

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

MOTOROLA MOBILITY LLC,
Petitioner,

v.

LARGAN PRECISION CO., LTD.,
Patent Owner.

IPR2024-00688
Patent 9,997,660 B2

PETITIONER'S REQUEST FOR DIRECTOR REVIEW

TABLE OF CONTENTS

	Page
I. LEGAL STANDARD	1
II. BACKGROUND	2
A. The Petition (Paper 2)	3
B. The Patent Owner Preliminary Response (“POPR,” Paper 6).....	6
C. The Institution Decision (Paper 7)	7
III. ARGUMENT.....	9
A. The Board Abused Its Discretion By Improperly Dismissing The Evidence Of Contemporaneous Independent Development.....	9
B. The Board Used An Inflexible Approach And Imposed An Unreasonably High Burden For Determining Obviousness	12
C. The Board Abused Its Discretion By Overlooking And Misapprehending Evidence Contrary To Its Findings	15
IV. CONCLUSION.....	15

TABLE OF AUTHORITIES

Page(s)

Cases

<i>Geo M. Martin Co. v. Alliance Mach. Sys. Int’l LLC</i> , 618 F.3d 1294 (Fed. Cir. 2010)	11
<i>In re Fox</i> , 471 F.2d 1405 (C.C.P.A. 1973)	3
<i>In re Huai-Hung Kao</i> , 639 F.3d 1057 (Fed. Cir. 2011)	11
<i>Intelligent Bio-Sys., Inc. v. Illumina Cambridge Ltd.</i> , 821 F.3d 1359 (Fed. Cir. 2016)	1
<i>Koninklijke Philips v. Google LLC</i> , 948 F.3d 1330 (Fed. Cir. 2020)	7
<i>KSR Int’l Co. v. Teleflex Inc.</i> , 550 U.S. 398 (2007)	12
<i>Pfizer, Inc. v. Apotex, Inc.</i> , 480 F.3d 1348 (Fed. Cir. 2007)	14
<i>Randall Mfg. v. Rea</i> , 733 F.3d 1355 (Fed. Cir. 2013)	12, 14
<i>Regents of the Univ. of Cal. v. Broad Inst., Inc.</i> , 903 F.3d 1286 (Fed. Cir. 2018)	10

Director Decisions

<i>Prime Time Toys LLC v. Spin Master Inc.</i> , IPR2023-01339, IPR2023-01348, 2023-01461, Paper 12 (Vidal July 9, 2024)	10, 14
--	--------

Other Authorities

USPTO, Director Review Process, § 2.B, https://www.uspto.gov/patents/ptab/decisions/director-review-process (last updated Oct. 31, 2024)	1
---	---

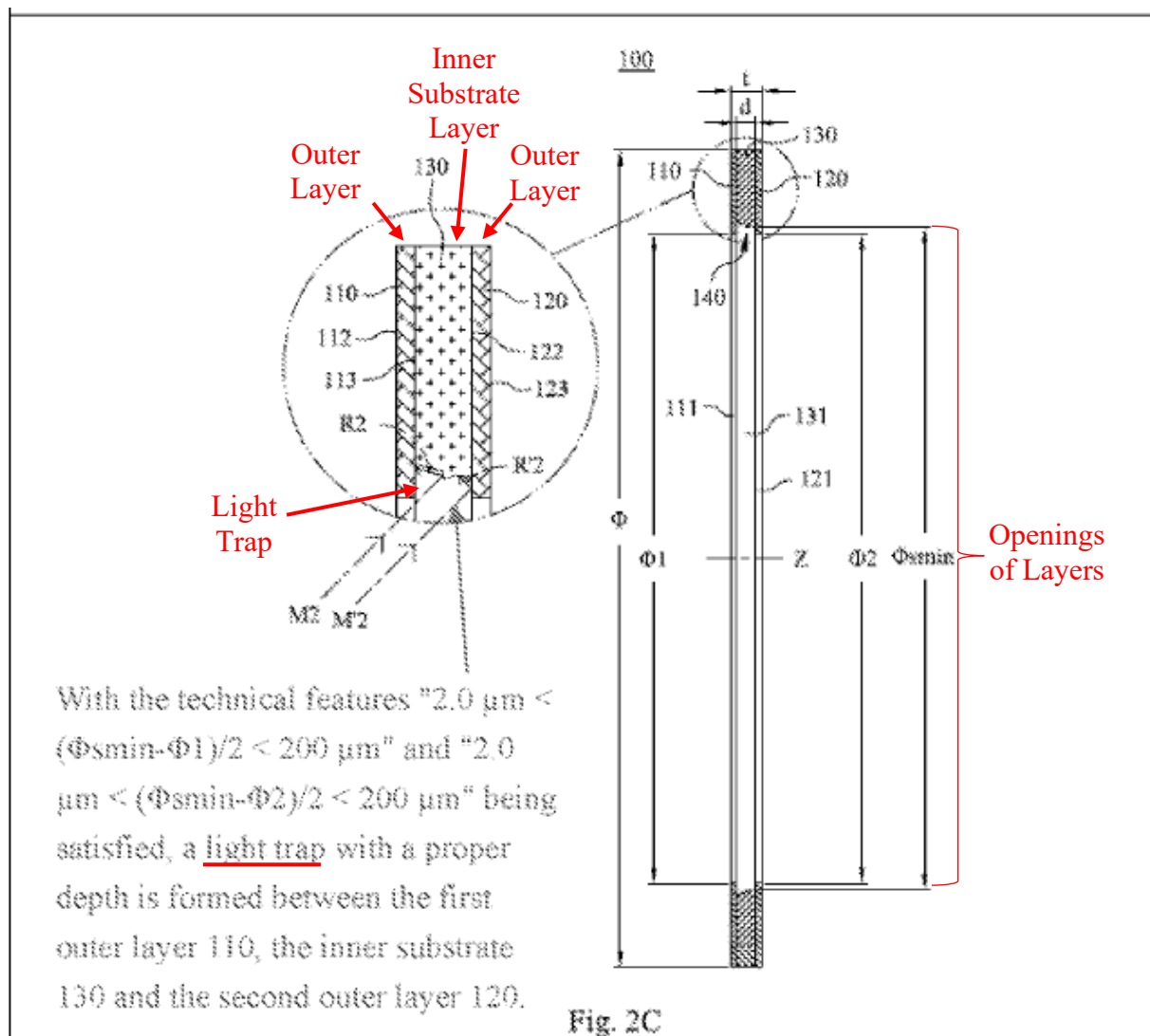
The Board denied institution of *inter partes* review of claims 1–22 of U.S. Patent No. 9,997,660 (EX1001, “’660 patent”). Paper 7 (“DI”). In doing so, the Board abused its discretion by (1) disregarding objective evidence of obviousness, namely simultaneous invention, because it was “not prior art”; (2) erroneously adopting an inflexible approach and an improperly high burden for determining obviousness that effectively required certainty of success; and (3) misapprehending evidence contrary to its findings. Petitioner respectfully requests Director Review for the reasons set forth herein.

I. LEGAL STANDARD

Requests for Director Review “shall be limited to decisions presenting (a) an abuse of discretion or (b) important issues of law or policy.” USPTO, Director Review Process, § 2.B, <https://www.uspto.gov/patents/ptab/decisions/director-review-process> (last updated Oct. 31, 2024). “An abuse of discretion is found if [a] decision: (1) is clearly unreasonable, arbitrary, or fanciful; (2) is based on an erroneous conclusion of law; (3) rests on clearly erroneous fact finding; or (4) involves a record that contains no evidence on which the Board could rationally base its decision.” *Intelligent Bio-Sys., Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1367 (Fed. Cir. 2016) (internal citation omitted).

II. BACKGROUND

As illustrated by claim 1 and shown in Figure 2C below, the '660 patent relates to a light-blocking sheet with two outer layers sandwiching an inner substrate, and coaxial openings in the three layers. The '660 patent admits that this three-layer structure was “conventional.” EX1001, 1:33–41, FIG. 1; Pet., 28. The supposed invention was to structure the openings such that the layers form a “light trap,” as applicants explained during prosecution, with reference to Fig. 2C:



EX1002, 207/237 (annotating EX1001, Fig. 2C) (red annotations added). Applicants associated the light trap with the claimed conditions “ $2.0\text{ }\mu\text{m} < (\Phi_{\text{smin}} - \Phi_1)/2 < 200\text{ }\mu\text{m}$ ” and “ $2.0\text{ }\mu\text{m} < (\Phi_{\text{smin}} - \Phi_2)/2 < 200\text{ }\mu\text{m}$.” EX1002, 207/237.

The Petition (Paper 2) noted that “[t]he ’660 patent does not describe how to create this light trap” (Pet., 31) and how “the ’660 patent’s own lack of description on the process used to create its preferred embodiments” reflects that skilled artisans would have known how to create light traps in conventional light-blocking sheets. Pet., 58 (citing *In re Fox*, 471 F.2d 1405, 1407 (C.C.P.A. 1973)).

A. The Petition (Paper 2)

The Petition explained that the challenged claims were directed to a *conventional light-blocking sheet* having a *conventional light trap*. Pet., 1, 28–31. Prior art reference CN182 (EX1004) disclosed such a conventional light-blocking sheet. *Id.*, 38–39. And light traps were a staple optical design technique, “used for decades to minimize stray light reflections and reduce glare.” *Id.*, 1, 14–18, 23–27. Ground 1 explained that the claim 1 light-blocking sheet was obvious over CN182 and the knowledge of a person of ordinary skill in the art (“POSITA”). *Id.*, 38–70.

A POSITA, defined as experienced in “optical system design, including stray light suppression” (Pet., 35–36), possessed “specific knowledge and skill” including well-known techniques for reducing stray light (Pet., 14–23) and rules-of-thumb for designing light traps (Pet., 24–27), to address the long-known problem of stray light

in optical lens systems (Pet., 4–14). This knowledge and skill included “[t]he use of a light trap at the edge of a light-blocking element ... for eliminating edge reflections,” as taught, e.g., by Arnoux (EX1014). Pet., 18, 23–24; EX1014, 5.

The Petition explained that CN182 disclosed the same three-layer structure as the claims (Pet., 42) and “[t]he only difference ... is that CN182 does not expressly disclose a light trap that satisfies the conditions recited in Element 1.6, e.g., a substrate layer recessed 2-200 μ m with respect to the outer layers.” Pet., 40. Further, given “CN182’s express goal of avoiding stray light reflections off the inner surface of the through-hole,” a POSITA would have been motivated to implement CN182 with a “conventional ‘light trap’ on the inner surface of CN182’s shading ring.” Pet., 44; *id.*, 45–49. Addition of a properly-sized light trap to CN182 would have been obvious “[g]iven a POSITA’s knowledge on light traps” (Pet., 40), such as the inclusion of “a light trap at the edge of a light-blocking element ... for eliminating edge reflections” (Pet., 23–24) and “how to calculate the requisite depth of a given light trap” to achieve the desired stray-light suppression (Pet., 24–27).

The Petition showed why a POSITA would have implemented CN182 with a light trap of the claimed dimensions. Pet., 49–56. POSITAs knew the rules for configuring light traps, as taught by prior art Fischer, including the “three-bounce rule” and making the trap depth half the trap width, to sufficiently trap incident stray light. Pet., 24–27, 49, 55; EX1008, 717–720, 722–725. Armed with these

fundamentals, a POSITA would have easily calculated that, for the total width of 25 μ m taught by CN182, a conventional thicknesses of each layer in CN182 would be 4 to 6 μ m for the outer layers and 13 to 17 μ m for the inner layer, with a motivation “to select a larger thickness in this range, such as 6 μ m [for the outer layers] to minimize edge reflections and maintain structural stability.” Pet., 51–52; EX1003, ¶116. For these thicknesses, the rules-of-thumb for designing a light trap yield depths of 7.5 to 9.8 μ m (using the three-bounce rule) or 6.5 to 8.5 μ m (using the depth-is-half-the-width rule). Pet., 54–55; EX1003, ¶¶120–122. Each of these depths satisfy the claimed dimensions, because the claimed dimensions simply correspond to a light trap depth between 2 and 200 μ m. *See* Pet., 36–37, 58–59.

The Petition also explained that a POSITA would have recognized that the CN182 etching process provides a technique for creating the desired light trap, because it etches the inner layer while not etching the outer layers. EX1004, [0038]; Pet., 47–48. A POSITA had a reasonable expectation of success because of the etch selectivity between the inner substrate and the outer layers taught by CN182. EX1004, [0006], [0028], [0038]; Pet., 56. This was confirmed by testimony from Patent Owner’s expert in another matter, that the etching process was known and that “if product details are known or understood, an average skilled or skilled person can work backwards to formulate process parameters to achieve that product.” EX1028, ¶42; Pet., 57–58. Thus, CN182 itself provides a suggestion of *how* to

implement a light trap in its light-blocking sheet. Pet., 56 (“CN182 already teaches creating a small recess in the PET layer”).

The Petition cited objective evidence of obviousness, CN249 (EX1015), which expressly described improving the CN182 shading ring by using a wet-etching process to create a light trap just like that of the challenged claims. Pet., 60–61; EX1015, [0004–05]. CN249 noted that, in the CN182 design, “there is still an obvious phenomenon of stray light” that would be addressed by using a wet-etching process to create a depression (i.e., a light trap) in the inner substrate of the three-layer structure having a depth that satisfies the three-bounce rule. EX1015, [0004–05], [0030–38]. This design satisfies the challenged claims of the ’660 patent. Pet., 61–62. Though not strictly prior art, CN249 was filed less than four months after the filing of the ’660 patent’s earliest Taiwanese priority application, and well before the publication of any application or patent related to the ’660 patent. Pet., 60.

B. The Patent Owner Preliminary Response (“POPR,” Paper 6)

The POPR agreed that the challenged claims cover a three-layer light-blocking sheet with a light trap “to reduce the unwanted stray light.” POPR, 1. The POPR did not dispute the Petition’s “level of skill in the art in November 2016,” or the POSITA’s skills and knowledge regarding stray light suppression (POPR, 12–13), or that a POSITA would have been motivated to implement the CN182 shading ring with a light trap of the claimed dimensions (*see* POPR, 2–12).

Instead, the POPR focused on “chemistry and materials science,” arguing without supporting testimony or other evidence that there was inadequate evidence that a POSITA would have used the CN182 etching process to create a light trap. *See* POPR, 12–25. The POPR also argued that there was “no evidence” that CN182’s outer layers would “behave without a substrate to support it.” POPR, 2. The POPR did not address or dispute that CN249 describes modifying CN182 to form a light trap that satisfies the challenged claims of the ’660 patent.

C. The Institution Decision (Paper 7)

The Board denied institution of *inter partes* review without making any clear findings as to the motivations of a POSITA. Instead, the Board largely adopted the POPR arguments regarding the etching process. *See* DI, 28–34.

The Board determined that “Petitioner does not have a likelihood of success of showing” that the etching process is “unusually simple” or that “the technology [is] particularly straightforward.” DI, 29 (quoting *Koninklijke Philips v. Google LLC*, 948 F.3d 1330, 1337–38 (internal quotations omitted)). The cited *Koninklijke Philips* opinion focuses on whether “the *missing limitation* in question [is] unusually simple and the technology particularly straightforward.” 948 F.3d 1330, 1337–38 (internal quotations omitted) (emphasis added). But in citing that opinion, the Board mistakenly focused on an *etching process*, which is nowhere disclosed or claimed in the ’660 patent and is not a missing limitation. DI, 29. The missing limitation is

actually the claimed *light trap* of element 1.6 (DI, 11), which undisputedly involved only “basic optical principles and simple trigonometric math” (Pet., 55).

In analyzing CN182’s outer “carbon powder layer,” the Decision focused on the word “powder,” and *sua sponte* adopted a “plain and ordinary meaning” of “fine particles of a solid substance, which would lack the physical structure necessary to be self-supporting.” DI, 30. The Decision cited no support for this meaning, nor did it consider the ’660 patent’s own admission that “conventional” light-blocking sheets had three layers, with “two outer layers made of a carbon-containing material,” that were “widely used to enhance the material strength.” EX1001, 1:33-38. Instead, it compared “carbon powder” to the ’660 patent’s disclosure regarding “carbon fibers” (not recited in any claim), and concluded that “a POSITA would not have looked to a carbon powder layer to form the walls or baffles of a light trap.” DI, 30. The Decision did not address that CN249 described extending the CN182 design to include a light trap, thus meeting the challenged claims.

The Decision faulted the Petition for not fully detailing the etching process (*see* DI, 29–30), yet did not itself address the ’660 patent’s own silence on etching or explain its own finding that Patent Owner’s expert elsewhere testified “that the process for chemical etching was known” and that “an average skilled person” could “work backwards ... to achieve the product.” DI, 31–32. The Decision did not analyze the Petition’s articulated reasoning and evidentiary support for why a

POSITA would have been motivated to implement the CN182 shading ring with a light trap. Instead, it abruptly concluded that the Petition “conjures product details,” waving away pages 49-56 of the Petition with a mere “*See, e.g.*” cite. DI, 32.

III. ARGUMENT

A. The Board Abused Its Discretion By Improperly Dismissing The Evidence Of Simultaneous Invention

The Board abused its discretion by improperly dismissing the evidence of simultaneous invention¹ as “not prior art to the ’660 patent.” DI, 33. CN249 expressly describes improving the CN182 design to add a light trap, resulting in a design that satisfies the challenged claims. EX1015, [0004–06], [0038]. In more concise terms, CN249 thus describes the same improvement that the Petition rigorously explained would have been obvious to a POSITA. Properly considered, CN249 confirms that a POSITA at the time would have recognized a problem with the CN182 shading ring (“obvious phenomenon of stray light”), as expressly discussed by CN249. EX1015, [0004–05]. CN249 further confirms that a POSITA would have been motivated, with a reasonable expectation of success, to solve this problem by adapting the CN182 etching process “to form a depression” (i.e., a light trap) in the middle PET substrate of the same three-layer structure, with a depth that

¹ The Petition uses the term “contemporaneous independent development” to refer to “simultaneous invention” and in discussing relevant precedent. *E.g.*, Pet., 60–62.

satisfies the three-bounce rule and the claimed dimensions of the '660 patent. EX1015, [0010], [0019], [0032], [0036]; *id.*, [0002], [0006], [0017], [0021], [0024], [0038]; Pet., 60–62; *see Regents of the Univ. of Cal. v. Broad Inst., Inc.*, 903 F.3d 1286, 1295–96 (Fed. Cir. 2018).

This evidence of simultaneous invention is directly contrary to the Decision's finding that the Petition "us[ed] the '660 patent, not the prior art, to modify how a POSITA would have viewed CN182's teachings" (DI, 34), because CN249 shows that only ordinary skill was required to adapt the CN182 etching process to implement the CN182 shading ring with a light trap and thus "suppress stray light in an optical lens from diffusing or reflecting to an imaging surface." EX1015, [0041]. CN249 shows what little was needed, as "CN249 teaches using the same approach of CN182" (Pet., 61) with the same level of detail. *Compare* EX1015, [0034], *with* EX1004, [0028]; *compare* EX1015, [0033]–[0037] (describing "specific steps of forming the depression 6 by etching the substrate ... with an etching solution"), *with* EX1004, [0030]–[0035] (describing "the steps of forming the matte structure on the hole-wall of the through-hole by etching with the alkali solution").

The Board erred legally in dismissing this evidence of simultaneous invention, which must be considered when deciding obviousness. *See Prime Time Toys LLC v. Spin Master Inc.*, IPR2023-01339, IPR2023-01348, 2023-01461, Paper 12, 14–17 (Vidal July 9, 2024); *Updated Guidance for Making a Proper Determination of*

Obviousness, 89 Fed. Reg. 14,449, 14,452 (Feb. 27, 2024) (“Updated Guidance”); *In re Huai-Hung Kao*, 639 F.3d 1057, 1067 (Fed. Cir. 2011).

CN249’s filing date and the ’660 patent’s filing date were “within a comparatively short space of time”—mere months. *Geo M. Martin Co. v. Alliance Mach. Sys. Int’l LLC*, 618 F.3d 1294, 1305 (Fed. Cir. 2010) (internal citation omitted); *id.* at 1306 (separate invention “a year later than the earliest possible reduction-to-practice date of the claimed invention, qualified as a simultaneous invention”); *compare* EX1015, 1, *with* EX1001, 1. Contrary to the Board’s findings regarding the adaptation of the etching process (e.g., DI, 29–30), CN249 definitively confirms that the proposed improvement to the CN182 shading ring—adding a light trap—was the product of ordinary skill. *Geo M. Martin*, 618 F.3d at 1305.

The Board’s improper disregard of CN249 was prejudicial and legally erroneous given the Board’s conclusion that it was not likely obvious to improve the CN182 shading ring with a light trap created by an adapted etching process. The Board’s invocation of Section 311(b) in dismissing CN249 (DI, 33) further shows the Decision (i) mistakenly understood CN249 to be relied on as prior art, (ii) misunderstood the law on evidence of simultaneous invention, or both.

Further, rather than confront and analyze the express teachings of CN249 discussed in the Petition, the Board faulted the Petition for not showing that CN249’s outer layers were equivalent to CN182’s outer layers. DI, 33. But even Patent Owner

equated the outer layers of CN249 and CN182 (POPR, 10), and the Petition noted how CN249 expressly referred to the shading ring of CN182 and proposed reducing stray light by further etching the PET layer to create a “depression” (Pet., 60–62; *see* EX1015, [0004–05]). The Board’s refusal to recognize the plain equivalence of the “anti-static and highly shading coating” / “black coating [comprising] a carbon material” of CN249 (EX1015, [0002], [0023]) and the “antistatic coating formed by the carbon powder layer” of CN182 (EX1004, [0028]) stems from the Board’s improperly narrow and rigid obviousness analysis, discussed further below.

B. The Board Used An Inflexible Approach And Imposed An Unreasonably High Burden For Determining Obviousness

The Board abused its discretion by adopting a rigid approach to obviousness that neglected the perspective of a POSITA and required a showing of absolute success, contrary to the “flexible approach” to obviousness mandated by the Supreme Court and reiterated in Federal Circuit precedent and USPTO guidelines. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 401 (2007); *Randall Mfg. v. Rea*, 733 F.3d 1355, 1362 (Fed. Cir. 2013); *Updated Guidance*, 89 Fed. Reg. at 14,450–51.

The Decision narrowly focused on the term “powder” in CN182’s “carbon powder layer” as a basis for questioning the “structural integrity” of the outer layers in CN182 and the conclusion that “a POSITA would not have looked to a carbon powder layer to form the walls or baffles of a light trap.” DI, 30–31. The Decision’s analysis failed to properly account for the evidence demonstrating the knowledge

and perspective of a POSITA regarding conventional light-blocking sheets.

Instead, the Decision improperly cabined the extensive evidence regarding conventional layers of conventional light-blocking sheets as “extrinsic evidence,” and faulted the Petition for not showing that a POSITA would have understood the “materials as the same or comparable to CN182’s carbon powder layer, or [as] suitable substitutes for it.” DI, 31. But the Petition identified the CN182 shading ring as a conventional light-blocking sheet, and CN182’s antistatic coatings comprising carbon powder layers as conventional carbon-containing layers. Pet., 38–39, 41–42, 50–52. “Following conventional light-blocking sheet design,” “[a] POSITA would have known that these thicknesses [of each layer] balanced *structural stability* of the carbon layers with minimal edge reflections off the inner surfaces of those layers.” Pet., 50 (citing EX1007, 125:20–21; EX1018, 1:37–40; EX1003, ¶114) (emphasis added). The Petition cited the so-called “extrinsic evidence” as showing a POSITA’s understanding about the outer layers of CN182. Pet., 51 (citing EX1006, [0020]; EX1031, 3:18–25; EX1033, [0014], [0075]; EX1034, 3:55–4:31). This evidence showed that a POSITA understood that carbon-containing outer layers—regardless of whether the carbon therein is referred to as “carbon powder,” “carbon black,” “black fine particles,” or “carbon leather”—needed sufficient thickness to ensure “mechanical strength” and “shape stability.” EX1018, 1:37–40 (cited by Pet., 50).

The Board could only arrive at its conclusion by refusing to properly

appreciate this evidence and reasoning from the perspective of a POSITA, or to fully recognize the scope of the prior art. The Board’s “failure to consider the knowledge of one of skill in the art appropriately,” as seen here, is “plainly prejudicial.” *Randall Mfg. v. Rea*, 733 F.3d 1355, 1363 (Fed. Cir. 2013).

Further, the Board faulted the Petition for not explaining “what the reaction’s effect would be on the outer carbon powder layers as the substrate underneath them is consumed” (DI, 30), and similarly, for not providing a detailed description of the exact etching process (DI, 29–30). In doing so, the Board improperly required a showing of absolute success, as opposed to a reasonable expectation of success. *See Prime Time Toys LLC v. Spin Master Inc.*, IPR2023-01339, IPR2023-01348, 2023-01461, Paper 12, 13 (Vidal July 9, 2024) (citation omitted); *Pfizer, Inc. v. Apotex, Inc.*, 480 F.3d 1348, 1364 (Fed. Cir. 2007). The Petition explained how CN182’s description of the different etch rates of the outer carbon layers compared to the PET layer would provide a POSITA with a reasonable expectation of success. Pet., 56; *see also* EX1004, [0028], [0038]. This disclosure demonstrates a reasonable expectation of success, especially when considered along with the additional evidence misapprehended by the Board: the expert testimony on behalf of Patent Owner in related litigation on how skilled artisans at the alleged priority date could formulate process parameters to achieve desired product specifications (EX1028, ¶42); the ’660 patent’s lack of description on any process, reflecting the level of skill

of a POSITA (Pet., 31, 58); and the evidence of simultaneous invention (EX1015).

**C. The Board Abused Its Discretion By Overlooking
And Misapprehending Evidence Contrary To Its Findings**

The Board arbitrarily disregarded or misapprehended evidence showing that a POSITA was motivated with a reasonable expectation of success, to implement the CN182 shading ring with a light trap of a depth sufficient for reducing stray-light reflections, thus rendering the claimed light-blocking sheet obvious, including: evidence of basic optical principles for reducing stray light with light traps of a given depth (EX1008, 717–728; EX1010, 7.10–7.17) and optics-grounded expert testimony and corresponding evidence that a POSITA was motivated to implement the CN182 shading ring with a light trap (EX1003, ¶¶42–72, 106–122, 127–129).

IV. CONCLUSION

For the reasons set forth herein, individually and cumulatively, Petitioner respectfully requests Director Review of the Board’s Decision, and institution of *inter partes* review of the ’660 patent.

Respectfully submitted,

Dated: November 27, 2024

By: /Andrew M. Mason/

Andrew M. Mason (Reg. No. 64,034)

andrew.mason@klarquist.com

Frank Morton-Park (Reg. No. 80,750)

frank.morton-park@klarquist.com

KLARQUIST SPARKMAN, LLP

Tel: 503-595-5300

Fax: 503-595-5301

Counsel for Petitioner

**CERTIFICATE OF SERVICE
IN COMPLIANCE WITH 37 C.F.R. § 42.6(e)(4)**

The undersigned certifies that on November 27, 2024, a complete copy of the **PETITIONER'S REQUEST FOR DIRECTOR REVIEW** was served on counsel for the Patent Owner via electronic mail as follows:

R. Parris Freeman
Eric L. Maschoff
Paul G. Johnson
Maschoff Brennan PLLC
1389 Center Drive, Suite 300
Park City, UT 84098
pfreeman@mabr.com
emaschoff@mabr.com
pjohnson@mabr.com

By: /Andrew M. Mason/
Andrew M. Mason (Reg. No. 64,034)
andrew.mason@klarquist.com
KLARQUIST SPARKMAN, LLP
One World Trade Center, Suite 1600
121 S.W. Salmon Street
Portland, Oregon 97204
Tel: 503-595-5300
Fax: 503-595-5301

Counsel for Petitioner