, 944 F.3d 919, 924–25 (Fed. Cir. 2019), none of those situations is present here.

consider an argument that Petitioner does not make. *SAS Institute, Inc. v. Iancu*, 138 S. Ct. 1348, 1357 (2018).

Second, the language of Dubrow suggests that there may be more than one embodiment of Dubrow's QD-APS-epoxy mixture. Paragraphs 125–128 repeatedly use “preferred embodiment” or similar phrases. Ex. 1005 ¶¶ 125 (“In preferred embodiments”), 127 (“In a preferred method of forming the QD phosphor material”), 128 (“In a preferred embodiment”). The use of these terms suggests that paragraphs 125–128 are discussing one way of practicing an invention that it may be possible to practice in other ways as well. Meanwhile, paragraphs 187–188 discuss “one experimental example [of] a QD film,” which suggests that those paragraphs may describe merely one of several possible ways to make a film within the scope of the invention. *Id.* ¶¶ 187–188. This language is evidence that not every mention in Dubrow of a mixture of QDs, amino polystyrene, and epoxy refers to a single embodiment.

In addition, other aspects of the language used in the relevant portions of Dubrow suggest that the embodiment in paragraphs 125–128 and the embodiment described in paragraphs 187–188 may not be the same. In paragraphs 125–128, Dubrow describes the QDs as being coated with amino polystyrene. *Id.* ¶¶ 125 (“the QD phosphor material comprises domains of APS-coated QDs”), 127 (“the QD-solvent mixture is added to a mixture of the ligand material to coat the QDs”), 128 (“a QD-toluene mixture is added to a mixture of APS and toluene to provide APS-coated QDs”). In contrast, paragraphs 187 and 188 of Dubrow describe the QDs as being “embedded in APS particles.” *Id.* ¶¶ 187–188. Similarly, although paragraphs 125–128 use the word “emulsion” to describe some mixtures, they do not use that

term to describe the QD-APS-epoxy mixture. *Id.* ¶ 125 (“AMS-epoxy emulsion” but “APS-epoxy QD phosphor material”). Paragraphs 187–188, by contrast, do describe the QD-APS-epoxy mixture in this way. *Id.* ¶¶ 187–188 (“QD-APS-epoxy emulsion”). These differences between the two portions of Dubrow are further evidence that those portions disclose separate embodiments of Dubrow’s QD-APS-epoxy film.

For these reasons, we are not persuaded that the preponderance of the evidence shows that paragraphs 125–128 and paragraphs 187–188 of Dubrow all refer to the same embodiment.

3. *Conclusion*

As discussed above, Petitioner argues that Dubrow anticipates claim 1 of the ’068 patent. Proving anticipation by Dubrow requires showing that Dubrow discloses all limitations of the challenged claim in a single embodiment, arranged as in the challenged claim. Petitioner relies on two separate portions of Dubrow to disclose the recited limitations, and those portions of Dubrow appear to be addressed to more than a single embodiment. Petitioner does not even allege in its briefing, much less show by a preponderance of the evidence, the contrary position. Accordingly, Petitioner has not shown by a preponderance of the evidence that Dubrow anticipates claim 1 of the ’068 patent.

C. Asserted Obviousness over Dubrow

Petitioner argues that claim 1 of the ’068 patent would have been obvious over the teachings of Dubrow. Pet. 27–29. Patent Owner disagrees. PO Resp. 30.

In large part, Petitioner presents the same arguments in favor of obviousness over Dubrow that it presents for anticipation by Dubrow. *Id.*

(citing Pet. 20–27). Petitioner’s obviousness arguments differ from its anticipation arguments in only one way: in arguing for obviousness over Dubrow, Petitioner provides an explanation of how Dubrow teaches or suggests carrying out the deposition step of claim 1 entirely before carrying out the curing step. Pet. 27–28. In contrast, Petitioner’s anticipation argument mostly relies on Dubrow’s disclosure of a method in which the QD-APS-epoxy mixture is deposited on one barrier film, partially cured, then has another barrier film placed on top before curing is completed. *Id.* at 23 (citing Ex. 1005 ¶ 128).

As discussed above, Petitioner has not shown that its anticipation argument relies on a single embodiment of Dubrow. Unlike an anticipation argument, an obviousness argument need not rely on a single embodiment within a prior-art reference. However, regardless of whether an obviousness argument “is based on combining disclosures from multiple references, combining multiple embodiments from a single reference, or selecting from large lists of elements in a single reference, there must be a motivation to make the combination and a reasonable expectation that such a combination would be successful, otherwise a skilled artisan would not arrive at the claimed combination.” *In re Stepan*, 868 F.3d 1342, 1346 n.1 (Fed. Cir. 2017).

To the extent that Petitioner intends to argue that it relies on multiple embodiments of Dubrow to teach or suggest the limitation “forming an emulsion comprising a first phase that comprises a first polymer and quantum dots and a second phase that comprises a second polymer,” Petitioner does not provide a reason to combine the teachings of those embodiments. *See* Pet. 27–29. Instead, Petitioner relies solely on its

anticipation argument as support for Dubrow teaching this limitation. *Id.* at 27 (citing Pet. 21–23). To the extent that Petitioner intends to argue that the multiple portions of Dubrow on which Petitioner relies all relate to a single embodiment, Petitioner does not prove this by a preponderance of the evidence, for the reasons discussed above with respect to the anticipation argument. Thus, Petitioner has not shown either (1) that Dubrow’s teachings regarding the “forming an emulsion” limitation all relate to a single embodiment or (2) that those teachings relate to multiple embodiments that a person of ordinary skill in the art would have had a reason to combine.

Accordingly, Petitioner has not shown by a preponderance of the evidence that claim 1 of the ’068 patent would have been obvious over the teachings of Dubrow.

D. Asserted Obviousness over Dubrow and Nelson

Petitioner argues that the combination of Dubrow and Nelson teaches or suggests the subject matter of claim 1 and that a person of ordinary skill in the art would have had a reason to combine the teachings of these references. Pet. 29–38. Patent Owner argues that a person of ordinary skill in the art would not have had reason to combine the teachings of Nelson and Dubrow, as well as that neither reference teaches the “emulsion” recited in claim 1. Prelim. Resp. 29–37.

1. Nelson

Nelson “relates to quantum dot films and methods of forming quantum dot films having reduced defects.” Ex. 1006, 1:5–6. In particular, Nelson discloses “[a] quantum dot film article” with “a first barrier film, a second barrier film, and a quantum dot layer separating the first barrier from the second barrier film.” *Id.* at code (57). Nelson also teaches a “method of

forming quantum dot films having reduced defects” using “[a]n interpenetrating polymer network . . . formed by the addition of a radiation curable methacrylate to an epoxy amine laminating adhesive forming a matrix for quantum dots.” *Id.* at 1:30–34. Nelson’s QD layer comprises “quantum dots, photoinitiator, 5 to 25% wt methacrylate polymer precursors and 70 to 90 wt % epoxy polymer precursors.” *Id.* at 1:57–63. Nelson teaches depositing its QD-containing material on a “first barrier layer,” then placing a “second barrier layer on [the] QD material.” *Id.* at 4:9–12, 4:38–40, 7:29–32, Fig. 2. In addition, Nelson discloses curing the methacrylate using ultraviolet radiation before curing the epoxy using heat. *Id.* at 4:24–30, 7:15–21, 7:32–33, Fig. 2.

2. *Analysis*

Petitioner argues that claim 1 of the ’068 patent would have been obvious over the combination of Nelson and Dubrow. Pet. 29–38. Patent Owner disagrees. PO Resp. 31–42.

Claim 1 of the ’068 patent recites “forming an emulsion comprising a first phase that comprises a first polymer and quantum dots and a second phase that comprises a second polymer.” Ex. 1001, 8:55–57. In arguing that the prior art teaches or suggests this limitation, Petitioner relies on Dubrow’s disclosure. Pet. 21–23, 30, 34–35 (citing Ex. 1005 ¶¶ 107, 120, 122, 125, 127–128, 187, 211); *see also* Reply 23 (“Nelson’s interpenetrating network is replaced with Dubrow’s emulsion”). But, as discussed above, Petitioner shows neither (1) that the portions of Dubrow on which it relies relate to a single embodiment nor (2) that those portions of Dubrow relate to multiple separate embodiments that a person of ordinary skill in the art would have

had a reason to combine. In the absence of proof of either, Petitioner cannot show that claim 1 would have been obvious. *Stepan*, 868 F.3d at 1346 n.1.

3. *Conclusion*

Petitioner has not shown by a preponderance of the evidence that claim 1 of the '068 patent would have been obvious over the combination of Dubrow and Nelson.

CONCLUSION

For the reasons discussed above, Petitioner has not shown by a preponderance of the evidence that claim 1 of the '068 patent is unpatentable on any asserted ground.

Claims	35 U.S.C. §	Reference(s)/Basis	Claims Shown Unpatentable	Claims Not shown Unpatentable
1	102	Dubrow		1
1	103(a)	Dubrow		1
1	103(a)	Dubrow, Nelson		1
Overall Outcome				1

ORDER

It is hereby

ORDERED that, based on the preponderance of the evidence, claim 1 of the '068 patent has not been shown to be unpatentable; and

FURTHER ORDERED that, because this is a Final Written Decision, parties to this proceeding seeking judicial review of this Decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

IPR2021-00182
Patent 9,680,068 B2

For PETITIONER:

F. Christopher Mizzo
Gregory Arovas
Stefan Miller
Todd Baker
KIRKLAND & ELLIS LLP
chris.mizzo@kirkland.com
greg.arovas@kirkland.com
stefan.miller@kirkland.com
todd.baker@kirkland.com

For PATENT OWNER:

William Meunier
Peter Cuomo
MINTZ, LEVIN, COHN, FERRIS, GLOVSKY AND POPEO, P.C.
WAMeunier@mintz.com
PJCuomo@mintz.com