

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

EVERSTAR MERCHANDISE CO., LTD.,
Petitioner,

v.

WILLIS ELECTRIC CO., LTD.,
Patent Owner.

PGR2019-00056
Patent 10,222,037 B2

Before DEBRA K. STEPHENS, GEORGIANNA W. BRADEN, and
STACEY G. WHITE, *Administrative Patent Judges*.

WHITE, *Administrative Patent Judge*.

JUDGMENT

Final Written Decision on Remand
Determining Some Challenged Claims Unpatentable
35 U.S.C. § 328(a)

Denying-in-part and Dismissing-in-part
Patent Owner's Motion to Exclude
37 C.F.R. § 42.64(c)

I. INTRODUCTION

We address this case after a decision by the United States Court of Appeals for the Federal Circuit in *Everstar Merchandise Co. Ltd., v. Willis Electric Co., Ltd.*, No. 2023-1686, 2025 WL 1501940 (Fed. Cir. May 27, 2025) (hereinafter “*Everstar II*”), reversing-in-part and vacating-in-part our Final Written Decision and remanding for further proceedings.

A. Procedural History

Petitioner filed a petition for post-grant review (Paper 1, “Pet.”) of claims 1–33 of the ’037 patent. Willis Electric Co., Ltd. (“Patent Owner”) timely filed a Preliminary Response (Paper 6, “Prelim. Resp.”). Pursuant to 35 U.S.C. § 324, the Board instituted trial on February 20, 2020, after determining, based on the information presented in the papers and evidence before us at that time, it was more likely than not that at least one challenged claim was unpatentable over the cited art. Paper 7 (“Institution Decision” or “Inst. Dec.”). The following claims and grounds were¹ at issue in this proceeding:

Claim(s) Challenged	35 U.S.C §	References/Basis
1–16, 33	103	Kumada, ² Debladis ’120, ³ Liu, ⁴ Lawrence ⁵
17–20	103	Kumada, Debladis ’120, Debladis ’614, ⁶ Huang ⁷

¹ As will be explained below, independent claim 1 is no longer at issue due to the Federal Circuit’s decision in *Everstar II*.

² US 6,367,951 B1, issued Apr. 9, 2002 (Ex. 1003).

³ US 8,692,120 B2, issued Apr. 8, 2014 (Ex. 1007).

⁴ CN 2644876 Y, published Sept. 29, 2004 (Ex. 1006).

⁵ US 5,601,361, issued Feb. 11, 1997 (Ex. 1005).

Claim(s) Challenged	35 U.S.C §	References/Basis
21–29	103	Kumada, Debladis '120, Lin, ⁸ Liu, Lawrence
30–32	103	Kumada, Debladis '120, Lin, Debladis '614, Huang
1, 12, 21	103	Lin, Debladis '120
33	103	Lin, Debladis '120, Liu, Kumada
1, 4, 5, 10–14, 16, 21, 22, 25, 27	103	Sylvania, ⁹ Debladis '120, 2002 UL 588 Standards ¹⁰ (optionally)

Pet. 5.

After institution, Patent Owner filed a Response to the Petition (Paper 15, “PO Resp.”), Petitioner filed a Reply to Patent Owner’s Response (Paper 21, “Reply”), and Patent Owner filed a Sur-reply (Paper 25, “Sur-reply”).

Patent Owner also filed a Motion to Exclude (Paper 31, “Mot.”), Petitioner filed an Opposition to Patent Owner’s Motion to Exclude (Paper 32, “Mot. Opp.”), and Patent Owner filed a Reply in Support of its Motion to Exclude (Paper 36, “Mot. Reply”).

On December 16, 2020, the parties presented arguments at oral hearings for this proceeding and for IPR2019-01485. Because there are some overlapping issues, and the parties made similar arguments in each

⁶ US 2010/0089614 A1, published Apr. 15, 2010 (Ex. 1009).

⁷ US 2013/0062095 A1, published Mar. 14, 2013 (Ex. 1008).

⁸ CA 2,238,113 A1, published Nov. 20, 1999 (Ex. 1004).

⁹ Sylvania LED Micro Net-Style Lights, 2008 (sale/purchase) (Ex. 1013).

¹⁰ Underwriters Laboratories Inc., UL Standard for Safety for Seasonal and Holiday Decorative Products, UL 588 (2000) (Ex. 1011).

proceeding, the transcripts of both hearings have been entered into the record. Paper 38 (“PGR Tr.”); Paper 39 (“IPR Tr.”).

On February 18, 2021, we issued a Final Written Decision. Paper 40 (“First Final Written Decision”). We held that Petitioner had not shown, by a preponderance of the evidence, that claims 1–33 of the ’037 patent are unpatentable. Paper 40, 43–44. In particular, we stated “[a]fter reviewing the parties’ arguments and evidence, we find Petitioner has failed to establish sufficiently that a person of ordinary skill in the art would have had reason to combine the teachings of Kumada and Debladis ’120 to arrive at the claimed invention.” Paper 40, 34.

Petitioner appealed our First Final Written Decision to the Federal Circuit. *See* Paper 41 (Petitioner’s Notice of Appeal”). The Federal Circuit issued an opinion in *Everstar Merchandise Co. Ltd., v. Willis Electric Co., Ltd.*, No. 2021-1882, 2022 WL 1089909 (Fed. Cir. Apr. 12, 2022) (hereinafter “*Everstar I*”) vacating our First Final Written Decision and remanding for further proceedings. The Federal Circuit stated

The Board should have considered whether cost, in addition to increased strength and durability, would have presented a sufficient motivation to combine the asserted references. The Board’s refusal to do so under these circumstances amounts to an abuse of discretion. We therefore vacate the Board’s decision and remand for further proceedings consistent with the above.

Id. at 4.

In our First Final Written Decision, we addressed Petitioner’s argument regarding cost reduction in combination with increased strength, stating that “even if we were to consider Petitioner’s cost reduction arguments, the outcome here would not change.” Paper 40, 33–34. In light of the Federal Circuit’s guidance, we additionally “consider[ed] whether

cost reduction would have motivated a skilled artisan to combine the asserted prior art.” *Everstar*, 2022 WL 1089909, 4.

On October 11, 2022, we issued a second Final Written Decision. Paper 45 (“Second Final Written Decision”), and again held that Petitioner had not shown, by a preponderance of the evidence, that claims 1–33 of the ’037 patent are unpatentable. Paper 40, 43–44. In particular, we stated “we are not persuaded by Petitioner’s arguments and evidence that a person of ordinary skill in the art would have been motivated to combine Debladis ’120 and Kumada based on cost reduction, either alone or in combination with increased strength and durability.” Paper 45, 36.

Petitioner appealed our Second Final Written Decision to the Federal Circuit. *See* Paper 52. The Federal Circuit issued an opinion in *Everstar II*, reversing our determination that independent claim 1 had not been proven obvious over the cited art, vacating our determinations as to independent claims 21 and 33 and dependent claims 2–20 and 22–32, and remanding for “further proceedings consistent with [the] opinion.” *Everstar II*, 2025 WL 1501940, 5.

We have jurisdiction under 35 U.S.C. § 6. We issue this Final Written Decision on Remand pursuant to 35 U.S.C. § 328(a) and 37 C.F.R. § 42.73. Having analyzed the entirety of the record anew in light of our reviewing court’s directives, we conclude that Petitioner has shown by a preponderance of the evidence that claims 2–7, 9–20, 22–25, 27, 30–32 of the ’037 patent are unpatentable, and has not shown by a preponderance of the evidence that claims 8, 20, 26, 28, 29, and 32 of the ’037 patent are unpatentable.

B. Related Proceedings

Petitioner states that there are no other judicial or administrative matters that would affect, or be affected by, a decision in this proceeding. Pet. 1.

Patent Owner indicates that U.S. Patent Nos. 9,140,438 B2, 9,157,588 B2, 9,243,788 B2, and 9,671,097 B2 are related to the '037 patent. PO Resp. 4; Paper 4, 1. In particular, those patents and the '037 patent claim priority to U.S. Provisional Patent Application 61/877,854. PO Resp. 4; Paper 4, 1. Patent Owner also indicates that U.S. Patent 9,157,588 B2 is the subject of IPR2019-01485 (Final Written Decision issued February 18, 2021) and U.S. Patent 9,671,097 B2 is the subject of IPR2019-01484 (institution denied on Feb. 20, 2020). Paper 4, 2; IPR2019-01484, Paper 7; IPR2019-01485, Paper 41.

C. The Decision of the Federal Circuit and Issue on Remand

In our Second Final Written Decision, we determined that Petitioner failed to demonstrate by a preponderance of the evidence the unpatentability of claims 1–33. Paper 45, 45. As part of that Decision, we considered Petitioner's arguments that a person of ordinary skill in the art "would have been motivated to reduce costs by incorporating the internally reinforced wire of Debladis '120 into the net light system of Kumada." Paper 45, 32 (citing Reply 17). "[W]e were not persuaded by Petitioner's arguments and evidence that a person of ordinary skill in the art would have been motivated to combine Debladis '120 and Kumada based on cost reduction, either alone or in combination with increased strength and durability." *Id.* at 36.

The Federal Circuit found that "[t]he factual record and Willis's concession on appeal conclusively establish that the cost of copper was a

known problem in the art, Debladis '120 (and Kumada) helped address that issue, and Willis has not disputed that combining the teachings of Kumada and Debladis '120 was within the skill of an ordinary artisan,” concluding “[n]othing more is required to establish a motivation to combine.” *Everstar II*, 2025 WL 1501940, 4. The Federal Circuit observed that “Willis has conceded that the combination of Kumada and Debladis '120 disclose all the limitations in claim 1,” and accordingly, “reverse[d] the Board’s patentability determination as to that claim and vacate[d] the Board’s judgment as to the remaining claims of the '037 patent,” remanding to us for further proceedings. *Id.* at 4–5. With those instructions in mind, we review the Petitioner’s allegations regarding claims 2–33.

D. The '037 Patent

The '037 patent, titled “Decorative Lighting With Reinforced Wiring,” issued March 5, 2019. Ex. 1001, codes (45), (54). The '037 patent states that decorative lighting, such as seasonal holiday lighting, “often comprises one or more strings of lights constructed of multiple wires, lamp assemblies and an electrical connector or power plug.” *Id.* at 1:34–36. According to the '037 patent, a typical light string may be constructed of wire that includes copper strands twisted together and covered with an insulating polymer. *Id.* at 1:40–44. The '037 patent explains that a decorative light string needs to be able to “withstand physical abuse with limited risk of breakage,” because breakage of the wiring “could result in shock or electrocution to persons coming into contact with the decorative lighting.” *Id.* at 1:53–59.

The '037 patent identifies two previously known methods of increasing the mechanical strength of wires: (1) relying on large gauge

The '037 patent discloses the use of reinforced wiring in “net light” configurations, wherein a patterned array of lamp elements and reinforced wire form a two dimensional lighting structure. Ex. 1001, 36:29–33. The '037 patent states that “[k]nown net lights typically require some kind of reinforcing strands wrapped about the various wiring segments . . . to provide additional strength,” but the use of its reinforced wire reduces or eliminates the need for such reinforcing strands to be wrapped around the net wires. *Id.* at 36:33–43.

One embodiment of the reinforced-wire net light of the '037 patent is depicted in Figure 38, reproduced below.

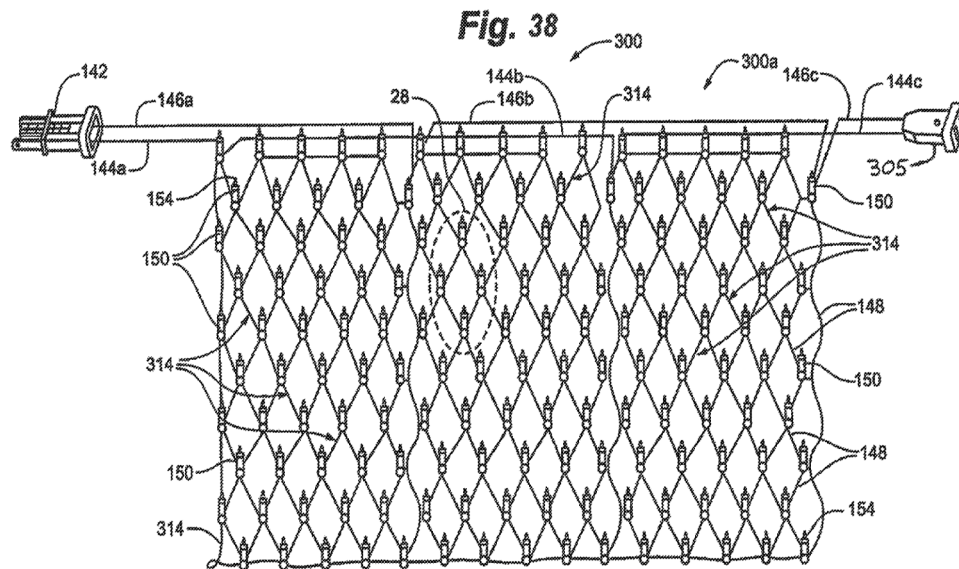


Figure 38 is a front view of a reinforced-wire net light, having power plug 142, power-terminal wires 144 and 146, lamp assemblies 150, lamp elements 154, power-connecting reinforced wires 148, and pattern-support cords 314. Ex. 1001, 5:36–37, 36:51–37:29. In Figure 38, lamp assemblies 150 are arranged in a matrix pattern with the lamp assemblies

aligned horizontally and vertically to form a two-dimensional rectangular shape, and every other lamp assembly staggered to create a diamond pattern. *Id.* at 37:12–20.

E. Remanded Claims

On Remand, we are tasked with reviewing the patentability arguments concerning independent claims 21 and 33 and dependent claims 2–20 and 22–32. Independent claim 1 is no longer at issue, but claims 21 and 33 are substantially similar to claim 1. Claims 2–20 depend directly or indirectly from claim 1 and claims 22–32 depend directly or indirectly from claim 21. Below, we provide the text of claim 1 and 21. Although claim 1 is no longer at issue, due to claims 2–20 dependence on claim 1, we set forth claim 1 as illustrative of the general subject matter of the challenged claims, and reproduce it below:

1. A strength-enhanced, net-like decorative lighting structure, comprising:
 - a power plug configured to connect to an external source of power;
 - a first power wire and a second power wire, each of the first and second power wires connected to the power plug; and
 - a plurality of light sets in electrical connection with the power plug via the first power wire and the second power wire, each light set defining an electrical circuit, the plurality of light sets including a first light set defining a first electrical circuit and a second light set defining a second electrical circuit, each of the plurality of light sets including:
 - a plurality of lamp assemblies, each lamp assembly including a lamp element; and

a plurality of internally-reinforced intermediate wires electrically connecting the lamp assemblies, each of the plurality of internally-reinforced intermediate wires including a plurality of conductors, one or more reinforcing strands, and an outer insulating layer surrounding the plurality of conductors and the one or more reinforcing strands; and

one or more non-wire support cords mechanically connected to the first light set,

wherein the plurality of light sets in combination with the one or more non-wire support cords define a rectangular-shaped, net-like decorative lighting structure.

21. A strength-enhanced, net-like decorative lighting structure having first, second, third and fourth sides that define a rectangular shape, the first side opposite the third side, and the second side opposite the fourth side, comprising:

a first plurality of lamp assemblies aligned with one another to form a first row of lamp assemblies extending between the second side of the rectangular shape and the fourth side of the rectangular shape;

a second plurality of lamp assemblies aligned with one another to form a second row of lamp assemblies extending between the second side of the rectangular shape and the fourth side of the rectangular shape, the second row being parallel to the first row;

a plurality of internally-reinforced intermediate wires, each of the plurality of internally-reinforced intermediate wires electrically and mechanically connected to a lamp assembly of the first plurality of lamp assemblies forming the first row and electrically and mechanically connected to a lamp assembly of the second plurality of lamp assemblies forming the second row, each of the plurality of internally-reinforced intermediate wires including a plurality of conductors, one or more reinforcing strands,

and an outer insulating layer surrounding the plurality of conductors and the one or more reinforcing strands; and
a plurality of non-wire support cords, including:
a first support cord defining at least one of the first, second, third, and fourth sides of the rectangular shape;
a second support cord connected to a first lamp assembly of the first plurality of lamp assemblies and connected to a first lamp assembly of the second plurality of lamp assemblies so as to extend between the first row and the second row; and
a third support cord connected to a second lamp assembly of the first plurality of lamp assemblies and connected to a second lamp assembly of the second plurality of lamp assemblies so as to extend between the first row and the second row, the second and third support cords extending generally parallel to one another.

Ex. 1001, 42:47–43:7, 44:18–59.

F. Person of Ordinary Skill in the Art

In the First Final Written Decision, we determined that a person of ordinary skill in the art “would have (1) at least two years of experience in the design of decorative lighting, or (2) at least a bachelor’s degree in mechanical engineering, electrical engineering, or an equivalent field, and a basic familiarity with circuits used in decorative lighting.” Paper 40, 12. We see no reason to depart from that earlier determination.

G. Claim Construction

We construe claim terms according to the standard set forth in *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–17 (Fed. Cir. 2005) (en banc). 37 C.F.R. § 42.200(b). Under *Phillips*, claim terms are afforded “their ordinary

and customary meaning.” *Phillips*, 415 F.3d at 1312. “[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.” *Id.* at 1313. “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.*

The parties agree that we do not need to construe any claim terms. Pet. 8–9; PO Resp. 16–17. We likewise agree. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (citing *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (“[O]nly those terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy.”)).

II. ANALYSIS

A. Analysis of Asserted Ground of Obviousness Based on Kumada, Debladis ’120, and Liu or Lawrence

Petitioner argues that claims 2–16 and 33 would have been obvious over Kumada, Debladis ’120, and Liu or Lawrence. Pet. 33–55. Petitioner’s assertions are supported by a declaration from Stephen D. Fantone, Ph.D. Ex. 1010.

1. Overview of Kumada

Kumada is a U.S. patent titled “Economical Net or Mesh Light Set.” Ex. 1003, code (54). Kumada discloses “[a]n economical method of making a net or mesh light,” wherein the net light includes a plurality of series-connected light strings, each light string including a plurality of lamp sockets and a plurality of intermediate lengths of wire connecting the lamp

lightweight as possible, and to be compact, while retaining good mechanical strength.” *Id.* at 1:16–22. Debladis ’120 depicts one embodiment of its cable in Figure 3, which is reproduced below.

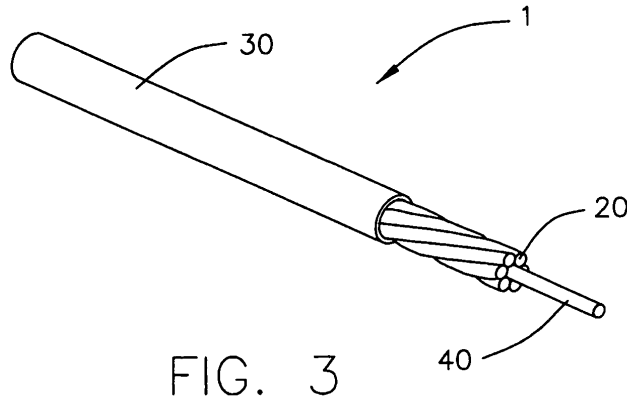


Figure 3 of Debladis ’120 shows the structure of a cable, wherein strands 20, made of conductive material such as copper, extend in the longitudinal direction of, and surround, central core 40 made of a multifilament polymer. Ex. 1007, 3:15–26. The cable also contains outer sheath 30 made of insulating material. *Id.* at 3:18.

3. Overview of Liu

Lui is a Chinese utility model patent titled “Fancy Bulb Strip.” Ex. 1006, code (54). Liu discloses a bulb strip consisting of a plurality of LED bulbs connected in series to a power line by a rectifier circuit, which converts AC into DC, to prevent flashing of the LED bulbs. Ex. 1006, 1. Liu also teaches the use of a current-limiting resistor to “reduce the number of series LED bulbs, thereby reducing the cases where the whole bulb strip goes off when one bulb is burnt out.” *Id.* at 1.

4. *Overview of Lawrence*

Lawrence is a U.S. patent titled “Celebration Electric Light Net.” Ex. 1005, code (54). Lawrence discloses a flexible material formed into a net. *Id.* at 1:4–5. According to Lawrence, the net “enables one to organize and manage a long string of electric lights typically used at celebration seasons.” *Id.* at 1:15–17. The net, formed from a non-conductive material such as nylon, polyethylene, or polypropylene, contains tapered eyelets sized to fit over the lamp and lamp base of a light string. *Id.* at 2:44–60. The eyelets engage with the lamps so that the eyelets can hold the entire light string in a desired, fixed pattern formed by placing some or all of the lamps in particular eyelets. *Id.* at 4:21–44.

5. *Independent Claim 1*

As noted above, the Federal Circuit held that independent claim 1 would have been obvious over Kumada and Debladis ’120. *Everstar II*, 2025 WL 1501940, 4. Because claims 2–20 depend from independent claim 1, we first discuss claim 1 in light of the Federal Circuit’s holding.

Claim 1 is directed to a strength-enhanced, net-like decorative lighting structure. Petitioner contends that Kumada and Debladis ’120 teach or suggest all of the limitations in claim 1. Pet. 19–33. Relying on Figures 4A and 6B of Kumada, Petitioner argues that Kumada discloses a power plug configured to connect to an external power source (plug 14), first and second power wires connected to the plug (active wire A and return wire B), a plurality of light sets defining an electrical circuit (32D) and including a plurality of lamp assemblies and lamp elements (L1 . . . Ln), and non-wire support cords connected to the first light set (rope 200’), wherein the plurality of light sets and non-wire support cords define a

rectangular-shaped, net-like decorative lighting structure. Pet. 19–33 (citing Ex. 1003, Figs. 4A and 6B, 1:20–23, 2:57–59, 3:44–46, 6:61–64, 7:39–43, 7:46–47, 7:55–58, 8:6–12, 10:13, 10:24–35, 10:48–50, 11:9–11, 11:41–44). Petitioner also directs us to portions of Debladis ’120 purportedly disclosing internally-reinforced intermediate wires including a plurality of conductors (strands 20 in Figure 3), one or more reinforcing strands (strand 40 in Figure 3), and an outer insulating layer (outer sheath 30 in Figure 3), as recited in claim 1. Pet. 26–29 (citing Ex. 1007, Fig. 3, 3:15–18, 3:46–51).

Patent Owner did not dispute that the combined teachings of Kumada and Debladis ’120 disclose each limitation of claim 1. Patent Owner, however, did dispute Petitioner’s proposed reasons for combining Kumada and Debladis ’120, and argues that Debladis ’120 is not analogous art. PO Resp. 36–61.

The Federal Circuit stated that

substantial evidence only supports the conclusion that a POSA would have been motivated to combine the teachings of Kumada and Debladis ’120. The factual record and Willis’s concession on appeal conclusively establish that the cost of copper was a known problem in the art, Debladis ’120 (and Kumada) helped address that issue, and Willis has not disputed that combining the teachings of Kumada and Debladis ’120 was within the skill of an ordinary artisan. Nothing more is required to establish a motivation to combine. Given that Willis has conceded that the combination of Kumada and Debladis ’120 disclose all the limitations in claim 1, we reverse the Board’s patentability determination as to that claim and vacate the Board’s judgment as to the remaining claims of the ’037 patent.

Everstar II, 2025 WL 1501940, 4 (internal citations omitted). The Federal Circuit further noted Patent Owner’s secondary considerations arguments as to claim 1 and stated

[t]he cited evidence consists only of a temporal connection between the introduction of Willis's invention and the UL 588 standards, and deposition testimony of a single witness who seemingly disclaimed any connection between the two. This is not sufficient to rescue a claim as to secondary considerations.

Id. at 4, n. 5 (internal citations omitted). Accordingly, the Federal Circuit ruled that claim 1 would have been obvious over Kumada and Debladis '120.

6. Analysis of Independent Claim 33

Petitioner contends that the subject matter of claim 33 would have been obvious in view of the combined teachings of Kumada, Liu, and Debladis '120, relying largely on the same arguments and evidence presented with regard to the limitations in claim 1. Pet. 44–55. Patent Owner likewise relies on the arguments made with regard to claim 1 in disputing Petitioner's assertions regarding claim 33. PO Resp. 65.

Patent Owner does not contest that the combined teachings of these references disclose the limitations in claim 33. Patent Owner's other arguments are no more persuasive here than when considered in connection with claim 1. Accordingly, in light of the Federal Circuit's holding regarding the obviousness of independent claim 1, Petitioner has demonstrated by a preponderance of the evidence that independent claim 33 would have been obvious in view of Kumada, Debladis '120, and Liu.

7. Analysis of Dependent Claim 6

Petitioner asserts that dependent claim 6 would have been obvious over Kumada and Debladis '120. Pet. 37–38. Claim 6 depends from claim 1 and recites, in relevant part, "wherein the ampacity of the first power wire is greater than an ampacity of each of the intermediate wires." We

review the additional limitations of claim 6 in light of the Federal Circuit's holding regarding the obviousness of independent claim 1.

Petitioner argues the structure of the wires in Debladis '120 is the same as those in the '037 patent, and, therefore, "the claimed difference in ampacity with Kumada's power wires is presumed inherent to the wires of Debladis '120." Pet. 37. Petitioner also argues that a person of ordinary skill in the art would "routinely design" light products with the first power wire having greater ampacity than intermediate wires because the first power wire would need to transmit more current before it is split between light sets. *Id.* at 37–38.

Patent Owner argues that Petitioner fails to explain or support its conclusion that the structure of the wires of Debladis '120 and the wires of the '037 patent are the same, and that the wires in Debladis '120 are structurally different because they include a sheath surrounding the fibers of core 40 that is not present in the wires disclosed in the claims or specification of the '037 patent. PO Resp. 61–62. Patent Owner also argues that even if the structures are the same, "such a finding is not relevant to the subject matter of a difference in ampacity between the power wires and the intermediate wires." *Id.* at 62. Patent Owner further argues that Petitioner's conclusion that a person of ordinary skill in the art "would routinely design products with such features is wholly unsupported and cannot rescue Petitioner's defective inherency arguments." *Id.* at 62.

Petitioner responds by asserting that to the extent that Kumada does not explicitly teach that the power wires A/B have a higher ampacity than the intermediate wires 130, it would have been obvious to a person of

ordinary skill in the art to modify Kumada to meet the features of claim 6. Reply 17–18 (citing Ex. 1010 ¶ 92; Ex. 1020 ¶¶ 38–44).

In its Sur-reply, Patent Owner argues that Petitioner “improperly asserts new arguments” in its Reply, and that “[t]hese arguments still fail as a relatively larger current flow in the power wires A/R does not mandate shrinking the intermediate wire size, as evidenced at least by its absence in the prior art.” Sur-reply 21. Patent Owner further argues that Petitioner “fails to consider implications of UL minimum wire size requirements” and “considerations associated with two different wire and component sizing.” *Id.* Patent Owner also contends that Petitioner’s argument also contradicts its argument of claim 16, which asserts that the UL Standards teaches a minimum 22 AWG wire because “[i]f 22 AWG wire is the minimum for intermediate wires, then a larger wire would have to be used for the power wires to teach claim 6, which would result in higher cost, and excess wire size.” *Id.*

We are persuaded by Petitioner’s arguments. Petitioner’s declarant Dr. Fantone opines that

[t]hose skilled in the art would routinely design these types of products where the first power wire would have greater ampacity than the intermediate wires, because the first power wire would need to transmit more current before the current is split between the light sets.

Ex. 1010 ¶ 92; *see also* Ex. 1020 ¶ 40 (noting that basic knowledge of circuit and current loads would lead a person of ordinary skill in the art to understand “that a power wire that is directly connected to a receptacle/plug experiences higher current loads than the intermediate parallel wires, and thus would routinely design decorative lighting products as recited in claim 6.”). We agree and credit his testimony. In addition, Patent Owner

does not provide evidence that outweighs the evidence provided by Petitioner. We are not persuaded by Patent Owner's attorney argument that there is a conflict between Petitioner's allegations for claims 6 and 16. *See* Sur-Reply 21. Claim 16 addresses wire gauge, however, claims 1 and 6 are both silent as to wire gauge. Patent Owner contends that the wire gauge recited in claim 16 would require the usage of too much copper in the context of claim 6 and thus, would not create the required savings to support Petitioner's asserted motivation to combine. The Federal Circuit found it to be error to require Petitioner to precisely quantify the amount of copper reduction. *Everstar II*, 2025 WL 1501940, at *3. As such, we do not find Patent Owner's assertions regarding an alleged conflict between claims 6 and 16 to be persuasive. In light of our review of the entire record, we are persuaded that the person of ordinary skill in the art, would have understood the implications on current involved in splitting the current of a first power wire among a plurality of intermediate wires associated with a plurality of light sets.

We find Petitioner's arguments and evidence to be persuasive as to the obviousness of the additional limitations of claim 6. In light of the Federal Circuit's determinations regarding the content of Kumada and Debladis '120 as applied to the limitations of independent claim 1 and our findings as to the additional limitations of dependent claim 6, we find that Petitioner has established by a preponderance of the evidence that dependent claim 6 would have been obvious over Kumada and Debladis '120.

8. Analysis of Dependent Claim 8

Petitioner asserts that dependent claims 8 would have been obvious over Kumada, Debladis '120, and Lawrence. Pet. 39–40. Claim 8 depends

from claim 1 and recites, in relevant part, “wherein a material of the one or more non-wire support cords comprises a material that is the same as a material of the one or more reinforcing strands of the intermediate wires.” We review the additional limitations of claim 8 in light of the Federal Circuit’s holding regarding the obviousness of independent claim 1.

Petitioner directs us to the portion of Kumada stating that “ropes [200] may be made of the same insulating material as the outside of the active and return wires of a light string,” and contends that insulating materials include polymers such as polyvinyl chloride (PVC) and polyethylene (PE). Pet. 39 (citing Ex. 1003, 10:66 –11:1). Additionally, Petitioner argues that Lawrence discloses non-wire support cords made from plastic material including various polymers, and concludes that it would have been obvious to a person of ordinary skill in the art to modify the rope 200 of Kumada to include polymer materials as taught by Lawrence. *Id.*

Patent Owner argues that while the plastic support cord teaching of Lawrence may inform a person of ordinary skill in the art as to what material to use for the support cord of Kumada, there is no link to the internal reinforcing structures of the wire of Kumada. PO Resp. 63. Patent Owner’s declarant, Dr. Stuart B. Brown, supports Patent Owner’s position by testifying that “[n]one of the structures and materials [relied upon by Petitioner] relate to internal features of a wire . . . such that the teachings cited would not inform a POSITA as to which materials to use inside a wire.” Ex. 2041 ¶ 82.

Petitioner responds by asserting that Debladis ’120 discloses that the reinforcing strands 41 can include polyamide and that Lawrence discloses a

non-wire support cord including “nylon,” a polyamide. Reply 18 (citing Ex. 1005, 2:46–50; Ex. 1020 ¶¶ 45–49).

In its Sur-reply, Patent Owner argues that “Petitioner’s new argument improperly introduces disclosure from Debladis ’120,” and that “[e]ven if allowed, this redirected argument still fails to provide a rational link between the reinforcing-strand material of Debladis ’120 and the support cord of Kumada.” Sur-reply 22.

We are unpersuaded by Petitioner’s arguments. Although Petitioner presents evidence regarding the use of polymeric materials in the support cords of Lawrence and Kumada, and that the reinforcing strands of Debladis ’120 discloses can include polyamide, Petitioner has failed to establish that it would have been obvious for the material of the non-wire support cords and that of the reinforcing strands of the intermediate wires be the same.

We find Petitioner’s arguments and evidence to be unpersuasive as to the obviousness of the additional limitations of claim 8. Petitioner has not established by a preponderance of the evidence that dependent claim 8 would have been obvious over Kumada and Debladis ’120.

9. Analysis of Dependent Claims 10 and 11

Petitioner asserts that dependent claims 10 and 11 would have been obvious over Kumada and Debladis ’120. Pet. 40–41. Claim 10 depends from claim 1 and recites, in relevant part, “wherein a diameter of the one or more non-wire support cords is in a range of 50% to 150% of a diameter of each of the internally-reinforced intermediate wires, and a color of the one or more non-wire support cords is approximately the same as a color of each of the internally-reinforced intermediate wires.” Claim 11 depends from claim

1 and recites, in relevant part, “wherein a diameter of the one or more non-wire support cords is approximately the same as a diameter of each of the internally-reinforced intermediate wires, and a color of the one or more support cords is approximately the same as a color of each of the internally-reinforced intermediate wires.” We review the additional limitations of claims 10 and 11 in light of the Federal Circuit’s holding regarding the obviousness of independent claim 1.

For both claims, Petitioner directs us to the portion of Kumada stating “preferably the rope is approximately of the same thickness and color as the light strings.” Pet. 40–41 (citing Ex. 1003, 10:63–64).

Patent Owner argues that Kumada defines the “thickness” of the light string as the thickness of two wires which are twisted together. PO Resp. 62–63. Patent Owner then argues:

the rope is two wires thick, while the intermediate wire is just a single wire. Therefore, if the wires have the same diameter, the rope is twice as thick as an intermediate wire, and not in the range of 50% to 150% of the diameter of an intermediate wire (claim 10), and not approximately the same as a diameter of each of the internally-reinforced intermediate wires (claim 11).

Id. at 64 (citing Ex. 2041 ¶ 83).

Petitioner responds by asserting that Patent Owner improperly argues the references individually rather than the posited combination of Kumada and Debladis ’120. Reply 18. Petitioner asserts that “the combination of Kumada and Debladis ’120 teaches a single conductor internally reinforced wire and explicitly teaches matching its thickness, i.e., diameter.” *Id.* (citing Ex. 1020 ¶¶ 50–55).

In its Sur-reply, Patent Owner argues that Petitioner’s reply improperly changed from relying on Kumada to Kumada in combination

with Debladis '120 and the UL standards. Sur-reply 22. Patent Owner argues that “Petitioner cannot explain why a single-wire Kumada net requires ropes 200 in the range of 50% to 150% of a wire diameter, or that a diameter of the support cords is the same as the intermediate wires, as claimed.” *Id.*

We are persuaded by Petitioner’s arguments. Although Kumada does state that the active and return wires can be physically twisted together, that statement refers only to some embodiments, and Kumada specifies that the wires are twisted “only in the common wire means portion.” Ex. 1003, 9:23–29. In view of this, we are not persuaded that Kumada defines the “thickness” of the entire light string as the thickness of the two wires twisted together.

We find Petitioner’s arguments and evidence to be persuasive as to the obviousness of the additional limitations of claims 10 and 11. In light of the Federal Circuit’s determinations regarding the content of Kumada and Debladis '120 as applied to the limitations of independent claim 1 and our findings as to the additional limitations of dependent claims 10 and 11, we find that Petitioner has established by a preponderance of the evidence that dependent claims 10 and 11 would have been obvious over Kumada and Debladis '120.

10. Analysis of Dependent Claim 16

Petitioner asserts that dependent claim 16 would have been obvious over Kumada and Debladis '120. Pet. 43–44. Claim 16 depends from claim 1 and recites, in relevant part, “each of the plurality of internally-reinforced intermediate wires comprises a 22 AWG wire.” We review the

additional limitations of claim 16 in light of the Federal Circuit's holding regarding the obviousness of independent claim 1.

Petitioner contends that the UL Standards required intermediate wires to be, at a minimum, 22 AWG wires, and, therefore, it would have been obvious to a person of ordinary skill in the art to use 22 AWG wires in order to meet the minimum UL Standards and limit the bulk and weight of the net light. Pet. 44 (citing Ex. 1011, 40 (§ 13.2.4)).

Patent Owner argues that "Petitioner's argument fails because it precludes the use of Debladis '120." PO Resp. 64. According to Patent Owner, "Debladis '120 teaches reducing copper content in a substituted wire," and "Kumada's intermediate wires would be at their UL minimum (22 AWG) based on Petitioner's argument, such that there would be no motivation for a POSITA to use Debladis '120, which would reduce the wire gauge below the UL minimum gauge." *Id.* at 64–65.

Petitioner responds by asserting that

a POSITA would understand that using internal supporting polymer rope per Debladis '120 would allow for the use of a single conductor 22 AWG wire (see Ex. 1011 §13.2.4, Exception 4), rather than a twisted conductor 22 AWG wire or a single conductor 18 AWG wire. A single conductor 22 AWG wire has a lower amount of copper than both a twisted conductor 22 AWG wire and a single conductor 18 AWG wire. Thus, a POSITA would understand that Debladis '120's construction could be used to reduce copper, while still meeting the minimum UL Standards. Ex. 1020 ¶¶56-58.

Reply 19.

We are persuaded by Petitioner’s arguments. Petitioner demonstrates that the posited combination results in a reduction of copper, and Patent Owner’s arguments do not convince us otherwise.

We find Petitioner’s arguments and evidence to be persuasive as to the obviousness of the additional limitations of claim 16. In light of the Federal Circuit’s determinations regarding the content of Kumada and Debladis ’120 as applied to the limitations of independent claim 1 and our findings as to the additional limitations of dependent claim 16, we find that Petitioner has established by a preponderance of the evidence that dependent claim 16 would have been obvious over Kumada and Debladis ’120.

11. Analysis of Dependent Claims 2–5, 7, 9, and 12–15

Petitioner asserts that dependent claims 2–5, 7, 9, and 12–15 would have been obvious over Kumada, Debladis ’120, and Liu or Lawrence. Pet. 33–38, 40–43. Patent Owner’s Response does not contain arguments specifically directed to these claims. *See generally* PO Resp. Nonetheless, the burden remains on Petitioner to demonstrate unpatentability. *See Dynamic Drinkware v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015). We have reviewed Petitioner’s assertions and supporting evidence for these claims, and we find them to be persuasive. We review the additional limitations of these claims in light of the Federal Circuit’s holding regarding the obviousness of independent claim 1. Below, we briefly discuss the substance of Petitioner’s allegations and evidence regarding these claims.

Claim 2 depends from claim 1 and recites, in relevant part, “wherein the lamp assemblies of the first light set are electrically connected to one another in series, the lamp assemblies of the second light set are electrically

connected in to one another in series, and the first light set is electrically connected to the second light set in parallel.” Petitioner directs us to the portion of Kumada stating that “a preferred net light 10D is formed of a plurality of parallel-wired light sets (two such light sets 20D, 20D’ electrically wired in parallel being illustrated), and each light set is in turn formed of a plurality of series wired sub-sets 32D wired in parallel to each other.” Pet. 33 (citing Ex. 1003, 7:39–43, Fig. 4A). We find Petitioner’s allegations and evidence to be sufficient to show that claim 2, inclusive of the limitations incorporated from claim 1, would have been obvious over the teachings of Kumada and Debladis ’120.

Claim 3 depends from claim 2 and recites, in relevant part, “wherein the first light set further includes a current-limiting resistor electrically connected in series to the light assemblies of the first light set, and the second light set further includes a current-limiting resistor electrically connected in series to the light assemblies of the second light set.”

Petitioner argues “Liu indicates that it is old and well-known to include current-limiting resistors in series with light assemblies in light sets, especially with LED lights.” Pet. 34 (citing Ex. 1006, Title, Fig. 1).

Petitioner argues, inter alia, that a person of ordinary skill in the art would have modified Kumada to include the current-limiting resistors of Liu to help control current flow in decorative lighting products in order to use LEDs. Pet. 35. We find Petitioner’s allegations and evidence to be sufficient to show that claim 3, inclusive of the limitations incorporated from claims 1 and 2, would have been obvious over the teachings of Kumada, Debladis ’120, and Liu.

Claim 4 depends from claim 1 and recites, in relevant part, “wherein the one or more non-wire support cords is mechanically connected to the first light set and the second light set, including being mechanically connected to multiple light assemblies of the first light set and to multiple light assemblies of the second light set.” Petitioner argues Kumada discloses the use of rope 200’ which joins all of the lamp sockets of all of the light strings. Pet. 36 (citing Ex. 1003, 11:9–12, Fig. 6B). We find Petitioner’s allegations and evidence to be sufficient to show that claim 4, inclusive of the limitations incorporated from claim 1, would have been obvious over the teachings of Kumada and Debladis ’120.

Claim 5 depends from claim 1 and recites, in relevant part, “wherein the first power wire and the second power wire comprise internally-reinforced wires, each of the first power wire and the second power wire including a plurality of conductors, one or more reinforcing strands, and an outer insulating layer surrounding the plurality of conductors and the one or more reinforcing strands.” Petitioner argues Debladis ’120 discloses the wires recited in claim 5, and that it would have been obvious to a person of ordinary skill in the art to modify the active and return wires of Kumada according to the teachings of Debladis ’120 for the same reasons discussed in connection with claim 1. Pet. 37 (citing Ex. 1007, 1:19–21). We find Petitioner’s allegations and evidence to be sufficient to show that claim 5, inclusive of the limitations incorporated from claim 1, would have been obvious over the teachings of Kumada and Debladis ’120.

Claim 7 depends from claim 1 and recites, in relevant part, “further comprising an end connector located distal to the power plug and in electrical connection with the power plug.” Petitioner argues Kumada

discloses end connector 30 located distal to power plug 14, and connected to power plug 14 with the return wire and bypass wire. Pet. 38 (citing Ex. 1003, 7:46–47, Fig. 6B). We find Petitioner’s allegations and evidence to be sufficient to show that claim 7, inclusive of the limitations incorporated from claim 1, would have been obvious over the teachings of Kumada and Debladis ’120.

Claim 9 depends from claim 1 and recites, in relevant part, “wherein the one or more non-wire support cords comprises a polymeric material selected from the group consisting of PVC, PE and PET.” Petitioner relies on the same arguments here as it did for claim 8, namely that the combined teachings of Kuroda and Lawrence suggest forming a non-wire support cord from polyethylene. Pet. 40. We note that unlike claim 8, claim 9 simply requires that the non-wire support cords comprise one of the selected polymeric materials, and does not reference the reinforcing strands of the intermediate wires. We find Petitioner’s allegations and evidence to be sufficient to show that claim 9, inclusive of the limitations incorporated from claim 1, would have been obvious over the teachings of Kumada, Debladis ’120, and Lawrence.

Claim 12 depends from claim 1 and recites, in relevant part, “wherein the one or more non-wire support cords forms a zig-zag pattern when coupled to the lamp assemblies of the first light set.” Claim 13 depends from claim 1 and recites, in relevant part, “wherein the one or more support cords defines two or more sides of the rectangular-shaped, net-like decorative lighting structure.” Claim 14 depends from claim 13 and recites, in relevant part, “wherein the one or more support cords comprises two or more support cords.” For these limitations, Petitioner directs us to

Figure 6B and the portion of Kumada stating “whether to use a single long rope 200’ or a plurality of separate short ropes 200 depends more appropriately on the ease of manufacture of the light sets.” Pet. 41–42 (citing Ex. 1003, 11:16–18, Fig. 6B). We find Petitioner’s allegations and evidence to be sufficient to show that claims 12–14, inclusive of the limitations incorporated from claim 1, would have been obvious over the teachings of Kumada and Debladis ’120.

Claim 15 depends from claim 1 and recites, in relevant part, “wherein the plurality of light sets further includes a third light set defining a third circuit.” Petitioner contends that Figure 4A shows Kumada’s lighting system having three light sets. Pet. 43. We find Petitioner’s allegations and evidence to be sufficient to show that claim 15, inclusive of the limitations incorporated from claim 1, would have been obvious over the teachings of Kumada and Debladis ’120.

B. Analysis of Asserted Ground of Obviousness Based on Kumada, Debladis ’120, and Debladis ’614 or Huang

Petitioner alleges that claims 17–20 would have been obvious over Kumada, Debladis ’120, and Debladis ’614 or Huang. Pet. 56–62.

Petitioner’s challenges are supported by Dr. Fantone’s testimony. Ex. 1010.

1. Overview of Debladis ’614

Debladis ’614 is a U.S. patent application publication titled “Electric Control Cable and an Associated Fabrication Method.” Ex. 1009, code (54). Debladis ’614 discloses electric control cables used in various fields, which need to be “as light-weight as possible[,] and to be compact, while nevertheless conserving good mechanical strength.” Ex. 1009 ¶ 2. Debladis ’614 explains that conventional cables “make[] use of more copper

than [they] really need[] in terms of the quantity of electric current that is to be conveyed by the cable,” and that copper is becoming more expensive, so it is “important to find novel cable structures that minimize the quantity of copper used.” Ex. 1009 ¶¶ 3–6. Debladis ’614 depicts one embodiment of its cable in Figure 2, which is reproduced below.

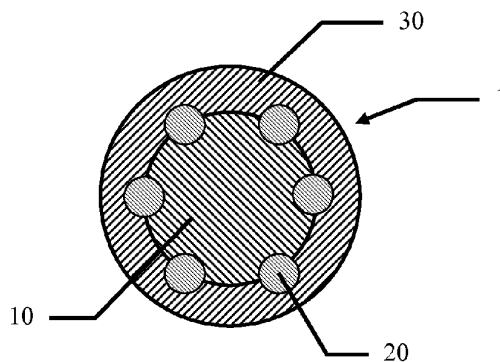


FIG. 2

Figure 2 of Debladis ’614 shows a cross-sectional view of a cable, wherein strands 20, made of conductive material such as copper, extend in the longitudinal direction of, and are distributed around the periphery of central core 10, made of a polymer material. Ex. 1009 ¶ 22. The cable also contains outer insulating sheath 30 surrounding core 10 and copper strands 20. *Id.* ¶ 23. Debladis ’614 states that in comparison to conventional wires (as depicted in Debladis ’614 Figure 1), the design of the wire shown in Figure 2 “leads to a considerable decrease in the cost and the weight of the cable.” Ex. 1009 ¶ 28.

2. Overview of Huang

Huang is a U.S. patent application publication titled “Flat Cable, Cable Harness Using the Same and Method of Making the Flat Cable.” Ex. 1008, code (54). Huang discloses “a flat cable that is placed inside a

body-worn device or a cloth attachment type device, a cable harness using the flat cable, and a method of making the flat cable.” *Id.* ¶ 3. One embodiment of Huang’s wire is depicted in Figure 2, reproduced below.

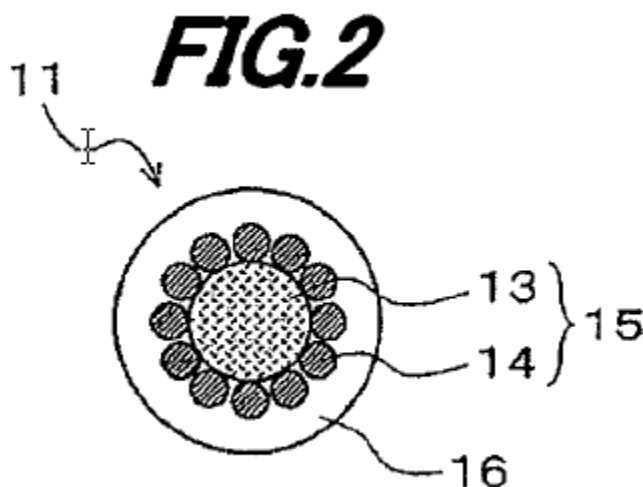


Figure 2 shows a cross-sectional view of a wire with inner conductor 15 composed of filament 13, formed of a tensile fiber or a fiber having stretching properties, and conductors 14 spirally wound around an outer periphery of filament 13. Ex. 1008 ¶¶ 34, 39. The “tensile fiber used for the filament 13 includes, e.g., a polyamide fiber such as aramid and a polyester fiber such as polyethylene terephthalate (PET), etc.” *Id.* ¶ 40. Further, “plural conductors 14, which are spirally wound, lengthwise disposed or braided on an outer periphery of the filament 13,” can be made of copper wire. *Id.* ¶ 44.

3. Analysis of Claim 19

Petitioner asserts that dependent claim 19 would have been obvious over Kumada, Debladis ’120, and Debladis ’614. Pet. 61. Claim 19 depends from claim 1 and recites, in relevant part, “wherein the one or more reinforcing strands is in direct contact with the outer insulating layer.” We

review the additional limitations of claim 19 in light of the Federal Circuit's holding regarding the obviousness of claim 1.

Referring to Figure 2 of Debladis '614, Petitioner contends that Debladis '614 discloses a wire having one or more conductors in direct contact with the outer insulating layer. Pet. 61. Petitioner also contends that it would have been obvious to modify the intermediate wires of Kumada in view of the teachings of Debladis '614 because Debladis '614 is analogous art to the '037 patent, constituted a known method that could be used to increase the strength and durability of lighting products, and involves the simple substitution of one known element for another to obtain the predictable and desirable result of a more durable wire. Pet. 58–59.

Patent Owner argues that modifying the combination of Kumada and Debladis '120 to incorporate the cited teachings of Debladis '614 would change the principle of operation of the wire of Debladis '120 and render the invention inoperable for its intended purpose. PO Resp. 48. Patent Owner argues that because strands 20 of Debladis '120 are wrapped in sheath 30, if strands 20 are to be in direct contact with the outer insulation layer of the wire as allegedly taught by Debladis '120, the sheath would have to be removed to expose strands 20, which would render the invention inoperable to keep the strands from “escaping.” *Id.* at 66 (citing Ex. 2041 ¶ 85).

Patent Owner further asserts that

the arguments presented with respect to claim 17 only address combining the three references to achieve the subject matter of claim 17, and neither the arguments made, nor claim 17 itself, mentions the subject matter of claim 19, let alone a motivation to change the structure of Debladis '120 to resemble the structure of Debladis '614.

PO Resp. 48.

Petitioner responds by asserting that Patent Owner does not separately dispute that the combined teachings of Kumada, Debladis '120, and Debladis '614 disclose every element of claim 19. Reply 19.

We are persuaded by Petitioner's arguments. We are not persuaded that the posited implications on sheath 30 of Debladis '120 change the principle of operation of the wire of Debladis '120. We further disagree with Patent Owner's assertion that Petitioner's reasons for modifying Kumada in view of Debladis '614 are limited to the subject matter recited in claim 17. To the contrary, Petitioner's reasons appear to be directed to the use of internally reinforced wiring to increase the strength of electric wiring, in general. Furthermore, Petitioner's arguments regarding Debladis '614 are similar to those presented regarding Debladis '120 in connection with claim 1.

We find Petitioner's arguments and evidence to be persuasive as to the obviousness of the additional limitations of claim 19. In light of the Federal Circuit's determinations regarding the content of Kumada and Debladis '120 as applied to the limitations of independent claim 1 and our findings as to the additional limitations of dependent claim 19, we find that Petitioner has established by a preponderance of the evidence that dependent claim 19 would have been obvious over Kumada, Debladis '120, and Debladis '614.

4. Analysis of Claim 20

Petitioner asserts that dependent claim 20 would have been obvious over Kumada, Debladis '120, and Debladis '614. Pet. 62. Claim 20 depends from claim 1 and recites, in relevant part, "wherein each of the internally-reinforced intermediate wires exhibits a tensile strength ranging

from 2,000 to 3,500 psi.” We review the additional limitations of claim 20 in light of the Federal Circuit’s holding regarding the obviousness of claim 1.

Petitioner contends that because Huang discloses a wire that is identical to the claimed internally reinforced intermediate wires, it also suggests “any and all intrinsic or inherent properties associated with that structure,” including tensile strength. Pet. 62 (citing Ex. 1010 ¶ 189 (indicating that the materials of Huang’s wire are substantially similar to those of the claimed net light structure)).

Patent Owner argues that Huang fails to teach that its wire has a tensile strength in the range recited in claim 20 of the ’037 patent. PO Resp. 68–69. In particular, Patent Owner argues:

Assuming *arguendo* that the approximate structure of Huang’s wire is similar to the claimed wire, and that the materials of Huang’s wire are substantially similar to the materials of the claimed wire, which they are not, Petitioner’s argument still fails because Petitioner does not demonstrate that the amount of material of each component, and relative ratios of materials, e.g., quantity of copper vs. quantity of insulation, used in Huang’s wire is comparable to the amount and ratios of material used in each component of the wire of claim 20.

PO Resp. 68. Patent Owner further asserts that Petitioner has failed to show that Huang teaches the tensile strength recited in claim 20 because Petitioner fails to address the relative amount of material used in Huang’s wire as compared to the claimed wire. *Id.* at 68.

Petitioner responds by asserting that the proposed combination of Kumada and Huang teaches a wire with an identical structure to that of the claimed invention, and thus the proposed combination of Kumada and Huang suggests any and all intrinsic properties associated with that structure.

Reply 19. Petitioner asserts that “PO’s arguments that a comparison of tensile strength cannot be made without consideration of the relative amounts of materials ignores the fact that those material amounts are dictated based on the use of the wire and are explicitly taught by the UL standards.” *Id.* at 20.

We are unpersuaded by Petitioner’s argument. Petitioner does not demonstrate that Huang’s wire is identical to the claimed wire such that the wire’s tensile strength would be understood to be the same as well. While Petitioner’s declarant, Dr. Fantone, testifies that Kumada’s wires would be made according to the requirements of the 2002 UL 588 Standards, Dr. Fantone does not provide the specific provisions, specifications, tolerances, or the like that would establish the tensile strength properties at issue.

As such, Petitioner has not established by a preponderance of the evidence that dependent claim 20 would have been obvious over Kumada, Debladis ’120, and Debladis ’614.

5. Analysis of Dependent Claims 17 and 18

Petitioner asserts that dependent claims 17 and 18 would have been obvious over Kumada, Debladis ’120, and Debladis ’614 or Huang. Pet. 56–60. Patent Owner’s Response does not contain arguments specifically directed to these claims. *See generally* PO Resp. Nonetheless, the burden remains on Petitioner to demonstrate unpatentability. *See Dynamic Drinkware*, 800 F.3d at 1378. We have reviewed Petitioner’s assertions and supporting evidence for these claims, and we find them to be persuasive. We review the additional limitations of these claims in light of the Federal Circuit’s holding regarding the obviousness of independent claim 1. Below,

we briefly discuss the substance of Petitioner's allegations and evidence regarding these claims.

Claim 17 depends from claim 1 and recites, in relevant part, "wherein the one or more reinforcing strands comprises a polymer material." Petitioner contends that Debladis '120 discloses "a central core 40 of multifilament polymer." Pet. 56 (citing Ex. 1006, 3:17). Petitioner alternatively argues that Debladis '614 and Huang each disclose one or more reinforcing strands comprising a polymer material, and that it would have been obvious to replace or modify Kumada's intermediate wires with the reinforcing strands of Debladis '614 or Huang. We find Petitioner's allegations and evidence to be sufficient to show that claim 17, inclusive of the limitations incorporated from claim 1, would have been obvious over the teachings of Kumada, Debladis '120, and Debladis '614 or Huang.

Claim 18 depends from claim 1 and recites, in relevant part, "wherein the one or more reinforcing strands is adjacent to, and in direct contact with, one or more of the plurality of conductors." Referring to Figure 2 of Debladis '614, Petitioner contends that Debladis '614 discloses a wire having its core (the reinforcing strand) in direct contact with one or more conductors. Pet. 60. Petitioner further contends it would have been obvious to modify Kumada's wires in view of the teachings of Debladis '614. Pet. 58–59. We find Petitioner's allegations and evidence to be sufficient to show that claim 18, inclusive of the limitations incorporated from claim 1, would have been obvious over the teachings of Kumada, Debladis '120, and Debladis '614.

C. Analysis of Asserted Ground of Obviousness Based on Kumada, Debladis '120, Lin, and Liu or Lawrence

Petitioner asserts claims 21–29 would have been obvious over Kumada, Debladis '120, Lin, and Liu or Lawrence. Pet. 63–79. Petitioner's challenges are supported by Dr. Fantone's testimony. Ex. 1010.

1. Overview of Lin

Lin is a Canadian patent application publication titled "Lamp Netting Assembly." Ex. 1004, code (54). Lin discloses a lamp netting assembly that seeks to improve upon conventional lamp netting assemblies by including a string or strings connected to the light sockets to replace a portion of wire and to stably support a large number of decoration lamps. Ex. 1004, 2:19–24. One embodiment of Lin's lamp netting assembly is shown in Figure 10, reproduced below.

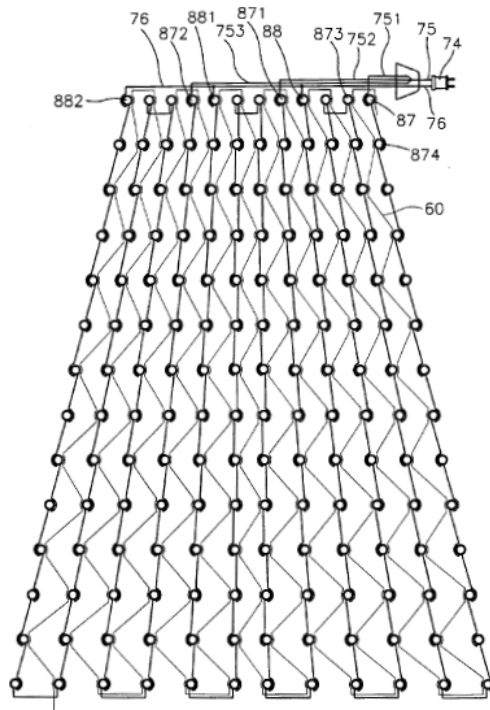


FIG.10

Figure 10 shows a schematic view of a lamp netting assembly with main wire 75 and secondary wire 76 connected to plug 74, three branch wires 751, 752, and 753 connected to first main wire 75 and light sockets 87, 871, and 872, respectively, and string 60 connecting various light sockets. Ex. 1004, 5:25–6:12.

2. Analysis of Independent Claim 21

With regard to independent claim 21, Petitioner, relying on Figure 6B of Kumada, argues that Kumada discloses a net like decorative lighting structure having sides that define a rectangular shape and comprising a first and second plurality of lamp assemblies that form parallel rows of lamp assemblies, intermediate wires connecting the lamp assemblies in the two rows, and a plurality of non-wire support cords, with one of the support cords defining one of the sides of the rectangular shape, and the cords extending between a lamp in the first row and a lamp in the second row. Pet. 63–71 (citing Ex. 1003, Fig. 6B, 2:57–59, 3:44–46, 10:48–50, 11:9–11). Petitioner directs us to portions of Debladis '120 purportedly disclosing internally-reinforced intermediate wires including a plurality of conductors (strands 20 in Figure 3), one or more reinforcing strands (strand 40 in Figure 3), and an outer insulating layer (outer sheath 30 in Figure 3), as recited in claim 21. *Id.* at 66–68 (citing Ex. 1007, Fig. 3). Petitioner also directs us to portions of Lin that disclose a plurality of non-wire support cords, extending generally parallel to one another, and connecting additional lamps in the first row to lamps in the second row. *Id.* at 72–74 (citing Ex. 1004, Fig. 10).

Petitioner argues that it would have been obvious to a person of ordinary skill in the art to modify Kumada's wires in view of the teachings

in Debladis '120. Pet. 29–30. Petitioner first argues that Kumada and Debladis '120 are analogous art to the '037 patent. *Id.* at 29–30. According to Petitioner, the references are in the same field of endeavor because they all disclose a conductive wire that connects various resistive elements used in products that require electricity, and are reasonably pertinent to the problem faced by the inventor of the '037 patent, namely “wires that possessed insufficient strength for their intended function.” *Id.* at 29–30.

Petitioner relies on the arguments made in connection with claim 1 to support its assertion that a person of ordinary skill in the art would have looked to combine the teachings of Kumada with those of Debladis '120. Pet. 68. Petitioner further relies on similar arguments set forth with respect to claim 1, to support its assertion that it would have been obvious to a person of ordinary skill in the art to modify Kumada to incorporate the wiring configuration of Lin. *Id.* at 72–73.

Patent Owner notes that Petitioner’s arguments regarding claim 21 are similar to those made in connection with claim 1, and, thus relies on the same arguments for claim 21 as it did for claim 1. PO Resp. 69.

Patent Owner does not contest that the combined teachings of these references disclose the limitations in claim 21. Patent Owner’s other arguments are no more persuasive here than when considered in connection with claim 1. Accordingly, in light of the Federal Circuit’s holding regarding the obviousness of independent claim 1, Petitioner has demonstrated by a preponderance of the evidence that independent claim 21 would have been obvious in view of Kumada, Debladis '120, and Lin.

3. Analysis of Dependent Claim 22

Petitioner asserts that dependent claim 22 would have been obvious over Kumada, Debladis '120, and Lin. Pet. 75–76. Claim 22 depends from claim 21 and recites, in relevant part,

further comprising a third plurality of lamp assemblies defining a third row, the third row being parallel to the first and second rows, the second support cord connected to a first lamp assembly of each of the first, second and third pluralities of lamp assemblies, and wherein the first support cord forms a zig-zag pattern and the second support cord forms a zig-zag pattern.

We review the additional limitations of claim 22 in light of the Federal Circuit's holding regarding the obviousness of independent claim 1 and our application of the holding to independent claim 21.

Petitioner argues that Lin discloses three rows of lamp assemblies and strings 60 connecting the lamp assemblies and rows, and extending to the third row of lamp assemblies, and forming a zig-zag pattern. Pet. 75 (citing Ex. 1004, Fig. 10).

Patent Owner argues that Petitioner fails to provide a motivation to modify Kumada to include a zig-zag pattern, noting that Petitioner's motivation to combine Lin and Kumada does not mention a zig-zag pattern. PO Resp. 69–70.

We are persuaded by Petitioner’s arguments. Petitioner has demonstrated sufficiently that it would have been obvious to a person of ordinary skill in the art to modify Kumada in view of Lin. *See KSR Int’l Co. v. Teleflex, Inc.*, 550 U.S. 398, 418 (2007) (stating that an obviousness analysis “need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ”). Furthermore, Patent Owner does not dispute that Lin discloses strings in a zig-zag pattern.

We find Petitioner’s arguments and evidence to be persuasive as to the obviousness of the additional limitations of claim 22. In light of the Federal Circuit’s determinations regarding the content of Kumada and Debladis ’120 as applied to the limitations of independent claim 1 and our application of the holding to independent claim 21, we find that Petitioner has established by a preponderance of the evidence that dependent claim 22 would have been obvious over Kumada, Debladis ’120, and Lin.

4. Analysis of Dependent Claim 26

Petitioner asserts that dependent claim 26 would have been obvious over Kumada, Debladis ’120, Lin, and Lawrence. Pet. 77–78. Claim 26 depends from claim 21 and recites, in relevant part, “wherein a material of the first support cord comprises a material that is substantially the same as a material of the one or more reinforcing strands of the intermediate wires.” We review the additional limitations of claim 26 in light of the Federal Circuit’s holding regarding the obviousness of independent claim 1 and our application of the holding to independent claim 21.

Petitioner directs us to the portion of Kumada stating that “preferably the rope is approximately of the same thickness and color as the light strings.” Pet. 77 (citing Ex. 1003, 10:63–64). Petitioner also argues that “as discussed above, it would have been obvious to modify Kumada according to Lawrence *and* Huang to form a non-wire support cord from the same material (i.e., polyethylene) as that of the reinforcing strand.” *Id.* (emphasis added). Petitioner, however, does not include Huang as one of the references relied upon for this ground in its summary chart, its heading, or its conclusory sentence in the section addressing claim 26, and does not direct us to any disclosure in Huang relevant to the limitations in claim 26. Pet. 5, 63, 78; Reply 20. Furthermore, to the extent the phrase “as discussed above” is referring to Petitioner’s argument regarding claim 8, which includes the same limitation, we note that Petitioner’s analysis of claim 8 does not include Huang. Accordingly, we do not consider Huang to be part of Petitioner’s ground challenging the patentability of claim 26.

Patent Owner relies on the arguments it presented with regard to claim 8, which we determined to be persuasive. Pet. 52; *see* Section II.a.8, *supra*. As Petitioner has not offered any arguments or evidence here beyond what it previously presented with regard to claim 8, we maintain our determination that although Petitioner presents evidence regarding the use of polymeric materials in the support cords of Lawrence and Kumada, on the present record, Petitioner has failed to demonstrate that these materials are the same as those used for the internal reinforcing strand of the intermediate wire, as disclosed in Debladis ’120. We find Petitioner’s arguments and evidence to be unpersuasive as to the obviousness of the additional limitations of claim 26. Petitioner has not established by a preponderance of

the evidence that dependent claim 26 would have been obvious over Kumada, Debladis '120, Lin, and Lawrence.

5. Analysis of Dependent Claim 27

Petitioner asserts that dependent claim 27 would have been obvious over Kumada, Debladis '120, and Lin. Pet. 78. Claim 27 depends from claim 21 and recites, in relevant part, “wherein a diameter of the first, second and third support cords is in a range of 50% to 150% of a diameter of each of the internally-reinforced intermediate wires.” We review the additional limitations of claim 27 in light of the Federal Circuit’s holding regarding the obviousness of independent claim 1 and our application of the holding to independent claim 21.

Petitioner directs us to the portion of Kumada stating that “preferably the rope is approximately of the same thickness and color as the light strings.” Pet. 78 (citing Ex. 1003, 10:63–64). Patent Owner relies on the arguments it presented with regard to claim 10, which we determined to be unpersuasive. PO Resp. 70; *see* Section II.A.9, *supra*.

We find Petitioner’s arguments and evidence to be persuasive as to the obviousness of the additional limitations of claim 27. In light of the Federal Circuit’s determinations regarding the content of Kumada and Debladis '120 as applied to the limitations of independent claim 1 and our application of the holding to independent claim 21, we find that Petitioner has established by a preponderance of the evidence that dependent claim 27 would have been obvious over Kumada, Debladis '120, and Lin.

6. Analysis of Dependent Claims 28 and 29

Petitioner asserts that dependent claims 28 and 29 would have been obvious over Kumada, Debladis '120, Lin, and Lawrence. Pet. 78–79.

Claim 28 depends from claim 21 and recites, in relevant part, “wherein the one or more reinforcing strands consists of one or more polymer materials, and the first, second and third support cords consist of one or more polymer materials.” Claim 29 depends from claim 28 and recites, in relevant part, “wherein the one or more polymer materials of the one or more reinforcing strands is the same as the one or more polymer materials of the first, second and third support cords.” We review the additional limitations of claim 27 in light of the Federal Circuit’s holding regarding the obviousness of independent claim 1 and our application of the holding to independent claim 21.

For both claims 28 and 29, Petitioner argues “it would have been obvious to modify Kumada according to Lawrence to form a non-wire support cord from the same material (i.e., polyethylene) as that of the reinforcing strand.” Pet. 78.¹¹ Petitioner further presents arguments similar to those it presented in relation to claim 8. Petitioner argues that

these dependent claims relate to routine features that do not confer patentability. Petitioner is not asserting that Kumada and Lawrence alone teach internally reinforced wires. Debladis ’120 is asserted as part of the rejection of claims 28–29 for teaching internally reinforced wires. *See* Ex. 1010 ¶ 207 (referring to Feature 1(g) (¶¶ 59–67)). Debladis ’120 discloses that the reinforcing strands 41 can include polyamide. Ex. 1007, 3:63–65. Lawrence discloses a non-wire support cord including “nylon,” which includes polyamides. Ex. 1005, 2:46–50. Ex. 1020 ¶¶ 63.

Reply 20–21.

¹¹ Petitioner’s reference to Section VII.A.iii appears to be in error, as Petitioner does not discuss the combination of Kumada and Lawrence in that section. *See* Pet. 34.

Patent Owner does not specifically dispute Petitioner's arguments regarding claim 28 or claim 29. Nonetheless, the burden remains on Petitioner to demonstrate unpatentability. *See Dynamic Drinkware*, 800 F.3d at 1378.

For the same reasons discussed above in relation to claim 8, We find Petitioner's arguments and evidence to be unpersuasive as to the obviousness of the additional limitations of claims 28 and 29. Petitioner has not established by a preponderance of the evidence that dependent claims 28 and 29 would have been obvious over Kumada, Debladis '120, Lin, and Lawrence.

7. Analysis of Dependent Claims 23, 24, and 25

Petitioner asserts that dependent claims 23, 24 and 25 would have been obvious over Kumada, Debladis '120, Lin, and Liu or Lawrence. Pet. 76–77. Patent Owner's Response does not contain arguments specifically directed to these claims. *See* PO Resp. 69–70. Nonetheless, the burden remains on Petitioner to demonstrate unpatentability. *See Dynamic Drinkware*, 800 F.3d at 1378. We have reviewed Petitioner's assertions and supporting evidence for these claims, and we find them to be persuasive. We review the additional limitations of these claims in light of the Federal Circuit's holding regarding the obviousness of independent claim 1 and our application of the holding to independent claim 21. Below, we briefly discuss the substance of Petitioner's allegations and evidence regarding these claims.

Petitioner asserts that dependent claim 23 would have been obvious over Kumada, Debladis '120, and Lin. Pet. 76–77. Claim 23 depends from claim 21 and recites, in relevant part,

wherein the lighting structure defines a first series-connected electrical circuit, and a second series-connected circuit, and a first portion of the first plurality of light assemblies comprises a portion of the first series-connected electrical circuit and a second portion of the first plurality of light assemblies comprises a portion of the second series-connected electrical circuit, such that the first row includes light assemblies in the first series-connected electrical circuit and includes light assemblies in the second series-connected electrical circuit.

Petitioner argues that Lin discloses the claimed configuration of electrical circuits and light assemblies. Pet. 76 (citing Ex. 1004, Fig. 10). We find Petitioner's allegations and evidence to be sufficient to show that claim 23, inclusive of the limitations incorporated from claim 21, would have been obvious over the teachings of Kumada, Debladis '120, and Lin

Claim 24 depends from claim 23 and recites, in relevant part, "further comprising a current-limiting resistor electrically connected to the first series-connected electrical circuit and the first portion of the first plurality of light assemblies." Petitioner argues that Liu discloses the use of current-limiting resistors in a light string, and relies on its previously-made arguments regarding reasons to combine Liu and Kumada. Pet. 76–77 (citing Ex. 1004, Fig. 10). We find Petitioner's allegations and evidence to be sufficient to show that claim 24, inclusive of the limitations incorporated from claims 21 and 23, would have been obvious over the teachings of Kumada, Debladis '120, Lin, and Liu.

Claim 25 depends from claim 21 and recites, in relevant part, "wherein the first, second and third support cords comprise a color that is substantially the same as a color of the internally-reinforced intermediate wires." Petitioner directs us to the portion of Kumada stating "preferably the rope is approximately of the same thickness and color as the light strings."

Pet. 77 (citing Ex. 1003, 10:63–64). We find Petitioner’s allegations and evidence to be sufficient to show that claim 25, inclusive of the limitations incorporated from claim 21, would have been obvious over the teachings of Kumada, Debladis ’120, and Lin.

D. Analysis of Asserted Ground of Obviousness Based on Kumada, Debladis ’120, Lin, and Huang or Debladis ’614

Petitioner asserts claims 30–32 would have been obvious over Kumada, Debladis ’120, Lin, and Huang or Debladis ’614. Pet. 79–82. Petitioner’s challenges are supported by Dr. Fantone’s testimony. Ex. 1010.

1. Analysis of Claims 30 and 31

Petitioner asserts that dependent claims 30 and 31 would have been obvious over Kumada, Debladis ’120, Lin, and Huang or Debladis ’614. Pet. 79–81. Patent Owner’s Response does not contain arguments specifically directed to these claims. *See generally* PO Resp. Nonetheless, the burden remains on Petitioner to demonstrate unpatentability. *See Dynamic Drinkware*, 800 F.3d at 1378. We have reviewed Petitioner’s assertions and supporting evidence for these claims, and we find them to be persuasive. We review the additional limitations of these claims in light of the Federal Circuit’s holding regarding the obviousness of independent claim 1 and our application of the holding to independent claim 21. Below, we briefly discuss the substance of Petitioner’s allegations and evidence regarding these claims.

Claim 30 depends from claim 21 and recites, in relevant part, “wherein the one or more reinforcing strands is adjacent to, and in direct contact with, one or more of the plurality of conductors.” Petitioner argues that to the extent Debladis ’120 does not disclose this feature, Debladis ’614

and Huang do, relying on Figure 2 of Huang and Figure 2 of Debladis '614. Pet. 79–80. We find Petitioner's allegations and evidence to be sufficient to show that claim 30, inclusive of the limitations incorporated from claim 21, would have been obvious over the teachings of Kumada, Debladis '120, Lin, and Huang or Debladis '614.

Claim 31 depends from claim 21 and recites, in relevant part, “wherein the one or more reinforcing strands is in direct contact with the outer insulating layer.” Petitioner argues that Debladis '614 discloses a wire having core 10 in direct contact with the outer insulating layer 30, as claim 31 requires, and relies on the arguments it presented previously regarding a reason to combine the teachings of Kumada and Debladis '614. Pet. 81. We find Petitioner's allegations and evidence to be sufficient to show that claim 31, inclusive of the limitations incorporated from claim 21, would have been obvious over the teachings of Kumada, Debladis '120, Lin, and Debladis '614.

2. Analysis of Claim 32

Claim 32 depends from claim 21 and recites, in relevant part, “wherein each of the internally-reinforced intermediate wires exhibits a tensile strength ranging from 2,000 to 3,500 psi.” Repeating its arguments made with regard to claim 20, Petitioner argues that Huang discloses or suggests a wire having a tensile strength in the claimed range. Pet. 82. Patent Owner also refers to its arguments made with regard to claim 20. PO Resp. 70.

For the same reasons discussed above in relation to claim 20, We find Petitioner's arguments and evidence to be unpersuasive as to the obviousness of the additional limitations of claim 32. Petitioner has not

established by a preponderance of the evidence that dependent claim 32 would have been obvious over Kumada, Debladis '120, Lin, and Huang.

E. Analysis of Asserted Grounds of Obviousness Based on Lin and Debladis '120, Based on Lin, Debladis '120, Liu, and Kumada, and based on Sylvania, Debladis '120, and Optionally the UL 2002 Standards

Petitioner asserts claims 12 and 21 would have been obvious over Lin and Debladis '120 (Pet. 92–102), that claim 33 would have been obvious over Lin, Debladis '120, Liu, and Kumada (Pet. 103–111), and that claims 4, 5, 10–14, 16, 21, 22, 25, 27, and 33 would have been obvious over Sylvania, Debladis '120, and, optionally, the 2002 UL 588 Standards (Pet. 127–149).

Having determined that Petitioner establishes by a preponderance of the evidence that the subject matter of each of claims 4, 5, 10–14, 16, and 33 would have been obvious over the combination of Kumada, Debladis '120, and Liu or Lawrence, and that the subject matter of each of claims 21, 22, 25, and 27 would have been obvious over the combination of Kumada, Debladis '120, Lin, and Liu or Lawrence, we need not address¹² Petitioner's additional grounds challenging these claims. *See SAS Inst. Inc. v. Iancu*, 138 S. Ct. 1348, 1359 (2018) (holding that a petitioner “is entitled to a final written decision addressing all of the claims it has challenged”); *Boston Sci.*

¹² On July 29, 2025, the Chief Judge issued a memorandum requiring all grounds raised in a petition to be addressed in the final written decision. Memorandum, Final Written Decision Procedures for AIA Trial Proceedings, (July 29, 2025) (available at www.uspto.gov/sites/default/files/documents/20250729095727582.pdf). We note, however, that this memorandum only applies to “an inter partes review or a post grant review proceeding where an oral hearing has not yet occurred.” *Id.* Oral hearing in this matter occurred more than five years ago and as such, the memorandum does not apply to this proceeding.

Scimed, Inc. v. Cook Grp. Inc., 809 F. App’x 984, 990 (Fed. Cir. 2020) (nonprecedential)(“We agree that the Board need not address [alternative grounds] that are not necessary to the resolution of the proceeding.”).

III. CONCLUSION

For the foregoing reasons, we determine that Petitioner has demonstrated by a preponderance of the evidence that claims 2–7, 9–19, 21–25, 27, 30, 31, and 33 of the ’037 patent are unpatentable and has not demonstrated that claims 8, 20, 26, 28, 29, and 32 are unpatentable.

Claim(s)	35 U.S.C §	References/Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
2–16, 33	103	Kumada, Debladis ’120, Liu, Lawrence	2–7, 9–16, 33	8
17–20	103	Kumada, Debladis ’120, Debladis ’614, Huang	17–19	20
21–29	103	Kumada, Debladis ’120, Lin, Liu, Lawrence	21–25, 27	26, 28, 29
30–32	103	Kumada, Debladis ’120, Lin, Debladis ’614, Huang	30, 31	32
12, 21	103	Lin, Debladis ’120 ¹³		

¹³ As explained above, in light of our determination of unpatentability, we decline to address whether claims 12 and 21 are unpatentable as obvious over Lin and Debladis ’120, whether claim 33 is unpatentable as obvious

Claim(s)	35 U.S.C §	References/Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
33	103	Lin, Debladis '120, Liu, Kumada		
4, 5, 10–14, 16, 21, 22, 25, 27, 33	103	Sylvania, Debladis '120, 2002 UL 588 Standards (optionally)		
Overall Outcome			2–7, 9–19, 21–25, 27, 30, 31, 33	8, 20, 26, 28, 29, 32

IV. MOTION TO EXCLUDE

Patent Owner filed a Motion to Exclude certain evidence presented by Petitioner. Paper 31. For the reasons discussed below, we deny-in-part and dismiss-in-part Patent Owner’s Motion to Exclude.

Patent Owner asserts that Appendices I–M of Exhibit 1010 should be excluded because they are not authenticated, are not an original or an admissible duplicate, and constitute inadmissible hearsay. Paper 31, 1. As Petitioner asserts, “an expert may base an opinion on facts or data otherwise inadmissible ‘[i]f experts in the particular field would reasonably rely on those kinds of facts or data in forming an opinion on the subject.’ FRE 703.” Paper 32, 8–9. Accordingly, we deny Patent Owner’s motion to exclude Appendices I–M of Exhibit 1010.

over Lin, Debladis '120, Liu, and Kumada, or whether claims 4, 5, 10–14, 16, 21, 22, 25, 27, and 33 are unpatentable as obvious over Sylvania, Debladis '120, and, optionally, the 2002 UL 588 Standards.

Patent Owner asserts that Appendices B–H of Ex. 1010, Ex. 1013, Ex. 1014, should be excluded. Paper 31, 2–4. We have not relied upon these exhibits in reaching this Final Written Decision. Accordingly, we dismiss the Motion to Exclude these exhibits as moot.

Patent Owner asserts that Exhibits 1004, 1006–1009, and 1012 should be excluded. Paper 31, 5–6. As Petitioner points out, under FRE 401, evidence is relevant if it has a tendency to make a fact of consequence more or less probable than it would be without the evidence. Paper 32, 10–11. We agree with Petitioner that these exhibits meet this low threshold, and deny Patent Owner’s motion to exclude Exhibits 1004, 1006–1009, and 1012.

Patent Owner further asserts that a number of items of Petitioner’s Reply should be excluded. Paper 31, 6–15. As Patent Owner notes, we denied Patent Owner’s request for authorization to brief a motion to strike related to Petitioner’s Reply. *See* Paper 24. At that time Patent Owner argued that Petitioner’s Replies improperly raise new issues, are accompanied by belatedly presented evidence, and exceed the proper scope of a reply.

While we denied Patent Owner’s request to brief a motion to strike, we authorized Patent Owner to file a paper in the form of a list providing the location and a concise description of any portion of Petitioner’s Reply that Patent Owner believes constitutes improper new argument or any exhibit that Patent Owner believes constitutes improper new evidence, and we authorized Petitioner to file a response, itemized to correspond to Patent Owner’s paper, identifying where the challenged argument was made in each Petition and/or what material in Patent Owner’s Responses caused

Petitioner to include in its Reply each item listed by Patent Owner.
Paper 24, 2–3. We find that these arguments go to the weight of the evidence and do not provide a proper basis to exclude the evidence and as such we deny Patent Owner’s Motion to Exclude as to the items listed in Paper 24.

V. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that Petitioner has proved by a preponderance of the evidence that claims 2–7, 9–19, 21–25, 27, 30, 31, 33 of the ’037 patent are unpatentable;

FURTHER ORDERED that Petitioner has not proved by a preponderance of the evidence that claims 8, 20, 26, 28, 29, 32 of the ’037 patent are unpatentable;

FURTHER ORDERED that Patent Owner’s Motion to Exclude is denied-in-part and dismissed-in-part;

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

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