

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

C&D ZODIAC, INC.,
Petitioner,

v.

B/E AEROSPACE, INC.,
Patent Owner.

Case IPR2017-01275
Patent 9,073,641 B2

Before JENNIFER S. BISK, SCOTT A. DANIELS, and
RICHARD H. MARSCHALL, *Administrative Patent Judges*.

BISK, *Administrative Patent Judge*.

FINAL WRITTEN DECISION
35 U.S.C. § 318(a) and 37 C.F.R. § 42.73

I. INTRODUCTION

C&D Zodiac, Inc. (“Petitioner”), filed a petition to institute an *inter partes* review of claims 1, 3–10, and 12–17 of U.S. Patent No. 9,073,641 B2 (Ex. 1001, “the ’641 patent”). Paper 2 (“Pet.”). 35 U.S.C. § 311. B/E Aerospace, Inc. (“Patent Owner”), filed a Preliminary Response. Papers 6, 7 (“Prelim. Resp.”).¹ Upon consideration of the Petition and Preliminary Response, we instituted an *inter partes* review pursuant to 35 U.S.C. § 314, as to claims 1, 3–10, and 12–17. Paper 12 (“Inst. Dec.”).

Subsequent to institution, Patent Owner filed a Patent Owner Response (Paper 20, 21, “PO Resp.”)² and Petitioner filed a Reply to Patent Owner’s Response (Paper 28, “Reply”). Patent Owner filed a Motion to Exclude (Paper 34, “Mot. Exclude”), Petitioner filed an Opposition to Patent Owner’s Motion (Paper 37, “Opp.”), and Patent Owner filed a Reply (Paper 38, “PO Reply to Mot. Exclude”). Patent Owner also filed two unopposed Motions to Seal. Papers 8, 22.

On June 28, 2018, in response to the Board’s Orders instituting on Ground 2 based on the Supreme Court’s decision in *SAS Institute Inc. v. Iancu*, 138 S. Ct. 1348 (2018), Petitioner filed a Request for Partial Adverse Judgment against itself with respect to Ground 2, pursuant to 37 C.F.R. § 42.73(b). *See* Paper 30 (modifying institution decision to institute on all challenged grounds presented in Petition); Paper 33 (Petitioner’s Request for

¹ Patent Owner filed two versions of the Preliminary Response: Paper 6, to which access is restricted to the parties and the Board; and Paper 7, a publicly available, redacted version of Paper 6.

² Patent Owner filed two versions of the Patent Owner Response: Paper 20, to which access is restricted to the parties and the Board; and Paper 21, a publicly available, redacted version of Paper 20.

Partial Adverse Judgment as to Ground 2). We granted Petitioner’s Request for Partial Adverse Judgment on July 5, 2018. Paper 36 (granting adverse judgment as to Ground 2).

On August 3, 2018, we held an oral hearing. Paper 40 (“Tr.”).³

This Final Written Decision is entered pursuant to 35 U.S.C. § 318(a). For the reasons that follow, we determine that Petitioner has demonstrated by a preponderance of the evidence that claims 1, 3–10, and 12–17 of the ’641 patent are unpatentable.

A. Related Matters

Patent Owner asserted the ’641 patent along with related patents, U.S. Patent Nos. 9,444,742, 9,365,292, 9,434,476, and D764,031, against Petitioner in *B/E Aerospace, Inc. v. Zodiac Aerospace, Inc.*, No. 2:14-cv-01417 (E.D. Tex.) (the “district court litigation”), that is currently stayed. Pet. 2; Paper 5, 2. All five of these patents claim priority to a U.S. application that issued as U.S. Patent No. 8,590,838 (“the ’838 patent”), which patent was the subject of Case IPR2014-00727 between Petitioner and Patent Owner. In the final written decision in that case, the Board held that claims 1, 3–7, 9, 10, 12–14, 16–19, 21, 22, 24–29, 31, and 33–37 had been proven unpatentable, and claims 8, 20, 30, and 38 had not been proven unpatentable. IPR2014-00727, Paper 65. Both sides appealed, and the Court of Appeals affirmed. *See B/E Aerospace, Inc. v. C&D Zodiac, Inc.*, 709 F. App’x 687, 2017 WL 4387223 (Fed. Cir. Oct. 3, 2017).

³ The oral hearing included related proceedings, IPR2017-01276 and PGR2017-00019. Paper 40.

Each of the additional four related patents identified above is the subject of a petition for an *inter partes* or post-grant review filed by Petitioner. *See* Cases IPR2017-01273 (involving Patent 9,434,476); IPR2017-01274 (involving Patent 9,365,292); IPR2017-01276 (involving Patent 9,440,742); PGR2017-00019 (involving Patent D764,031).

B. The '641 Patent

The '641 patent relates to space-saving aircraft enclosures, including lavatories, closets, and galleys. Ex. 1001, 1:15–20, 2:14–19. Figure 2 of the '641 patent is reproduced below.

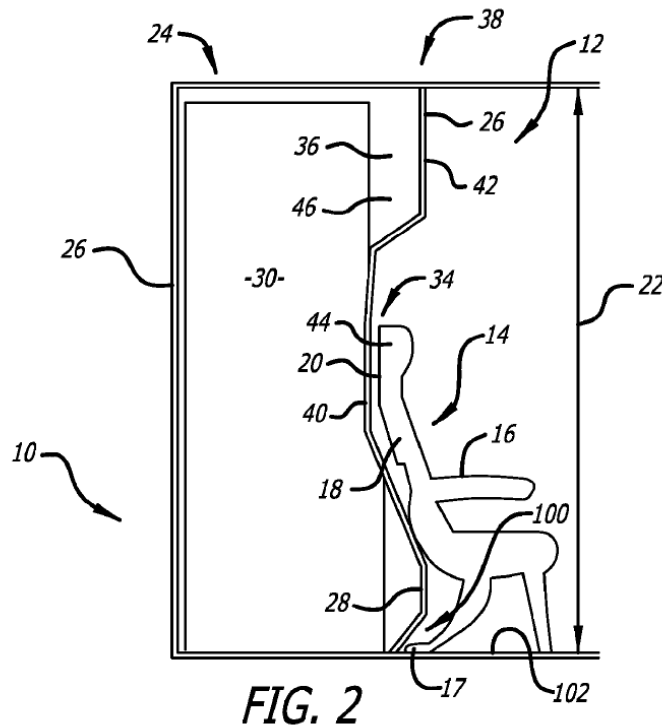


Figure 2, reproduced above, illustrates enclosure 10, such as a lavatory, positioned aft of aircraft cabin 12. Ex. 1001, 4:1–3, 4:8–13. The lavatory has walls that define interior lavatory space 30. *Id.* at 4:15–24. Forward wall 28 of the lavatory is described as “substantially not flat in a

vertical plane” and “disposed immediately aft of and adjacent to or abutting the exterior aft surface of” passenger seat 16. *Id.* at 4:15–24. In particular, the forward wall is shaped to provide recess 34, which accommodates the partially-reclined backrest of the passenger seat, as shown in Figure 2. *Id.* at 4:24–28. In addition, the forward wall is shaped to also provide second, lower recess 100, which accommodates “at least a portion of an aft-extending seat support 17.” *Id.* at 4:31–36.

The ’641 patent contrasts the embodiment of Figure 2 with a prior art configuration shown in Figure 1, which is reproduced below.

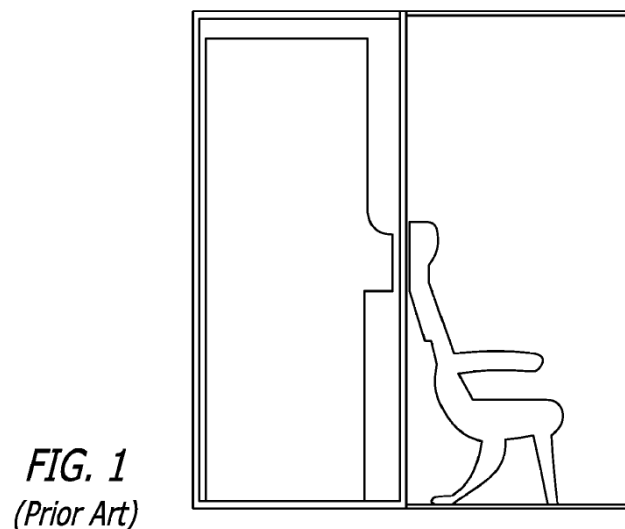


Figure 1, reproduced above, illustrates “a prior art installation of an [aircraft] lavatory immediately aft of and adjacent to an aircraft passenger seat.” Ex. 1001, 3:65–67. In the depiction of the prior art in Figure 1, a forward wall of the lavatory (double-lined structure immediately aft of seat) is flat and in a vertical plane.

As can be seen by comparing FIG. 1 and FIG. 2, the recess 34 and the lower recess 100 combine to permit the passenger seat 16 to be positioned farther aft in the cabin than would be possible if the lavatory enclosure 10 included a conventional flat and

vertical forward wall without recesses like that shown in FIG. 1, or included a forward wall that did not include both recesses 34, 100.

Id. at 4:36–42. Notably, the passenger seat in the Figure 1 depiction of the prior art is identical to the passenger seat in the Figure 2 illustration of the invention.

Petitioner challenges claims 1, 3–10, and 12–17. Claims 1 and 8 are independent. Claims 3–7 depend directly from claim 1 and claims 9, 10, and 12–17 ultimately depend from claim 8. Claims 1 and 8 are reproduced below.

1. An aircraft lavatory for a cabin of an aircraft of a type that includes a forward-facing passenger seat that includes an upwardly and aftwardly inclined seat back and an aft-extending seat support disposed below the seat back, the lavatory comprising:

a lavatory unit including a forward wall portion and defining an enclosed interior lavatory space, said forward wall portion configured to be disposed proximate to and aft of the passenger seat and including an exterior surface having a shape that is substantially not flat in a vertical plane; and wherein the said forward wall portion is shaped to substantially conform to the shape of the upwardly and aftwardly inclined seat back of the passenger seat, and includes a first recess configured to receive at least a portion of the upwardly and aftwardly inclined seat back of the passenger seat therein, and further includes a second recess configured to receive at least a portion of the aft-extending seat support therein when at least a portion of the upwardly and aftwardly inclined seat back of the passenger seat is received within the first recess.

Ex. 1001, 4:63–5:17.

8. An aircraft lavatory for an aircraft, the lavatory comprising:

a forward partition;

an aft partition; and

a lavatory space disposed between the forward partition and the aft partition;

wherein the forward partition comprises:

a forward-extending upper portion;

an aft-extending mid-portion; and

wherein the forward-extending upper portion, the aft-extending mid-portion, and the forward-extending lower portion combine to define a first aft-extending recess disposed between the upper forward-extending portion and the forward-extending lower portion, and

wherein the forward partition further defines a second aft-extending recess proximate to a lower end of the forward partition, the second aft-extending recess being configured to receive at least a portion of an aft-extending seat support of a forward-positioned passenger seat therein.

Id. at 5:43–6:14.

C. Instituted Grounds of Unpatentability

We instituted trial based on all asserted grounds of unpatentability. Inst. Dec. 23; Paper 30. After granting Petitioner’s Request for Partial Adverse Judgment (Paper 36), the following ground remains for our

consideration: whether the Admitted Prior Art⁴ and Betts⁵ render claims 1, 3–10, and 12–17 obvious under 35 U.S.C. § 103(a).⁶

II. ANALYSIS

A. *Principles of Law*

To prevail in its challenge to Patent Owner’s claims, Petitioner must demonstrate by a preponderance of the evidence that the claims are unpatentable. 35 U.S.C. § 316(e); 37 C.F.R. § 42.1(d).

A claim is unpatentable under 35 U.S.C. § 103(a) if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time of the invention to a person having ordinary skill in the art. *KSR Int’l Co. v. Teleflex, Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) objective evidence of nonobviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

B. *Level of Ordinary Skill*

In determining the level of ordinary skill in the art, various factors may be considered, including the “type of problems encountered in the art;

⁴ Petitioner defines “Admitted Prior Art” as certain portions of the ’641 patent, including Figure 1. Pet. 11–12 (citing Ex. 1001, 1:21–22, Fig. 1; Ex. 1004 ¶ 86).

⁵ U.S. Patent No. 3,738,497, issued June 12, 1973 (Ex. 1005) (“Betts”).

⁶ The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, took effect on March 18, 2013. Because the application from which the ’641 patent issued was filed before that date, any citations to 35 U.S.C. §§ 102 and 103 are to their pre-AIA version.

prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology; and educational level of active workers in the field.” *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995) (citation omitted).

Petitioner relies on the testimony of Alan Anderson, who testifies that a person with ordinary skill in the art “would have had a bachelor’s degree in mechanical engineering, industrial design, or a similar discipline, or the equivalent experience, with at least two years of experience in the field of aircraft interior design.” Pet. 29 (citing Ex. 1004 ¶¶ 27–29). Patent Owner does not address Petitioner’s proposal, or offer a competing proposal for a person of ordinary skill in the art. Based on our review of the record, we adopt Petitioner’s definition of the level of ordinary skill in the art.

C. Claim Construction

In an *inter partes* review, we construe claim terms in an unexpired patent according to their broadest reasonable construction in light of the specification of the patent in which they appear.⁷ 37 C.F.R. § 42.100(b). Consistent with the broadest reasonable construction, claim terms are presumed to have their ordinary and customary meaning as understood by a person of ordinary skill in the art in the context of the entire patent disclosure. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). Only terms that are in controversy need to be construed, and then only to the extent necessary to resolve the controversy. *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999).

⁷ The outcome of this case would be the same using the claim construction approach articulated in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc).

In the Institution Decision, we declined to construe two terms that Petitioner contended needed construction. Inst. Dec. 8–10. After institution, neither party has asked us to provide a construction of those terms or any other terms. Accordingly, we need not expressly construe any terms in this proceeding.

D. Obviousness in View of Admitted Prior Art and Betts

Petitioner asserts that the subject matter of claims 1, 3–10, and 12–17 would have been obvious over the Admitted Prior Art and Betts. Pet. 31–57. For the reasons explained below, we determine Petitioner has established by a preponderance of the evidence that claims 1, 3–10, and 12–17 are unpatentable over the Admitted Prior Art and Betts.

1. The Admitted Prior Art

Petitioner asserts as Admitted Prior Art the illustration and related disclosure of Figure 1 in the '641 patent, which is discussed above. *See* Pet. 11–14 (citing Ex. 1001, 1:21–22, Fig. 1; Ex. 1004 ¶ 86). In the Institution Decision, we found that the asserted Admitted Prior Art constitutes prior art. Inst. Dec. 11 (citing Ex. 1001, 3:65–67 (“FIG. 1 is a schematic diagram of a *prior art* installation of a lavatory immediately aft of and adjacent to an aircraft passenger seat.”) (emphasis added)). Patent Owner does not contend that the Admitted Prior Art is not prior art, or that it cannot be used in this proceeding as a basis for finding limitations disclosed by the prior art.

Of particular relevance here is that the Admitted Prior Art includes a flat forward-facing lavatory wall with the passenger seat shown in Figure 1 of the '641 patent immediately in front of that wall, with an aft-extending seat support.

2. *Betts*

Betts notes a desire to “provide more room for passengers in an aircraft or other vehicle.” Ex. 1005, 1:6–7. Figure 1 of Betts is reproduced below.

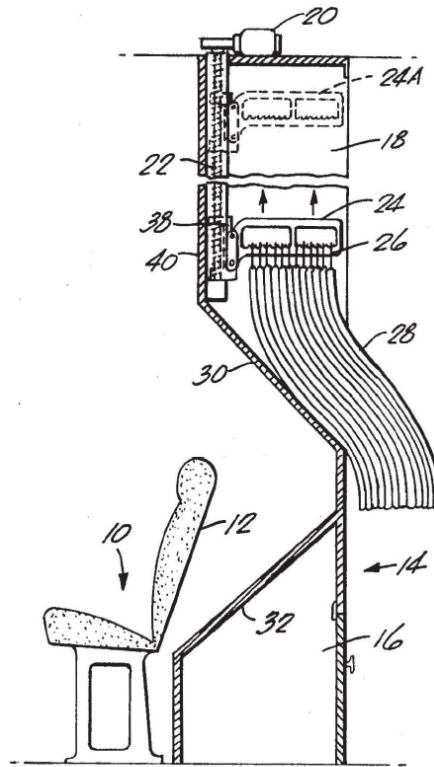


Fig. 1

Figure 1 discloses airplane passenger seat 10 having tiltable backrest 12. Ex. 1005, 2:8–9. Behind the seat is coat closet 14, which has luggage space 16 along the floor and overhead coat compartment 18. *Id.* at 2:9–14. “The lower portion 30 of the coat compartment 18 slants rearwardly to provide a space for seatback 12 to be tilted rearwardly as desired by the occupant. The top 32 of storage space 16 also slants rearwardly so as not to interfere with seatback 12 when tilted.” *Id.* at 2:19–24.

3. *Obviousness of Independent Claims 1 and 8*

Petitioner relies on the Declarations of Alan Anderson (Ex. 1004, “Anderson Declaration”), Scott Savian (Ex. 1018), and Vince Huard (Ex. 1019) in support of its assertions that the combination of Admitted Prior Art and Betts discloses or renders obvious all of the limitations of claims 1 and 8. Pet. 21–26, 31–57; Reply 4–15. Patent Owner relies on the Declarations of Dr. Adam Dershowitz (Ex. 2104, “Dershowitz Declaration”), R. Kaus Brauer (Ex. 2046), and James Brunke (Ex. 2097) in its Response, and argues that Petitioner failed to establish that the proposed combination discloses the claimed “second recess” and “reducing a volume of unusable space”/“reducing or eliminating gaps” limitations, and failed to establish an adequate motivation to combine. PO Resp. 7–22. The parties also dispute the relevance and impact of Patent Owner’s alleged objective evidence of nonobviousness on the obviousness issues in this case. *See* Pet. 77–80; PO Resp. 22–37; Reply 15–27.

i. *Motivation to Combine*

Petitioner alleges that it would have been obvious to modify the prior art flat wall lavatory, as shown in the Admitted Prior Art, with a contoured forward wall as shown in Betts. Pet. 22 (citing Ex. 1004 ¶¶ 56–64). We first consider Petitioner’s argument that we are collaterally estopped from considering the merits of this issue, because the Board already found in the related *inter partes* review of the ’838 patent that “it would have been obvious to apply the recessed forward wall design of Betts to other enclosures, including single-spaced lavatories.” Reply 3 (quoting Case IPR2014-00727, 12 (Paper 65) (emphasis removed)). Petitioner relies on the Federal Circuit’s affirmance of that decision after the Petition was filed in

this case as the basis for its collateral estoppel argument. *Id.* (citing Ex. 1026 (*B/E Aerospace, Inc. v. C&D Zodiac, Inc.*, 709 F. App'x 687 (Fed. Cir. Oct. 3, 2017))). According to Petitioner, Patent Owner should be precluded from arguing that “it would not have been obvious to apply the recessed forward wall design of Betts to other enclosures, including single-spaced lavatories.” *Id.* at 3–4. Petitioner only devotes a few sentences of argument to collateral estoppel, does not assess the relevant factors when determining whether to apply collateral estoppel, and does not assess the differences in the claims at issue in the '838 patent and claims 1 and 8 here. *See* Reply 3–4; *Banner v. U.S.*, 238 F.3d 1348, 1354 (Fed. Cir. 2001) (“Collateral estoppel requires four factors: (1) the issues are identical to those in a prior proceeding, (2) the issues were actually litigated, (3) the determination of the issues was necessary to the resulting judgment, and (4) the party defending against preclusion had a full and fair opportunity to litigate the issues.”). In addition, Patent Owner has had no meaningful opportunity to address the issue in its own briefing because the collateral estoppel issue was raised for the first time in Petitioner’s Reply. Under these circumstances, where the issue has not been fully developed by Petitioner or addressed by Patent Owner, we decline to apply collateral estoppel. We do, however, view the findings in the prior case as informative when they closely resemble the issues we address here.

In support of the proposed modification of the Admitted Prior Art with the contoured wall of Betts, Petitioner relies on the testimony in the Anderson Declaration, explaining that a primary goal of airplane interior design is efficient use of passenger cabin space so that more passengers can fit in the cabin or to make the passengers more comfortable. Pet. 22–23

(citing Ex. 1004 ¶ 57). According to Petitioner, because Betts uses the contoured forward wall to provide more passenger space in the cabin, one of ordinary skill in the art would have been motivated to replace the prior art flat forward lavatory wall with the contoured wall of Betts to provide that same additional space. *Id.* at 23 (citing Ex. 1004 ¶ 58). Petitioner points to the recess in the contoured wall Betts discloses as evidence of that approach, which allows the passenger chairs to be pushed back further aft, accommodating a portion of the seat back. *Id.* at 24–25 (citing Ex. 1004 ¶ 59).

Patent Owner argues “that those of skill in the art had no reason to make the combination proposed” by Petitioner. PO Resp. 24. Patent Owner relies on the allegedly long co-existence of the Betts design within planes that included the prior art flat lavatory walls, suggesting that there was no motivation to make the modification. *Id.* at 16–18. Patent Owner also argues that the proposed combination would require “total destruction” of Betts, if the coat closet in Betts were turned into a lavatory. *Id.* at 18–21. Patent Owner also contends that Petitioner and Mr. Anderson fail to establish a reasonable expectation of success in light of this total deconstruction of Betts. *Id.* at 21–22.

Based on our review of the evidence and arguments, we find that one of ordinary skill in the art would have been motivated to modify the Admitted Prior Art lavatory by replacing the flat forward wall with the contoured forward wall of Betts. Petitioner submits convincing argument based on the testimony of Mr. Anderson, that designers of airplane interiors were concerned about adding space to the cabin and that the Betts contoured wall increased interior space. Pet. 22–25 (citing Ex. 1004 ¶¶ 57–59). Betts

itself backs up this testimony by stating that one of the goals of its design is “to provide more passenger room.” Ex. 1005, Abstract. We also agree with Petitioner’s assertion that Figure 1 of Betts depicts a passenger seat further aft in the cabin than it could have been if the wall were flat with no recess, and merely extended up from the bottom portion of the wall. *See* Betts Fig. 1; Pet. 23–24. Betts therefore depicts how the contoured wall and recess provide more passenger space when compared to a flat, vertical wall, and Betts discusses the ability of its design to save space. As such, Betts adequately supports the proposed modification of the prior art flat forward wall as shown in the Admitted Prior Art.

Patent Owner’s argument that flat forward lavatory walls co-existed with the Betts design for years without modification, even if accurate, does not outweigh the more convincing evidence and argument supporting Petitioner’s position based on Betts and the Anderson Declaration. In addition, Patent Owner’s argument that one would need to “totally deconstruct” Betts in order to add a lavatory to Betts misapprehends Petitioner’s proposed modification. Petitioner proposes to replace a lavatory flat forward wall as shown in the Admitted Prior Art with the Betts contoured wall, not add a lavatory behind the Betts contoured wall. *See* Pet. 22, 24; Reply 4–5. Although we do not apply collateral estoppel for the reasons provided above, we note that our findings regarding the proposed combination and modification are consistent with the Federal Circuit’s decision in the related case. *See B/E Aerospace*, 709 F. App’x at 694 (rejecting Patent Owner’s argument that Petitioner’s combination required adding lavatory to Betts).

Based on the foregoing, we find that one of ordinary skill in the art at the time of the invention would have been motivated to modify the lavatory flat forward wall in the Admitted Prior Art by replacing it with the contoured forward wall of Betts.

ii. The “Forward wall” and “First Recess” limitations
Claims 1 and 8 contain several limitations that are indisputably⁸ disclosed by the proposed combination of Betts and the Admitted Prior Art. For example, claim 1 recites “a lavatory unit including a forward wall portion and defining an enclosed interior lavatory space, said forward wall portion configured to be disposed proximate to and aft of the passenger seat and including an exterior surface having a shape that is substantially not flat in the vertical plane” and claim 8 recites “a forward partition; an aft partition; and a lavatory space disposed between the forward partition and aft partition; wherein the forward partition comprises: a forward-extending upper portion; an aft-extending mid-portion; and a forward-extending lower portion.” Petitioner argues that a person of ordinary skill in the art would know that the contoured forward wall of Betts could be used in place of a flat forward wall on an aircraft lavatory. Pet. 33–34 (citing Ex. 1004 ¶ 178), 46 (citing Ex. 1004 ¶¶ 209–211). This arrangement follows from the proposed combination discussed above, where the flat forward lavatory wall of the Admitted Prior Art is replaced by the contoured wall of Betts. We find that a person of ordinary skill in the art would have known about flat forward walls such as that the Admitted Prior Art discloses, and contoured forward walls such as that Betts discloses, and that the latter could be used in

⁸ Patent Owner does not argue that, once the proposed combination is made, the combination fails to disclose these limitations.

lieu of the former to save space in the cabin. *See, e.g.*, Ex. 1001, Fig. 1; Ex. 1005, Fig. 1; Ex. 1004 ¶ 246. Once the proposed modification is made, the resulting forward wall is “substantially not flat in a vertical plane,” as recited by claim 1 and comprises “a forward-extending upper portion; an aft-extending mid-portion; and a forward-extending lower portion” as recited by claim 8.

Claim 1 recites that “said forward wall portion is shaped to substantially conform to the shape of the upwardly and aftwardly inclined seat back of the passenger seat, and includes a first recess configured to receive at least a portion of the upwardly and aftwardly inclined seat back of the passenger seat therein” and claim 8 recites that “the forward-extending upper portion, the aft-extending mid-portion, and the forward-extending lower portion combine to define a first aft-extending recess disposed between the upper forward-extending portion and the forward-extending lower portion.” Petitioner contends that Betts discloses these first recess limitations. *See* Pet. 34–35 (citing Ex. 1005, Fig. 1; Ex. 1004 ¶¶ 181–183), 47 (citing Ex. 1004 ¶¶ 213–214). We agree. Figure 1 of Betts discloses slanted walls 30, 32 that form a recess configured to receive at least a portion of inclined seat back 12. *See* Ex. 1005, Fig. 1, 2:19–24 (“The lower portion 30 of the coat compartment 18 slants rearwardly to provide a space for seatback 12 to be tilted rearwardly as desired by the occupant. The top 32 of storage space 16 also slants rearwardly so as not to interfere with seatback 12 when tilted.”); *see also B/E Aerospace*, 709 F. App’x at 693 (“Walls 30 and 32 [in Figure 1 of Betts] slant rearwardly to allow the occupant to recline seatback 12 of passenger seat 10.” (citing Ex. 1005, 2:7–24)).

iii. “Second Recess”

Claim 1 recites “said forward wall portion . . . further includes a second recess configured to receive at least a portion of the aft-extending seat support therein when at least a portion of the upwardly and aftwardly inclined seat back of the passenger seat is received within the first recess” and claim 8 recites “the forward partition further defines a second aft-extending recess proximate to a lower end of the forward partition, the second aft-extending recess being configured to receive at least a portion of an aft-extending seat support of a forward-positioned passenger seat therein.” Petitioner does not contend that the Admitted Prior Art or Betts alone discloses the second recess. Instead, Petitioner argues that one of ordinary skill in the art would have found it obvious and would have been motivated to add a second recess to a flat forward facing wall. Pet. 37. In support of its assertion, Petitioner first notes that the Admitted Prior Art includes “[a] seat with an aft extending seat support.” Pet. 37 (citing Ex. 1001, Fig. 1). Petitioner argues that the logic of using a recess to receive the seat back applies equally to using another recess to receive the aft extending seat support. Pet. 37–38 (citing Ex. 1004 ¶¶ 188, 189, 191). According to Petitioner, as the seat is moved further aft the seat support may come into contact with the lower section of the wall, impeding movement, and the addition of the second recess to accommodate the seat support will allow the seat to move further back. Reply 6 (quoting Ex. 1004 ¶ 74). Petitioner further points out that adding a second recess is nothing more than the application of known technology (i.e., Betts) for its intended purpose, with a predictable result (i.e., to position the seat as far back as possible). Pet. 37. Petitioner relies on Mr. Anderson’s testimony that the second recess,

although not disclosed by either of the two references, would have been obvious to add to the combination. *Id.* at 38–39 (citing Ex. 1004 ¶¶ 186–192). Petitioner also relies on Mr. Anderson’s citation to three alleged examples of enclosures that include a lower recess to receive a seat support. *Id.* at 39 (citing Ex. 1004 ¶ 192); Reply 6–10 (citing Ex. 1004 ¶¶ 74–79; Ex. 1018, 62; Ex. 1019 ¶¶ 8–11, 17–20). Petitioner contends that it does not matter that the three enclosures were not available as prior art in these proceedings, or prior art at all, as long as they are evidence of what was known in the art. Reply 9–10. According to Petitioner, these designs support Petitioner’s position that “it was a common sense solution to include a recess in a wall to enable a seat support to be positioned further aft.” Reply 10 (citing Ex. 1004 ¶ 75).

Patent Owner argues that Petitioner’s contention that the second recess would have been obvious “is supported by nothing more than Mr. Anderson’s opinion.” PO Resp. 9. Patent Owner asserts that the claimed second recess is “‘more than a peripheral issue’ and ‘therefore require[s] a core factual finding.’” *Id.* at 10 (quoting *K/S HIMPP v. Hear-Wear Techs., LLC*, 751 F.3d 1362, 1365 (Fed. Cir. 2014)). Relying on the Dershowitz Declaration, Patent Owner argues that such recesses were not common knowledge and that one could not move seats further aft as Mr. Anderson suggests, if using the prior art flat wall. *Id.* at 11–12 (citing Ex. 2104 ¶¶ 164–165). Patent Owner also argues that adding a second recess is not supported by the intended purpose of Betts, which is limited to providing a first recess for seat recline, and adding a second recess would not be predictable due to unpredictable impacts on the lavatory. *Id.* at 12–13 (citing hearing and deposition testimony; Ex. 2104 ¶¶ 154, 165; Ex. 2046 ¶ 36; Ex.

2097 ¶¶ 86, 88). Patent Owner also contends that the three recess examples used by Petitioner were not publicly available because the drawings in question were confidential and not for public use, and cannot be used to show what was known in the art. *Id.* at 13–14.⁹

We agree with Patent Owner that use of common sense to supply a missing limitation must be carefully circumscribed and requires supporting evidence in the situation presented here, but disagree that Petitioner has failed to support its obviousness argument with proper reasoning and evidence. Patent Owner correctly notes that in *K/S HIMPP*, the court held that when a limitation “presents more than a peripheral issue,” determination of patentability requires a “core factual finding” that in turn requires “point[ing] to some concrete evidence in the record in support of these findings.” *K/S HIMPP*, 751 F.3d at 1365 (quoting *In re Zurko*, 258 F.3d 1379, 1386 (Fed. Cir. 2001)). Similarly, in *Arendi S.A.R.L. v. Apple Inc.*, 832 F.3d 1355, 1361–62 (Fed. Cir. 2016), the Federal Circuit held that common sense, common wisdom, and common knowledge may be properly considered in an obviousness analysis, but “cannot be used as a wholesale substitute for reasoned analysis and evidentiary support, especially when dealing with a limitation missing from the prior art references specified.” *Arendi* distinguished the situation involving a “central” limitation, at issue in *Arendi*, from the situation in *Perfect Web*, where common sense was used to supply a missing limitation. *See Perfect Web Techs., Ins. v. InfoUSA, Inc.*, 587 F.3d 1324 (Fed. Cir. 2009). In *Perfect Web*, the court affirmed a summary judgment decision finding claims invalid as obvious, where the

⁹ Patent Owner moves to exclude the three references and related testimony, which we deny for the reasons outlined below. *See infra* II.E.

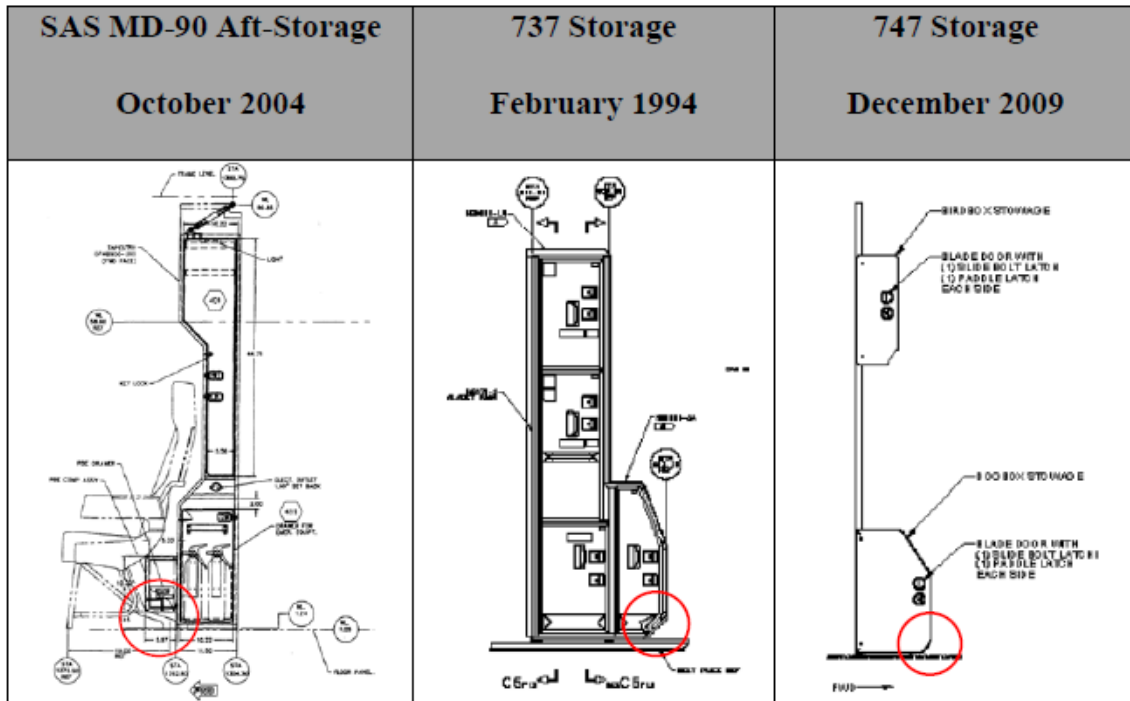
lower court determined that a missing limitation would have been obvious based on common sense, even without reliance on record evidence such as expert testimony. *See id.* at 1329 (“[U]se of common sense does not require a ‘specific hint or suggestion in a particular reference,’ only a reasoned explanation that avoids conclusory generalizations.”), *id.* at 1330 (“No expert opinion is required to appreciate the potential value to persons of such skill in this art of [the missing limitation].”).

We need not reach the issue of whether the “second recess” is so peripheral that Petitioner need not have pointed to evidence or expert opinions to support its argument that the missing limitation would have been obvious. Petitioner has supplied reasoned explanation and record evidence to support its position. Petitioner relies on the testimony of Mr. Anderson, who stated that

a person of ordinary skill in the art would recognize that as a seat is moved further aft the seat support necessarily is also moved further aft. As the seat is moved aft the feet of the seat support may come into contact with the lower section of the wall. Creating one or more recesses to accommodate whatever portion(s) of the seat support that would contact the forward wall of the enclosure is the obvious solution to this known problem.

Ex. 1004 ¶ 74; *see also id.* at ¶ 191.

Petitioner also relies on evidence tending to show that recesses adjacent the floor of cabin, configured to receive a seat support, were known in the art. Pet. 39 (citing Ex. 1004 ¶ 192); Reply 6–10 (citing Ex. 1004 ¶¶ 74–79; Ex. 1018, 62; Ex. 1019 ¶¶ 8–11, 17–20). The Petition shows three designs with such a recess side-by-side as shown in the figure from page 40 of the Petition, reproduced below:



The figure depicts three designs labelled “SAS MD-90 Aft-Storage” dated October 2004, “737 Storage” dated February 1994, and “747 Storage” dated December 2009. Pet. 40. All three designs show recesses near the floor of the cabin, which Petitioner circled in annotations. *Id.* The first design, shown on the left, also shows a passenger seat in dotted lines, with the aft seat support shown within the recess. *Id.* Petitioner submitted declarations from third parties familiar with the designs that show the recesses were designed to receive passenger seat legs, and the dates that the designs were in public use or on sale. *See* Ex. 1018, 62 (corresponding to SAS MD-90 Aft-Storage); Ex. 1019 ¶¶ 8–11 (corresponding to 737 Storage); Ex. 1019 ¶¶ 17–20 (corresponding to 747 Storage). We find this testimony and evidence credible and convincing, and find that Petitioner has established that it would have been obvious to further modify the Admitted Prior Art/Betts combination to include the claimed “second recess” to receive passenger seat supports.

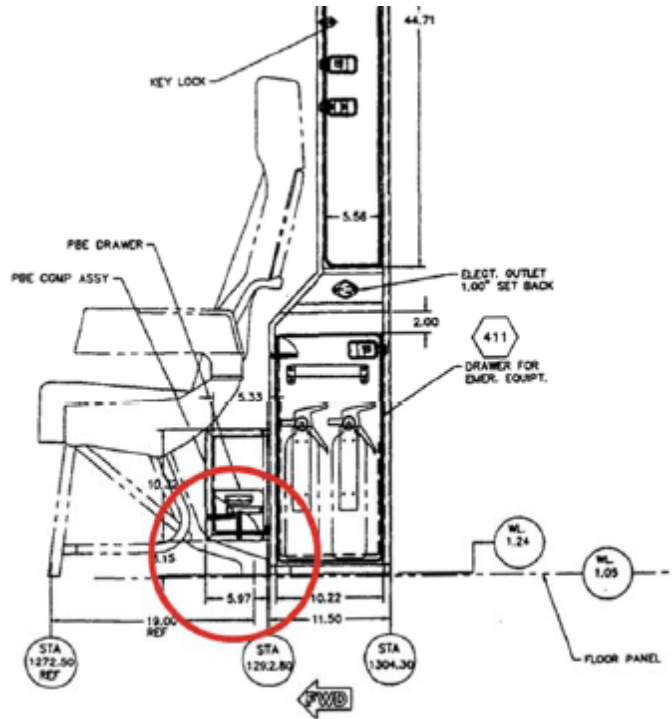
Patent Owner's arguments, as a whole, are not persuasive. As noted above, we agree with Patent Owner's interpretation of the relevant law to require more than conclusory allegations to establish that a missing claim limitation would have been obvious based on common sense. Petitioner provides more than bare, conclusory allegations, however, including reliance on other references that predate the '641 patent to support its common sense argument. Patent Owner also argues that adding the second recess would have been unpredictable due to the unpredictable nature of lavatory design. PO Resp. 12–13. Much of Patent Owner's cited evidence does not seem focused on the second recess at all, and instead is directed more generally to lavatories as a whole. *See* Ex. 2052, 37:5–42:17, 53:10–14; Ex. 2075, 36:18–37:15; Ex. 2097 ¶¶ 86, 88. We credit the testimony of Mr. Anderson on behalf of Petitioner, that the “result of such a modification is predictable, allowing the seat to be positioned further aft in an aircraft.” Ex. 1004 ¶ 191. We are not persuaded that adding an aft recess near the cabin floor, standing alone, would introduce unpredictable results due to modifications that would be necessary to that limited area of the lavatory.

Patent Owner's arguments attacking Mr. Anderson's use of the three examples of recesses in the prior art also bear little fruit. Patent Owner argues, without citation to any support, that in order to support the “common sense” argument, Mr. Anderson could not rely on references that were not available as prior art in *inter partes* reviews, i.e., patents and printed publications. PO Resp. 10. Petitioner does not argue that any of the three drawings are prior art that can be combined with the Admitted Prior Art and Betts as part of a ground of unpatentability, and therefore has not run afoul of the rules governing these proceedings. 35 U.S.C. § 311(b) (“A petitioner

in an inter partes review may request to cancel as unpatentable 1 or more claims of a patent only on a ground that could be raised under section 102 or 103 and only on the basis of prior art consisting of patents or printed publications”). Petitioner uses the references to support its common sense argument and identify, specifically, the knowledge of those skilled in the art, and Patent Owner points to no authority for the proposition that such evidence must take a particular form, much less be limited to qualifying patent and printed publication prior art under § 311(b).

Patent Owner also argues that Petitioner failed to establish that the designs shown in the three drawings were prior art at all, and were not publicly known. *Id.* While the drawings themselves may have been confidential as Patent Owner notes, the declarations accompanying the drawings posit that the drawings reflect designs that were on sale and in public use years before the earliest priority date of the '742 patent. *See* Ex. 1018, 62 (corresponding to SAS MD-90 Aft-Storage); Ex. 1019 ¶¶ 8–11 (corresponding to 737 Storage); Ex. 1019 ¶¶ 17–20 (corresponding to 747 Storage). Patent Owner uses the deposition testimony of one of the declarants to cast doubt on whether the design with the recess was part of the product that was sold, but does not attack the other assertions of prior art. PO Resp. 14 (citing Ex. 2079, 54:20–55:4 (corresponding to 747 Storage)). We find the unrebutted testimony establishes that those two designs were in public use or on sale prior to the critical date of the '742 patent. *See* Ex. 1018, 62 (drawing), ¶¶ 11–15 (corresponding to SAS MD-90 Aft-Storage); Ex. 1019 ¶¶ 8–11 (corresponding to 737 Storage)). We find the unrebutted testimony regarding these designs, the SAS MD-90 Aft-Storage and 737 Storage, sufficient to establish that the designs are prior art. Accordingly,

two of the designs Petitioner relies on were not only “known” internally within the art, they were disclosed in prior art designs.¹⁰ An annotated view of the design for the SAS MD-90 Aft-Storage is reproduced below:



Reply 7 (citing Ex. 1018, 62). The figure above shows a recess adjacent to the cabin floor configured to receive the aftwardly extending rear seat

¹⁰ Petitioner argues that the three references need not qualify as prior art at all to be considered as part of its “common sense” argument. *See* Reply 10 (“But even if these design documents themselves were never made public, they still demonstrate that airplane designers had long known that it was a common sense solution to include a recess in a wall to enable a seat support to be positioned further aft.”); Opp. 8 (citing cases in support of argument). Although not necessary to our Decision because we find that two of the references are prior art, we agree that such non-prior art references, such as these confidential drawings, can be considered in an obviousness analysis. Here, they constitute concrete evidence in support of Petitioner’s common sense argument.

support within the recess. This prior art design convincingly supports Petitioner's position that recesses configured to receive seat supports were known in the art, and it would have been a matter of common sense to incorporate such a known structure in the Admitted Prior Art/Betts combination.

Based on the foregoing, Petitioner has established adequately that it would have been obvious to add a second recess in a manner that satisfies the "second recess" requirements of claims 1 and 8.

iv. Objective Evidence of Non-Obviousness

We turn now to the secondary considerations evidence that Patent Owner has cited in this proceeding as purportedly demonstrating non-obviousness of claims 1 and 8 (as well as the other challenged claims). *See* PO Resp. 31–45. Petitioner argues that Patent Owner has failed to establish the required nexus, and that we should follow the approach taken by the Federal Circuit in the related *inter partes* review and conclude that the claims would have been obvious even if we consider the Patent Owner's evidence of objective indicia. Reply 15–16.

Nexus. "For objective [evidence of secondary considerations] to be accorded substantial weight, its proponent must establish a nexus between the evidence and the merits of the *claimed invention.*" *Wyers v. Master Lock Co.*, 616 F.3d 1231, 1246 (Fed. Cir. 2010) (alteration and emphasis in original) (quoting *In re GPAC Inc.*, 57 F.3d 1573, 1580 (Fed. Cir. 1995)). Patent Owner only addresses nexus in the context of its argument regarding commercial success. PO Resp. 29–30. Patent Owner argues that nexus here "is presumed" because "[t]here is no dispute that [Patent Owner's] Spacewall product, which has been so commercially successful, is an

embodiment of the patent.” *Id.* at 29 (citing Ex. 2093, 36:16–37:3). Patent Owner also asserts that other documents show that the commercial success of the Spacewall product stemmed from the “curved shape” of the lavatory forward wall or the “lavatory structure design.” *Id.* (citing Ex. 2078; Ex. 2090, 136:14–137:11). Such general allegations that Patent Owner’s product “is an embodiment of the patent” and led to sales due to a “curved shape” ordinarily fail to establish that a product contains all of the limitations of the claim at issue, which is necessary to trigger a presumption of nexus. *See WBIP, LLC v. Kohler Co.*, 829 F.3d 1317, 1330 (Fed. Cir. 2016) (holding that nexus is presumed when patentee establishes that commercial product is embodiment of the claimed invention). However, Petitioner did not address the presumption of nexus issue in the Petition or the Reply, and did not argue that Patent Owner’s Spacewall product was not covered by the challenged claims here. *See* Reply 15–16; Tr. 30:8–19 (Petitioner acknowledging at the oral hearing that it did not dispute that Patent Owner’s product met the limitations of the challenged claims). Accordingly, we apply a presumption of nexus here.

Petitioner argues that nexus cannot be established because all of the claim limitations were known in the prior art. *See* Pet. 77. Petitioner also argues that none of Patent Owner’s evidence ties the “second recess” to the secondary considerations. Reply 15–16. These arguments do not address the presumption of nexus issue, and improperly suggest that Patent Owner must tie the objective indicia to the supposedly new feature in the claims, the second recess. *See WBIP*, 829 F.3d at 1330 (“[P]roof of nexus is not limited to only when objective evidence is tied to the supposedly ‘new’ feature(s).”). The arguments also fail to rebut the presumption, which requires reliance on

evidence of record to successfully rebut the presumption. *See id.* at 1329 (holding that the presumption of a nexus cannot be rebutted adequately by argument alone). Although we find a presumption of a nexus, we will consider Petitioner’s arguments regarding a lack of nexus, to the extent they also bear on the weight we give any alleged objective indicia, where appropriate below.

Copying. Patent Owner alleges that Petitioner copied the patented technology. PO Resp. 23–25. More specifically, Patent Owner alleges that Petitioner encountered problems with implementing the “curvature of the lavatory forward wall” and rather than turn to a prior art solution, “copied the curvature” of Patent Owner’s lavatory wall. *Id.* at 24 (citing Ex. 2091, 138:5–142:17, 141:18–22, 142:10–13; Ex. 2104 ¶ 203). Patent Owner relies on Dr. Dershowitz’s testimony that Petitioner made a “direct attempt” to use Patent Owner’s patented solutions, including the “patented shape” of Patent Owner’s forward lavatory wall.” *Id.* at 24–25 (citing Ex. 2104 ¶ 225; Ex. 2075, 111:7–14).

Petitioner argues that Patent Owner fails to prove copying. Reply 16–18. Petitioner contends that Patent Owner’s evidence fails to address the “second recess,” or establish that Petitioner copied that aspect of Patent Owner’s design. *Id.* at 16. Petitioner also argues that Patent Owner misinterprets the deposition testimony from Petitioner’s witness, which was not suggesting problems with the forward lavatory wall at all, but instead concerned problems with the curved side wall facing the exterior of the airplane. *Id.* at 16–17 (citing Ex. 2091-37, 144:18–145:5). Petitioner asserts that the statements from the Dershowitz Declaration merely rely on this faulty reading of the deposition. *Id.* at 17.

We agree with Petitioner that Patent Owner has failed to establish copying here. First, as Petitioner notes, Patent Owner has made no attempt to establish that the *claimed* invention was copied by Petitioner, including the claimed “second recess.” *See* PO Resp. 23–35. At most, Patent Owner alleges that Petitioner copied one aspect of the claimed design—the contoured forward wall. *Id.* Further, Patent Owner’s copying allegation rests on an apparent misinterpretation of deposition testimony dealing with problems in the design of the “sidewall” facing the exterior of the aircraft, not the lavatory forward wall that is at issue in this case. *See* Ex. 2091, 144:18–145:5; Reply 16–17. Although the forward wall is also mentioned in the testimony cited by Patent Owner, that testimony does not suggest that the problem was focused on the lavatory forward wall, or that copying the forward wall would alleviate the problems with the sidewall. At best, the testimony and related expert analysis show a weak case of copying, made weaker by the failure to address the “second recess” and other claim limitations and establish that Petitioner copied a design covered by claims 1 and 8.

Skepticism. Patent Owner argues that “skepticism and disbelief expressed by industry participants” regarding its curved wall design supports the nonobviousness of claims 1 and 8. PO Resp. 25. Patent Owner contends that customers demanded mock ups of the new designs and tested them to ensure the lavatory still provided sufficient comfort before concluding that the design would work. *Id.* at 25–26. Patent Owner also contends that

Petitioner’s expert Mr. Anderson tried and failed to do what Patent Owner “has done with its patents.” *Id.* at 26.¹¹

Petitioner argues that none of the alleged skepticism mentions the claimed “second recess” and that the testimony introduced amounts to hearsay. Reply 18–19. Petitioner also argues that testimony showing mere “corporate prudence” when evaluating designs before a purchase does not establish skepticism. *Id.* at 19. Regarding Mr. Anderson’s testimony, Petitioner contends that Patent Owner takes the comments out of context, and Mr. Anderson was talking more generally about adding seats to a cabin. *Id.* at 19–20.

While we agree with Patent Owner that there appeared to be some skepticism regarding its design, Patent Owner has not convincingly established that there was skepticism about the claimed subject matter. Instead, the testimony appears to reflect normal testing one would expect whenever making a large order of goods, with some skepticism aimed at the size and comfort of the resulting lavatory, which does not bear on the claim language. *See* PO Resp. 25–26. In addition, the testimony of Mr. Anderson does not establish that he tried and failed to arrive at the claimed design at issue here—he merely expressed his experience in not being able to simply add a row of seats to a plane based on saving six inches of room. Reply 19–20. Overall, we view Patent Owner’s evidence of industry skepticism regarding the claimed method as weak.

¹¹ Patent Owner’s argument may be viewed as “failure of others” rather than “skepticism,” but we address it in the manner that Patent Owner framed the issue.

Proceeding Contrary to Conventional Wisdom. Patent Owner argues that conventional wisdom required a flat forward wall and using the space between the seats and the wall for small storage bins known as “dog houses.” PO Resp. 27–28. According to Patent Owner, its “design cut directly against this conventional wisdom” by removing the spaces for the dog houses and allowing the “seat to closely nestle with the lavatory wall behind it.” *Id.* at 28. Petitioner argues that Patent Owner again bases its argument on the contoured wall, which was well known in the art. Reply 21. Petitioner also argues that the mere passage of time without a curved-wall lavatory does not establish nonobviousness. *Id.* at 22.

We accord Patent Owner’s evidence that its design was contrary to the ordinary use of dog houses behind seats some weight. However, this argument amounts to little more than an assertion that using a curved lavatory wall was new, when curved walls were known in airplane design and the claims at issue here require far more than a contoured wall. *See* Reply 21; Ex. 1005, Fig. 1. Accordingly, we view the evidence on this point as weak.

Commercial Success. Patent Owner argues that its Spacewall product achieved substantial commercial success based on a desire of its customers to add seats to the aircraft, which the claimed design made possible. PO Resp. 29. Patent Owner relies on “a nearly \$800 million, 10-year contract as the exclusive lavatory provider on all new Boeing 737 aircraft,” which was the “direct result of the patented technology.” *Id.* at 30. Patent Owner also contends that its market share in this market went from 0% to 20% by 2018. *Id.* at 31.

Petitioner argues that Patent Owner's \$800 million sales figure in a vacuum means little when Patent Owner did not include the contract as evidence, and the contract would reveal that it included sales of unpatented lavatory designs. Reply 23–24. Petitioner also contends that Patent Owner's expert testimony cannot fill the gap because he admitted that he had not reviewed the contract. *Id.* at 24–25.

As noted above, we presume that a nexus exists between Patent Owner's Spacewall product and the claims at issue here. But that nexus does not extend to non-Spacewall products, and Patent Owner's decision not to introduce the \$800 million contract undermines its ability to allege that the sales were due to the Spacewall design. Instead, it appears that at least some portion of those sales correspond to unpatented designs. *See* Reply 24 (citing testimony). These same sales, including patented and unpatented products, presumably helped create the 20% market share increase. PO Resp. 31. Without the contract or a breakdown of the sales and market share attributable to the patented Spacewall design, Patent Owner limits the potential impact of the \$800 million contract and growing market share on our analysis here. That said, Patent Owner does introduce evidence that at least some customers bought the Spacewall product due to its contoured wall and space-saving design, and sales for the Spacewall were likely substantial even if they were a fraction of the \$800 million contract. PO Resp. 29–31. Based on the foregoing, we view Patent Owner's evidence of commercial success as moderate.

Industry Praise. Patent Owner argues that numerous instances of industry praise support the nonobviousness of the claims here. PO Resp. 32–34 (citing Ex. 2046 ¶¶ 26–33; Ex. 2055–2059; Ex. 2096). The alleged

praise for the claimed invention include an industry award and positive comments in trade publications. *Id.* Patent Owner contends that “the objective evidence ties directly to claimed features” because it notes that Patent Owner’s design frees up floor space and includes curved walls. *Id.* at 34. Petitioner argues that, upon closer inspection, the industry award was “voted on by a panel of the inventor’s colleagues, while he was in the room watching their vote, [and] hardly reflects unbiased industry praise.” Reply 26 (emphasis omitted). Petitioner contends that the other purported praise lacks credibility because there is no evidence that the praise was from one of ordinary skill in the art, and the articles suggest that unclaimed features drove the success of the design, including the vacuum toilet, LED lighting, and oxygen system. *Id.* at 26–27 (citing Exs. 2055–2059).

While Petitioner makes some credible arguments that go to the weight to be accorded the industry praise, we find that Patent Owner has established industry praise for the Spacewall product, which we presume has a nexus to the claimed invention.¹² The praise specifically references features relevant to the claimed inventions, such as the curved walls and space savings. *See* PO Resp. 32–34 (citing Ex. 2046 ¶¶ 26–33; Ex. 2055–2059; Ex. 2096). Therefore, although the praise also notes unclaimed features of the lavatory design, and the industry award process may have been flawed, the award and

¹² Petitioner has arguably rebutted the presumption of a nexus, or significantly undermined its import, by pointing to evidence that some of the praise was tied to unclaimed features. Reply 26–27 (citing Exs. 2055–2059). We need not determine whether Petitioner has adequately rebutted the presumption because even if we presume the nexus remains, Patent Owner has not established sufficient objective indicia to support a finding of nonobviousness of claims 1 and 8.

praise of claimed features are sufficient to establish industry praise of the claimed invention. We view the evidence of industry praise as moderate.¹³

v. *Conclusion as to Claims 1 and 8*

Patent Owner has established a moderate level of objective indicia of nonobviousness related to commercial success and industry praise, but Petitioner has established a strong case of obviousness based on the Admitted Prior Art and Betts, coupled with common sense and the knowledge of a person of ordinary skill in the art. Based on the foregoing, after consideration of all of the *Graham* factors and the full record before us, we are persuaded that Petitioner has established, by a preponderance of evidence, that claims 1 and 8 would have been obvious over the Admitted Prior Art and Betts.

4. *Obviousness of Claim 9*

Claim 9 depends from claim 1 and recites “wherein the first aft extending recess defined by the forward-extending upper portion, the aft-extending mid-portion, and the forward-extending lower portion of the forward partition is configured to receive an aft-extending seat back of the forward-positioned passenger seat.” Petitioner argues that Figure 1 of Betts discloses the passenger seat positioned at least partially within the contoured forward wall. Pet. 50–51 (citing Ex. 1004 ¶¶ 220–221; Ex. 1005, Fig. 1).

¹³ We note that our analysis of the objective indicia generally tracks the analysis in the related IPR, although we accord more weight to the commercial success evidence. See IPR2014-00727, 22–24 (Paper 65); *B/E Aerospace*, 709 F. App’x at 695–96. The record here includes additional allegations and evidence not available in IPR2014-00727, including that related to market share, that was not considered in the prior, related decisions. See *id.*

Patent Owner does not address claim 9. We are persuaded by Petitioner's argument and evidence, and find that Betts discloses the limitations of claim 9.

5. *Obviousness of Claims 3 and 10*

Claim 3 depends from claim 1 and recites "wherein said forward wall portion further includes a projection configured to project over the passenger seat back when at least a portion of the upwardly and aftwardly inclined seat back of the passenger seat is received within the first recess and at least a portion of the aft-extending seat support is received within the second recess." Similarly, claim 10 depends from claim 9 and recites "wherein said forward-extending upper portion is configured to project over at least a portion of the forward-positioned passenger seat." Petitioner argues that Figure 1 of Betts discloses the claimed upward projection that protrudes over the top of the inclined seat back, as claimed. Pet. 40–41 (citing Ex. 1004 ¶¶ 193–195; Ex. 1005, Fig. 1), 51–52 (citing Ex. 1004 ¶¶ 223–224). Patent Owner does not address claims 3 and 10. We are persuaded by Petitioner's argument and evidence, and find that Betts discloses the limitations of claims 3 and 10.

6. *Obviousness of Claims 4 and 12*

Claim 4 depends from claim 1 and recites "wherein said lavatory unit is taller than the passenger seat." Similarly, claim 12 depends from claim 9 and recites "wherein said lavatory is taller than the forward-positioned passenger seat." Petitioner argues that both Betts and the Admitted Prior Art disclose an enclosure taller than a passenger seat. Pet. 42 (citing Ex. 1004 ¶¶ 106–108, 197; Ex. 1001, Fig. 1; Ex. 1005, Fig. 1), 52. Patent Owner does not address claims 4 and 12. We are persuaded by Petitioner's argument and

evidence, and find that the Admitted Prior Art and Betts disclose the limitations of claims 4 and 12.

7. *Obviousness of Claims 5–7 and 13–17*

Claim 5 depends from claim 1 and recites “wherein said forward wall portion includes a lower portion that is disposed under the passenger seat back when at least a portion of the upwardly and aftwardly inclined seat back of the passenger seat is received within the first recess and at least a portion of the aft-extending seat support is received with the second recess.” Petitioner argues that Betts discloses a passenger seat positioned as claimed and a person of ordinary skill “would be motivated to modify a flat forward wall to include a second recess to receive at least a portion of an aft extending seat support.” Pet. 42–43 (citing Ex. 1004 ¶¶ 196, 198–199, 201; Ex. 1005, Fig. 1). Patent Owner does not address claim 5. We are persuaded by Petitioner’s argument and evidence, and find that claim 5 would have been obvious in view of the Admitted Prior Art and Betts.

Claim 6 depends from claim 1 and recites “wherein said first recess in said forward wall portion is disposed between an upper wall portion and a lower wall portion.” Petitioner argues that Betts discloses a recess positioned as claimed. Pet. 44 (citing Ex. 1004 ¶¶ 202–203; Ex. 1005, Fig. 1). Patent Owner does not address claim 6. We are persuaded by Petitioner’s argument and evidence, and find that Betts discloses the limitations of claim 6.

Claim 7 depends from claim 1 and recites “wherein said forward wall portion defines a secondary space in said lavatory space above the passenger seat back.” Petitioner argues that the Admitted Prior Art discloses a secondary space in the lavatory above the seat back and points to those

spaces within both Figures 1 and 2 of the '641 patent. Pet. 45 (citing Ex. 1001, 4:43–45, Figs. 1, 2; Ex. 1004 ¶¶ 205–207). Petitioner also argues that prior art lavatories containing such storage spaces were known, and that the lavatory “would continue to contain the prior art interior storage spaces after applying a contour to the forward wall [from Betts].” *Id.* (citing Ex. 1004 ¶ 207). Patent Owner does not address claim 7. We are persuaded by Petitioner’s argument and evidence, and find that claim 7 would have been obvious over the Admitted Prior Art and Betts.

Claim 13 depends from claim 8 and recites “wherein the aft partition is substantially vertical and substantially planar.” Petitioner argues that the Admitted Prior Art discloses an aft partition that is substantially vertical and substantially planar. Pet. 52–53 (citing Ex. 1001, Fig. 1; Ex. 1004 ¶ 227). Patent Owner does not address claim 13. We are persuaded by Petitioner’s argument and evidence, and find that the Admitted Prior Art discloses the limitations of claim 13.

Claim 14 depends from claim 8 and recites “wherein the width of the lavatory space disposed between the forward partition and the aft partition comprises an upper width, a lower width, and a mid-width, and wherein the upper width and the lower width are both substantially wider than the mid-width.” Petitioner argues that “a person of ordinary skill in the art would recognize” that modifying a lavatory wall with Betts’s contoured wall “could impact the interior width of the lavatory.” Pet. 53 (citing Ex. 1004 ¶¶ 228–229). Petitioner adds that “[t]his is clear from the positioning of the recess shown in Figure 1 of Betts, which is substantially the same as Figure 2 of the '641 Patent.” *Id.* at 53–54 (citing Ex. 1001, Fig. 2; Ex. 1005, Fig. 1). Patent Owner does not address claim 14. We are persuaded by

Petitioner's argument and evidence, and find that claim 14 would have been obvious in view of Betts.

Claim 15 depends from claim 8 and recites “wherein the upper forward-extending portion, the aft-extending mid-portion, and the forward-extending lower portion of the forward partition form a substantially continuous surface.” Petitioner argues Figure 1 of Betts discloses the claimed substantially continuous surface. Pet. 54–55 (citing Ex. 1004 ¶¶ 231–232; Ex. 1005, Fig. 1). Patent Owner does not address claim 15. We are persuaded by Petitioner's argument and evidence, and find that Betts discloses the limitations of claim 15.

Claim 16 depends from claim 8 and recites “wherein said first aft-extending recess extends along substantially a full width of said forward partition.” Petitioner argues that “[o]ne of ordinary skill in the art would understand from Figure 1 [of Betts] that the recess [of the coat closet enclosure] extends the full width of the forward wall” and “would be motivated to extend the recess the full width of the forward wall in order to accommodate the full row of seats installed immediately forward of the wall. *Id.* at 55–56 (citing Ex. 1004 ¶¶ 234–236; Ex. 1005, Fig. 1). Petitioner adds that “the side elevation view shown in Figure 1 [of Betts] is essentially identical to the schematic diagram of Figure 2 of the '641 Patent.” *Id.* at 56 (citing Ex. 1001, Fig. 2; Ex. 1005, Fig. 1). Patent Owner does not address claim 16. We are persuaded by Petitioner's argument and evidence, and find that claim 16 would have been obvious in view of the Admitted Prior Art and Betts.

Claim 17 depends from claim 8 and recites “wherein said lavatory has a top, a bottom, a height therebetween, and a middle therebetween, said

lavatory has varying lengths along the height of the lavatory, and said lavatory is longer at the top of the lavatory than at the bottom of the lavatory.” Petitioner argues that the Admitted Prior Art discloses a lavatory that has a top, a bottom, a height therebetween, and middle therebetween. Pet. 56. Petitioner adds that “a person of ordinary skill in the art would recognize that [modifying the lavatory with Betts’s contoured wall] could impact the interior of the lavatory, e.g., the width or the lengths along the height of the lavatory.” *Id.* at 56 (citing Ex. 1005, Fig. 1; Ex. 1004 ¶¶ 238–239). Petitioner contends that “[t]his is clear from the positioning shown in Figure 1 of Betts, which is substantially the same as Figure 2 of the ’641 Patent.” *Id.* at 56–57 (citing Ex. 1001, Fig. 2; Ex. 1005, Fig. 1). Patent Owner does not address claim 17. We are persuaded by Petitioner’s argument and evidence, and find that claim 17 would have been obvious in view of the Admitted Prior Art and Betts.

In summary, we are persuaded that Petitioner has established by a preponderance of the evidence that claims 5–7 and 13–17 would have been obvious over the Admitted Prior Art and Betts.

E. Patent Owner’s Motion to Exclude

Patent Owner moves to exclude Exhibits 1004, 1006, 1007, 1008, 1018, 1019, and 1020, and any reliance thereon. Mot. Exclude 2. Petitioner opposes the Motion, and argues that Patent Owner waived the majority of the objections made with respect to Exhibit 1004. Opp. 2. Petitioner also argues that Patent Owner mischaracterizes the content of a number of the exhibits that bear on the ground at issue in this proceeding. *Id.* at 3–4. We need not reach these issues given that we deny Patent Owner’s Motion on other grounds.

1. Exhibit 1004

Regarding Exhibit 1004, the Anderson Declaration, Patent Owner argues that the entire declaration “must be excluded under F.R.E. 401, 402, 403, 702, 703, and 37 C.F.R. § 42.65 as irrelevant, prejudicial, and unreliable expert testimony because Mr. Anderson only provides conclusory statements without sufficient citation to evidence or explanation.” Mot. Exclude 3. Patent Owner does not support this broad, undeveloped, exclusion effort further, and to the extent that Patent Owner seeks to exclude the entire declaration rather than the enumerated paragraphs later addressed by Patent Owner, we decline to do so.

Patent Owner then focuses on an extensive list of paragraphs as “not relevant to Betts” and “unreliable because they are based on Ex. 1009, ‘KLM Crew Rest,’ which is not a prior art reference that is available for use in this IPR.” *Id.* at 3–4. We granted Petitioner’s request for partial adverse judgment as to the second ground in the Petition based in part on the KLM Crew Rest reference. Paper 36. We did not rely on the KLM Crew Rest in this Decision, nor any of Mr. Anderson’s opinions related to the KLM Crew Rest, and we therefore deny Patent Owner’s motion to exclude Ex. 1004 as moot to the extent that it seeks to exclude opinions based on the KLM Crew Rest. *See* Mot. Exclude 3–4.

Patent Owner also seeks to exclude certain paragraphs of Exhibit 1004 as too conclusory and lacking sufficient citation. *Id.* at 4–6. We view these arguments as going to the weight to be accorded the opinions rather than a proper basis for exclusion, and we deny the motion as to these paragraphs on that basis. In addition, with respect to paragraphs 75–79 and 93 related to the three “second recess” references we addressed above, we deny Patent

Owner's Motion for the additional reason that those references need not be "printed publication" prior art in order to be considered by Mr. Anderson. *See id.* at 5–7 (arguing that the declarants submitting the alleged prior art did not declare that the references were printed publications available to the public). Patent Owner cites no authority for its position that references must be excluded and not considered in any manner if they are not "printed publication" prior art under 35 U.S.C. § 311(b). Accordingly, we deny Patent Owner's Motion to Exclude Exhibit 1004.

2. *Exhibits 1018 and 1019*

Patent Owner argues that Exhibits 1018 and 1019 should be excluded because Petitioner only relied on the exhibits for the second ground based on the KLM Crew Rest, and not for the Betts ground. Mot. Exclude 7, 8–9. This argument is misleading. While Exhibits 1018 and 1019 were not cited directly in the Petition, Patent Owner is aware that the exhibits refer to drawings related to the "second recess" issue that are relied upon by Mr. Anderson and reproduced in the Petition. *See* Pet. 38. Petitioner also cites directly to Exhibits 1018 and 1019 in the Reply for that purpose. Reply 7–8. Patent Owner's argument that we should exclude the entirety of the exhibits because they do not relate to the Betts ground lacks merit.

Patent Owner also argues that Petitioner has not shown that the exhibits are prior art. Mot. Exclude 8 ("Petitioner has not shown [that Ex. 1018] is prior art available for use during this IPR."), 9 ("Petitioner has not shown that these declaration exhibits are prior art."). As discussed above, Petitioner introduced un rebutted testimony that two of the three references are prior art, and as to the third, Patent Owner raised some doubt as to which version of the product was in public use or on sale. We decline to exclude

the references that we already find are prior art. Again, Patent Owner provides no authority for the proposition that we can only consider “printed publication” prior art in this proceeding, even for background art that goes to the common sense issue here. In addition, as to the third reference, where Patent Owner established some doubt about the content of the product in public use and on sale, we need not rely on that reference to find the claims obvious and granting this Motion with respect to that exhibit would have no impact on the outcome of this case.¹⁴ We decline to exclude the references because they are not printed publications or prior art.

Patent Owner also argues that Exhibits 1018 and 1019 are not properly authenticated because they are not self-authenticating. *Id.* at 8–9. Petitioner argues that Patent Owner waived this objection because it never objected to the *exhibits* to the declarations on the basis of authenticity. *Opp.* 11 (citing Paper 15, 3–4). Petitioner also argues that Patent Owner’s position is baseless and frivolous because “[e]vidence may be authenticated through the testimony of a witness with knowledge that the exhibit is what it is claimed to be.” *Id.* (citing FRE 901(b)(1)). Petitioner points to portions of each declaration stating that the witnesses had such “personal knowledge” and that the exhibits to the declarations contain “true and correct copies.” *Id.* (citing Ex. 1018 ¶¶ 1, 15; Ex. 1019 ¶¶ 1, 8, 17). Petitioner also submitted

¹⁴ Even if none of the references are prior art, we see no basis to *exclude* any of the references. They are still germane to Petitioner’s argument that adding a second recess was known in the art, even if only in the internal, non-public documents of multiple parties in the industry. *See Opp.* 8. Accordingly, even if not prior art, we would not exclude the documents and would assess their weight in the context of Petitioner’s common sense argument.

deposition testimony from the district court litigation that allegedly authenticates the exhibits. *Id.* at 11–12 (citing Exs. 1024, 1025). Patent Owner did not respond to Petitioner’s specific arguments in its Reply.

We need not reach Petitioner’s waiver argument. Patent Owner made a boilerplate, undeveloped argument regarding lack of authenticity, and then failed to respond to Petitioner’s detailed arguments in support of its showing of authenticity. We agree with Petitioner’s arguments and evidence on this issue, and decline to exclude the exhibits on that basis that they were not properly authenticated.

3. Exhibits 1006, 1007, 1008, and 1020

For Exhibits 1006, 1007, 1008, and 1020, Patent Owner seeks to exclude the exhibits for the same reasons discussed above—because they do not relate to the Betts ground, only the KLM Crew Rest ground; because they are not prior art available for use in an IPR; and because they are not properly authenticated. Mot. Exclude 9–10. These arguments are not developed further, and Patent Owner does not refer to the specific contents of these exhibits. *Id.* We deny Patent Owner’s Motion to Exclude these exhibits for the same reasons provided above when addressing these same arguments.

F. Patent Owner’s Motions to Seal

Patent Owner filed two unopposed Motions to Seal. Papers 8, 22. In the first, Patent Owner seeks to seal exhibits 2020, 2038, 2039, 2040, 2048, 2049, 2050, 2051, 2053, 2060, 2061, 2062, 2063, 2064, 2065, and 2066 as well as Patent Owner’s Preliminary Response. Paper 8, 1. The Motion also seeks entry of a protective order that deviates from our standard protective order in several respects. *Id.* at 7–8. In the second Motion to Seal, Patent

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Owner seeks to seal exhibits 2077, 2078, 2079, 2089, 2090, 2091, 2092, 2096, 2097, 2098, and 2104, as well as Patent Owner's Response. Paper 22, 1.

There is a strong public policy that favors making information filed in *inter partes* review proceedings open to the public. *See Garmin Int'l v. Cuzzo Speed Techs., LLC*, Case IPR2012-00001 (PTAB March 14, 2013) (Paper 34) (discussing the standards of the Board applied to motions to seal). The moving party bears the burden of showing that the relief requested should be granted. 37 C.F.R. § 42.20(c).

[A] movant to seal must demonstrate adequately that (1) the information sought to be sealed is truly confidential, (2) a concrete harm would result upon public disclosure, (3) there exists a genuine need to rely in the trial on the specific information sought to be sealed, and (4), on balance, an interest in maintaining confidentiality outweighs the strong public interest in having an open record.

Argentum Pharms. LLC v. Alcon Research, Ltd., Case IPR2017-01053, slip op. at 4 (PTAB Jan. 19, 2018) (Paper 27) (informative).

In both Motions, Patent Owner asserts that confidential information has been exchanged in the underlying district court litigation and the parties have agreed that the information can be used in this proceeding, provided that it is filed under seal. Paper 8, 1; Paper 22, 1. Patent Owner asserts that the “material includes confidential and business sensitive information of Patent Owner, Petitioner, and Related Entities.” Paper 8, 2; Paper 22, 1. Patent Owner also contends that disclosure of the information would cause competitive harm to one or more of those entities. *Id.* Patent Owner then explains why each exhibit contains confidential information that justifies sealing the exhibit. Paper 8, 2–6; Paper 22, 2–4. For example, Patent

Owner contends that Exhibits 2048–2050, 2053, 2061, and 2062 “include competitively-sensitive information regarding the technical composition and operation of systems created and provide[d] by Patent Owner’s successor-in-interest.” Paper 8, 2; *see also* Paper 22, 2 (addressing Exhibits 2077, 2096, and 2098 using a similar rationale). Patent Owner and Petitioner also contend that Exhibits 2020, 2038, 2039, 2040, 2051, 2060, and 2063–66 contain competitively-sensitive information of Petitioner, including technical schematics for aircrafts manufactured by Petitioner that were exchanged under an “Attorney’s Eyes Only” designation in the district court litigation. Paper 8, at 3–6; *see also* Paper 22, 2 (addressing Exhibits 2078, 2089, 2092, and 2097, which include information produced under “Attorney’s Eyes Only” designation in district court litigation), 3 (addressing Exhibits 2079, 2090, and 2091, which contain Petitioner’s competitively-sensitive information).

Based on our review of the record and Patent Owner’s Motions, we agree that a sufficient basis exists to seal the exhibits in question. Although sealing the entirety of all of the exhibits in question is undoubtedly overbroad in that portions of each exhibit contain non-confidential material, we understand the burden imposed in determining, on a line-by-line basis, after consultation with all parties involved, which material is truly confidential and which is not. The public interest in reviewing non-confidential information in exhibits that may not be germane to the issues in the case is also lower than with respect to exhibits at the core of the parties’ dispute. Accordingly, we grant Patent Owner’s Motion to Seal (Paper 8) as to Exhibits 2020, 2038, 2039, 2040, 2048, 2049, 2050, 2051, 2053, 2060, 2061, 2062, 2063, 2064, 2065, and 2066, and grant Patent Owner’s Motion

to Seal (Paper 22) as to Exhibits 2077, 2078, 2079, 2089, 2090, 2091, 2092, 2096, 2097, 2098, and 2104.

We do not grant Patent Owner's Motion to Seal (Paper 20) as to Exhibit 2104 because Patent Owner has not provided any reason or rationale as to why Dr. Dershowitz's declaration testimony, on any subject, is confidential. Indeed, the publically available version of Dr. Dershowitz's testimony filed by Patent Owner contains no redactions or omissions as compared to the Board and Parties Only version also filed by Patent Owner.

We also reach a different conclusion regarding the redacted versions of Patent Owner's Preliminary Response and Patent Owner's Response. *See* Papers 7, 22. The Motions do not separately address the specific material redacted from those documents, or justify their exclusion from the public record. The redacted material appears to quote from or summarize information from exhibits subject to the motion to seal. However, as noted above, although we grant the motion to seal the exhibits, that does not mean that every line of every exhibit contains confidential information. In addition, the public interest is perhaps highest when addressing the ability of the public to view the information in the briefs of record. That information, by dint of its inclusion in the briefs, is arguably the most germane to the issues in the case and the basis for our Decision. On balance, we conclude that the interest in maintaining the confidentiality of the redacted portions of the Patent Owner's Preliminary Response and Patent Owner's Response are outweighed by the public interest in viewing the material. Accordingly, we deny the Motion to Seal Patent Owner's Preliminary Response and Patent Owner's Response.

Patent Owner also seeks entry of an agreed Protective Order. Paper 8, 7, Ex. A. According to Patent Owner, the parties' agreed Protective Order deviates from the Board's default protective order by modifying the list of individuals that can receive confidential information, and by clarifying that the Protective Order only governs documents marked "PROTECTIVE ORDER MATERIAL" in connection with this proceeding. *Id.* at 7–8. Patent Owner states that similar orders have been entered in related *inter partes* reviews. *Id.* at 7. We are amenable to the changes to our default protective order proposed by the parties. Accordingly, we grant Patent Owner's Motion for entry of the Protective Order attached to the Motion to Seal (Paper 8) as Exhibit A.

III. CONCLUSION

For all of the above reasons, we determine that Petitioner has shown by a preponderance of the evidence that claims 1, 3–10, and 12–17 of the '641 patent are unpatentable. We also deny Patent Owner's Motion to Exclude and grant Patent Owner's Motion to Seal certain exhibits and to enter an agreed Protective Order, but deny Patent Owner's Motion to Seal the Patent Owner's Preliminary Response and Patent Owner's Response.

IV. ORDER

It is

ORDERED that claims 1, 3–10, and 12–17 of the '641 patent have been shown to be unpatentable;

FURTHER ORDERED that Patent Owner's Motion to Exclude is DENIED;

FURTHER ORDERED that Patent Owner's Motion to Seal (Paper 8) as to Exhibits 2020, 2038, 2039, 2040, 2048, 2049, 2050, 2051, 2053, 2060, 2061, 2062, 2063, 2064, 2065, and 2066 is GRANTED;

FURTHER ORDERED that Patent Owner's Motion to Seal (Paper 22) as to Exhibits 2077, 2078, 2079, 2089, 2090, 2091, 2092, 2096, 2097, and 2098 is GRANTED;

FURTHER ORDERED that Patent Owner's Motion to Seal (Paper 20) as to Exhibit 2104 is DENIED;

FURTHER ORDERED that Patent Owner's Motion for entry of an agreed Protective Order (Paper 8, Ex. A) is GRANTED;

FURTHER ORDERED that Patent Owner's Motion to Seal its Patent Owner Preliminary Response (Paper 8) and Patent Owner Response (Paper 22) is DENIED; and

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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