

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

KAWASAKI RAIL CAR, INC.,
Petitioner,

v.

SCOTT BLAIR,
Patent Owner.

Case IPR2017-01036
Patent 6,700,602 B1

Before JAMESON LEE, SCOTT A. DANIELS, and
KEVIN C. TROCK, *Administrative Patent Judges*.

DANIELS, *Administrative Patent Judge*.

FINAL WRITTEN DECISION
35 U.S.C. § 318(a)

I. INTRODUCTION

A. Background

Kawasaki Rail Car, Inc., (“Petitioner”) filed a request for an *inter partes* review of claims 5, 7–9, and 11–29 (the “challenged claims”) of U.S. Patent No. 6,700,602 B1 (Ex. 1001, “the ’602 patent”). Paper 2 (“Pet.”). Scott Blair (“Patent Owner”) filed a Preliminary Response to the Petition. Paper 6 (“Prelim. Resp.”). We instituted an *inter partes* review of claims 5, 7–9, and 11–29 of the ’602 patent on some but not all of the grounds asserted by Petitioner. Paper 10 (“Dec. Inst.”). Patent Owner filed a Patent Owner Response (Paper 15, “PO Resp.”) and Petitioner filed a Petitioner Reply (Paper 34, “Pet. Reply”). Patent Owner filed observations on Petitioner’s declarant, Lowell Malo’s cross-examination testimony (Paper 37), and Petitioner filed a response to the observations (Paper 39).

During the pendency of this proceeding, on April 24, 2018, the Supreme Court held that a decision on institution under 35 U.S.C. § 314 may not institute on less than all claims challenged in the petition. *SAS Inst., Inc. v. Iancu*, 138 S. Ct. 1348 (2018). We modified our Institution Decision to institute trial on all of the grounds presented in the Petition. Paper 38 (“SAS Order”). We invited the parties to request modifications to the schedule and additional briefing regarding the newly added grounds. Papers 38, 39. We authorized Patent Owner to file a Supplemental Response limited to the newly instituted grounds, and Petitioner to file a Supplemental Reply. Paper 40. Patent Owner filed a Supplemental Patent Owner Response, and Petitioner filed a Supplemental Reply to Patent Owner’s Supplemental Response. Papers 45, 47.

Oral argument was held on July 9, 2018 in Alexandria, Virginia. Paper 43. Due to an equipment malfunction, no transcript of the oral

argument could be made. Patent Owner requested authorization to have the parties' oral argument demonstrative exhibits filed. We granted that request.

We have jurisdiction under 35 U.S.C. § 6(b). This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a). Having reviewed the arguments of the parties and the supporting evidence, we find that Petitioner has demonstrated by a preponderance of the evidence that each of challenged claims, 5, 7–9, and 11–29 of the '602 patent, is unpatentable.

B. Related Proceedings

The parties identify *Blair v. Alstom SA*, Civ. No. 1:16-cv-03391 (S.D.N.Y.) as a proceeding relating to the '602 patent. Pet. 1; Paper 5. Also, Petitioner previously filed IPR2017-00117, relating to claims 1–4 and 6 in the '602 patent. Pet. 1. In our Final Written Decision in IPR2017-00117 we found that Petitioner had demonstrated by a preponderance of the evidence that each of challenged claims, 1–4 and 6 of the '602 patent, are unpatentable. See Case IPR2017-00117, slip op. at 2 (PTAB May 2, 2018).

C. The '602 Patent

The '602 patent (Ex. 1001), titled “Subway TV Media System,” relates generally to a “message display, entertainment and advertising system for subway cars, in which television monitors are provided at spaced intervals in subway cars, to display short duration televisual entertainment and advertising features to subway riders.” Ex. 1001, 1:45–50. The '602 patent explains that the “invention provides properly positioned television monitors displaying moving images of news items, advertising material and the like, viewable by substantially all riders in the car, and filling their need for visual entertainment during the brief duration of their subway ride.” *Id.*

at 1:61–65. One embodiment of the '602 patent is shown, with highlighted annotation added by the Board, in Figure 4a reproduced below.

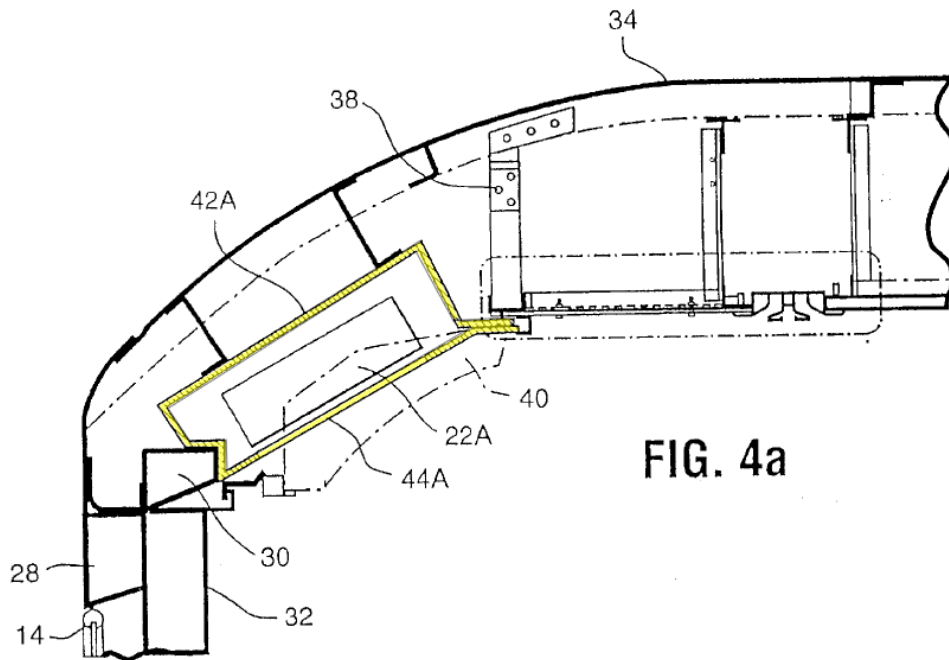


Figure 4a of the '602 patent above illustrates a cross-section view of LCD video monitor 22A positioned within enclosure 42A and behind screen 44A (highlighted in yellow). *Id.* at 5:35–49.

The '602 patent explains for the embodiment shown in Figure 4A, that:

CRT video monitor 22 is replaced with an LCD-based video monitor 22A which is of thin, rectangular cross-section, and occupies less space in the ceiling structure of the car. Accordingly, it can be moved towards the ceiling so that its viewing screen is substantially flush with or even behind the light panel 40.

Id. at 5:35–42.

D. Illustrative Claims

In the '602 patent, claims 1, 8, 15, and 20 are independent. Each of dependent claims 5, 7, 9, 11–14, 16–19, and 21–29, depend directly or

indirectly from respective independent claims 1, 8, 15, and 20.¹ Claim 1 illustrates the claimed subject matter and is reproduced below, along with illustrative dependent claims 5 and 7:

1. A subway car for mass transportation including longitudinal opposed sidewalls, a ceiling adjoining the sidewalls, a video display system comprising a plurality of video display monitors each having a video screen, and a video signal source unit operatively connected to said monitors,

said monitors being spaced along the length of the car on opposed sides thereof, each of said monitor being mounted at the junction of the sidewall and ceiling, *with the screen of the monitor substantially flushed with the adjacent wall surface structure of the car*, and directed obliquely downwardly toward the car seats, so that each video screen is readily visible to passengers in the subway car.

5. The subway car of claim 1 wherein the video signal source unit comprises a video tape player, a video disk player or computer-based digital video recorder.

7. The subway car of any of claim 1 including a self-contained wiring-cabling system connecting the video monitors to the video signal source unit.

Ex. 1001, 6:31–43, 53–55, 58–60 (emphasis added in claim 1).

E. Evidence Relied Upon

Petitioner relies upon the following references:²

¹ Claims 1–7 issued originally in the '602 patent, and claims 8–29 were added during *Ex parte* Reexamination No. 6,700,602 C1 (Jan. 29, 2015). See Ex. 1001; Ex. 1013.

² The citation to each Japanese publication, above, is a citation to the original Japanese language version. We refer in the remainder of this Decision to the exhibit numbers of the English translation for each Japanese publication. For each reference, the translation is the immediately following exhibit number to those cited above. For example, the Japanese version of

- (1) Japanese Publication No. 04-085379 (published July 24, 1992) (“Namikawa”), Ex. 1004;
- (2) Japanese Publication No. 07-181900 (published July 21, 1995) (“Miyajima”), Ex. 1006;
- (3) Japan Train Operation Association Magazine, Vol. 37, issue no. 3, March 1995 (“JTOA Magazine”), Ex. 1002;
- (4) Japanese Publication No. 04-322579 (“Sasao”), Ex. 1010;
- (5) Japanese Publication No. 04-160991 (“Maekawa”), Ex. 1008;
- (6) Japanese Publication No. 02-223985 (“Amano”), Ex. 1020;
- (7) Japanese Publication No. 03-200250 (“Yamada”), Ex. 1027;
- (8) U.S. Patent No. 5,148,282 (Sep. 15, 2002) (“Sedighzadeh”), Ex. 1025; and
- (9) U.S. Patent No. 3,211,904 (Oct. 12, 1965) (“Schwenkler”), Ex. 1026.

Petitioner also relies upon the declaration and supplemental declarations of Lowell Malo (Exs. 1015, 1034), and Patent Owner relies on the declarations of Joseph B. Zicherman, Ph.D (Exs. 2007, 2009). We point out that, in its Patent Owner Response, Patent Owner relied upon the declaration of Mr. Jack Long (Exhibit 2006), and Dr. Zicherman (Exhibit 2007). After filing its Response, Patent Owner requested, and Petitioner did not object to, replacing Mr. Long’s declaration with an identical substitute declaration by Dr. Zicherman. The Board authorized the replacement of Mr. Jack Long’s declaration (Ex. 2006) with Dr. Zicherman’s essentially identical substitute declaration, the difference in the substitute declaration,

Japanese Publication No. 04-085379 (“Namikawa”) is Exhibit 1004, the English translation is Exhibit 1005.

(Ex. 2009), being reference to Dr. Zicherman and his relevant background and qualifications. Paper 32.

F. The Alleged Grounds of Unpatentability

Petitioner contends that the challenged claims are unpatentable on the following sixteen (16) grounds.

Ground	References	Basis	Claims Challenged
A	Namikawa, Sasao, Amano, Maekawa	§ 103	5 and 7
B	Namikawa, JTOA Magazine, Amano, Maekawa	§ 103	5 and 7
C	Miyajima, Sasao, Amano, Maekawa	§ 103	5 and 7
D	Miyajima, JTOA Magazine, Amano, Maekawa	§ 103	5 and 7
E	Namikawa, Sasao, Amano, and Yamada or Sedighzadeh	§ 103	8, 9, 12–14, 20–22, and 24–29
F	Namikawa, JTOA Magazine, Amano, and Yamada or Sedighzadeh	§ 103	8, 9, 12–14, 20–22, and 24–29
G	Miyajima, Sasao, Amano, and Yamada or Sedighzadeh	§ 103	8, 9, 12–14, 20–22, and 24–29
H	Miyajima, JTOA Magazine, Amano, and Yamada or Sedighzadeh	§ 103	8, 9, 12–14, 20–22, and 24–29
I	Namikawa, Sasao, Amano, Schwenkler, and Yamada or Sedighzadeh	§ 103	11 and 23
J	Namikawa, JTOA Magazine, Amano, Schwenkler, and Yamada or Sedighzadeh	§ 103	11 and 23
K	Miyajima, Sasao, Amano, Schwenkler, and Yamada or Sedighzadeh	§ 103	11 and 23
L	Miyajima, JTOA Magazine,	§ 103	11 and 23

Ground	References	Basis	Claims Challenged
	Amano, Schwenkler, and Yamada or Sedighzadeh		
M	Namikawa, Sasao, Amano, and Schwenkler	§ 103	15–19
N	Namikawa, JTOA Magazine, Amano, and Schwenkler	§ 103	15–19
O	Miyajima, Sasao, Amano, and Schwenkler	§ 103	15–19
P	Miyajima, JTOA Magazine, Amano, and Schwenkler	§ 103	15–19

II. CLAIM CONSTRUCTION

A. Legal Standard

In an *inter partes* review, claim terms in an unexpired patent are interpreted according to their broadest reasonable construction in light of the specification of the patent in which they appear. 37 C.F.R. § 42.100(b); *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2144–46 (2016) (upholding the use of the broadest reasonable interpretation standard).

Claim terms are given their ordinary and customary meaning as would be understood by a person of ordinary skill in the art at the time of the invention and in the context of the entire patent disclosure. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). If the specification “reveal[s] a special definition given to a claim term by the patentee that differs from the meaning it would otherwise possess[,] . . . the inventor’s lexicography governs.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1316 (Fed. Cir. 2005) (en banc) (citing *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002)). We apply this standard to the claims of the ’602 patent.

1. Substantially flushed

During *ex-parte*-reexamination of the '602 patent, the recited limitation “substantially flush[ed]” (claims 1 and 8) was construed to mean “a surface which is to a great extent even with an adjoining one.” Ex. 1013, 478–79. In IPR2017-00117 we construed this language the same as in the reexamination-determination. See Case IPR2017-00117, slip op. at 5 (PTAB May 2, 2018), *see also NTP Inc., v. Research in Motion, Ltd.*, 418 F.3d 1282, 1293 (Fed. Cir. 2005) (When construing common claim terms, “we must interpret the claims consistently across all asserted patents.”). Moreover, Petitioner and Patent Owner agree on this construction for purposes of this proceeding. Compare Pet. 11, with PO Resp. 6. We adopt the parties’ agreed upon construction for purposes of this Decision.

2. Substantially contiguous

Instead of “substantially flush[ed],” the term “substantially contiguous” is recited in independent claim 15. Ex. 1001, p. 12, 1:40–2:42. Petitioner argues that this term should be construed as synonymous with “substantially flushed.” Pet. 11. Patent Owner asserts that “substantially contiguous” should be given its ordinary and customary meaning which is “a surface which is to a great extent ‘touching throughout in an unbroken sequence.’” PO Resp. 6 (citing Ex. 2003).

Our review of the specification of the '602 patent reveals no express or implicit definition of this term. And neither parties’ definition appears to be based on any particular definition or evidence from any aspect of the '602 patent prosecution history or specification. See Ex. 2003 (Patent Owner cites generally to Ex. 2003 (Appeal Brief in reexamination proceeding) without a pinpoint cite.). Petitioner’s contention that in claim 15

“contiguous” is used instead of “flushed” does not persuade us that the words are synonymous, mainly because it is reasonably understood that the ordinary meaning of these different words have expressly different definitions. An ordinary meaning of “contiguous includes, “being in actual contact: touching along a boundary or at a point,” and “touching or connected throughout in an unbroken sequence.” MERRIAM WEBSTER ONLINE DICTIONARY, <https://www.merriamwebster.com/dictionary/contiguous>, last visited Aug. 2, 2018. This definition is substantially similar to the meaning advanced by Patent Owner. We find Patent Owner’s meaning persuasive and determine that “substantially contiguous” means “a surface which is to a great extent ‘touching throughout in an unbroken sequence.’”

3. Video signal source unit

Consistent with our determination in IPR2017-00117, we understand “video signal source unit” to mean “devices recognized by one with ordinary skill in the art as a source of video signals.” Case IPR2017-00117, slip op. at 6 (PTAB May 2, 2018).

4. Self-contained wiring-cabling system

Patent Owner contends that “self-contained wiring system,” as recited in dependent claim 7, should be understood as “described in the specification as being independent of any previously installed track, tunnel or control systems.” PO Resp. 8 (citing Ex. 1001, 2:65–67, 3:1–4). Petitioner asserts that such a construction misreads the ’602 patent specification because a plain reading of the specification expresses that “self-contained” means “self-contained within the subway car.” Pet. Reply 18–19.

The paragraph at issue in the '602 patent specification states:

A preferred system according to the invention is a subway car or plurality of subway cars equipped with a plurality of television monitors, especially LCD-based television monitors, and a video signal source comprising a video tape player, video disk player or computer-based digital video recorder, the video signal source and the monitors being interconnected by suitable electrical cable systems which are self-contained within the subway car. In this way, new subway cars can be built with the video system or parts thereof installed, and usable on substantially any transit system, since the operation of the video system is independent of any previously installed track, tunnel or control systems.

Ex. 1001, 2:59–3:4.

We determine, from a plain reading of this paragraph, that the parties' constructions are both plausible, and not necessarily in conflict. Petitioner is correct that “self-contained” is describing that a component, i.e., the “electrical cabling system” is physically located within the subway car, i.e., “the video signal source and the monitors being interconnected by suitable electrical cable systems.” Pet. 18. Patent Owner's construction is reasonable because the phrase “[i]n this way” in the subsequent sentence transitions the reader to understand that the “self-contained” electrical cable systems components on the subway car operate “independent of any previously installed track, tunnel or control systems.” Ex. 1001, 2:66–67. Therefore, a reasonable interpretation of the phrase “a self-contained wiring-cable system,” as recited in claim 7, is “a wiring-cabling system, that is physically located within a subway car and operates independent of any previously installed track, tunnel or control systems.”

B. Other Constructions

Petitioner offers a construction for “back lit panel” (claims 11, 19, 23), and Patent Owner asserts this term should be given its ordinary and

customary meaning. Pet. 12; PO Resp. 7. Patent Owner proffers a visual construct showing the “transitional segment” (claim 15) by red lines demarcating a region between the sidewall and ceiling of the railcar. PO Resp. 6–7. We do not provide explicit constructions for these claim terms because doing so is not necessary for our determination of unpatentability. *See Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (only those terms which are in controversy need to be construed, and only to the extent necessary to resolve the controversy).

III. ANALYSIS

A. *The Law of Obviousness*

A claim is unpatentable under 35 U.S.C. § 103(a) if “the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.” *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 skill in the art; and (4) objective evidence of nonobviousness, i.e., secondary considerations. *See Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

In that regard, 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.” *KSR*, 550 U.S. at 418; *Translogic*, 504 F.3d at 1262. A *prima facie* case of obviousness is established when the

prior art itself would appear to have suggested the claimed subject matter to a person of ordinary skill in the art. *In re Rinehart*, 531 F.2d 1048, 1051 (CCPA 1976).

B. Level of Skill in the Art

In determining whether an invention would have been obvious at the time it was made, we consider the level of ordinary skill in the pertinent art at the time of the invention. *Graham*, 383 U.S. at 17. “The importance of resolving the level of ordinary skill in the art lies in the necessity of maintaining objectivity in the obviousness inquiry.” *Ryko Mfg. Co. v. Nu-Star, Inc.*, 950 F.2d 714, 718 (Fed. Cir. 1991).

Petitioner argues a person of ordinary skill in the art in the field of the ’602 patent is a person who has (1) a Bachelor’s Degree in Mechanical, Industrial, or Aerospace Engineering (or the practical experience equivalent to those degrees), and (2) an additional 2–3 years of experience in the design of railcars. Pet. 10 (citing Ex. 1015 ¶ 23).

In the Patent Owner Response, Patent Owner does not provide or argue a particular level of education, field of study, relevant industry, or years of experience a person of ordinary skill in the art would have had at the time of the ’602 patent. *See generally* PO Resp. 2 (citing Exs. 2007, 2009). We note Patent Owner’s declarant, Dr. Zicherman, states that, he “do[es] not disagree with the qualifications recited by Petitioner’s expert” as to person of ordinary skill in the art at the time of the ’602 patent. Ex. 2009 ¶ 7. Having reviewed the subject and content of the prior art references asserted in this proceeding, and consistent with our determination in IPR2017-00177, we find that a person of ordinary skill in the art in the field of the ’602 patent is a person who has (1) a Bachelor’s Degree in

Mechanical, Industrial, or Aerospace Engineering (or the practical experience equivalent to those degrees), and (2) 2–3 years of experience in the design of railcars.

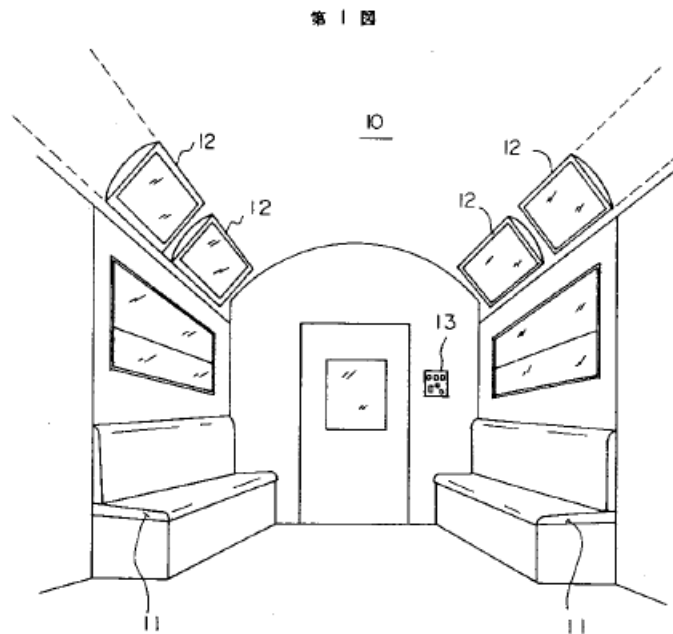
C. Claims 5 and 7 as unpatentable over Namikawa, Sasao, Amano, and Maekawa

Petitioner alleges that claims 5 and 7, which depend from independent claim 1, would have been obvious over Namikawa, Sasao, Amano, and Maekawa.

1. Namikawa (Exs. 1004, 1005)³

Namikawa is directed to a subway car where “a plurality of liquid crystal televisions 12 are disposed along the direction of travel on a wall face above each seat 11 inside a car 10.” Ex. 1005, 6. Figure 1 of Namikawa is reproduced below.

³ The cited prior art references, Namikawa, Sasao, Amano, and Maekawa, are foreign language references, each accompanied by a certified English language translation. *See, e.g.*, Exs. 1004, 1005 (Namikawa); Exs. 1010, 1011 (Sasao); Exs. 1020, 1021 (Amano); and Exs. 1008, 1009 (Maekawa). In each instance, the even exhibit number refers to the foreign language document and the odd exhibit number refers to the English language translation. For convenience, we cite to the English language translations of these references.

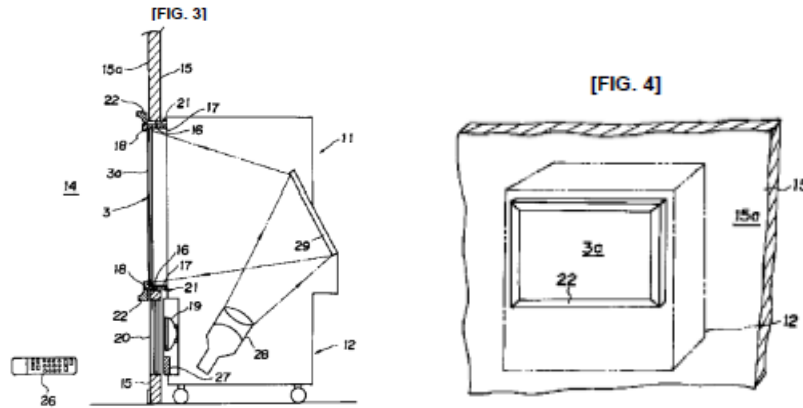


Ex. 1005, Fig. 1. Namikawa's Figure 1, above, illustrates the inside of a railcar.

Namikawa discloses that “[e]ach liquid crystal television 12 broadcasts content taken from broadcasting media, such as cable television for example, in other words, programming such as various types of commercials, dramas, and news.” Ex. 1005, 6. Namikawa explains that the televisions are arranged in a position so that “a passenger sitting in one facing seat can watch the liquid crystal television 12 above another seat and a passenger in the other seat can watch the liquid crystal television 12 above the seat of the one facing seat.” *Id.*

2. Sasao (Exs. 1010, 1011)

Sasao is directed generally to a “display device that is structured so as to be housed at the interior of a wall.” Ex. 1011, 2. Sasao discloses, specifically, arranging a television behind wall 15, as shown in Figures 3 and 4 of the reference set out below.



Id. at Figs. 3, 4. Figures 3 and 4 show a cross section and a front view of a mounted television frame, respectively.

Sasao describes that “[t]he cabinet 12 itself is disposed behind the wall 15 and cannot be seen from within the room 14,” and “furthermore, as described above, the screen 3 protrudes forward from the cabinet 12 so that the front face 3a of the screen and the wall surface 15a in the room 14 are substantially flush.” *Id.* at 2.

3. Amano (*Exs. 1020, 1021*)

Amano is directed to a system for “making use of time in transportation equipment, by installing a display device, which provides nonstandard information to a large indefinite number of people who are using a limited space such as an airplane, train, or bus.” *Ex. 1021, 1.* Amano discloses also located on a train or a bus, “a display information signal transmitter . . . which primarily plays back motion pictures stored on a video disk or a videotape.” *Id.* at 2–3.

4. Maekawa (*Exs. 1008, 1009*)

Maekawa is directed to “a teletext broadcast receiving system for a mobile body, preferably used in installations in mobile bodies such as electric trains.” *Ex. 1009, 1.* Maekawa further discloses that each of “the

television receivers (101), (102), (103) . . . (124) are thin” and can be “liquid crystal panels or the like.” *Id.* at 2.

5. *Claim 1*

Because each of claim 5 and claim 7 depend directly from claim 1, we address initially claim 1.

In IPR2017-00117, the Board previously determined that claim 1 of the '602 patent is unpatentable as obvious over the same combination of prior art asserted in this proceeding: Namikawa, Sasao, Amano, and Maekawa. *See* Case IPR2017-00117, slip op. at 13–31, 39 (PTAB May 2, 2018). Petitioner does not specifically challenge claim 1 in this proceeding. Although Patent Owner does not specifically contest our conclusion for motivation to combine these references in our prior decision, Patent Owner does contest in this case what the teachings of the combination would be. PO Resp. 3 (Patent Owner argues here, mainly that, “[t]he combined teachings of the prior art do not suggest the modifications advanced by petitioner to a person of ordinary skill in the art at the time of the invention.”). The evidence of obviousness for claim 1 in this case is the same as the previous proceeding. We adopt the same analysis, reasoning and findings from IPR2017-00117 with regard to how each limitation contained in claim 1 is adequately accounted for by the combined teachings of Namikawa, Sasao, Amano, and Maekawa. *Case IPR2017-00117*, slip op. at 13–31, 39 (PTAB May 2, 2018).

In this proceeding, Patent Owner advances mainly two new arguments with respect to claim 1, first, that the prior art does not teach “the availability of space” at the junction of the sidewall and the ceiling to flush mount a monitor, and second, that a person of ordinary skill in the art would not be

motivated, due to fire safety requirements and concerns, to flush mount a television monitor in a railcar. PO Resp. 17–34. Despite our determination that claim 1 is unpatentable in our previous proceeding, we address the merits of Patent Owner’s new arguments, on the same prior art, below.

Whether the prior art teaches or suggests the availability of space behind the wall at the junction of the sidewall and the ceiling.

Patent Owner contends that a person of ordinary skill in the art would not have considered mounting a monitor “IN a wall face,” i.e., in the wall cavity at the junction of the sidewall and ceiling because “it could be filled with thermal insulation, sound deadening material, wiring and cable and an array of structural members.” PO Resp. 21–22 (citing Ex. 2009 ¶ 29). Patent Owner’s declarant, Dr. Zicherman, testifies that a person of ordinary skill in the art would not have known that there was room at the junction “sufficient to retain a display monitor such that it would be substantially flush with the adjacent wall surface.” Ex. 2009 ¶ 29. Assuming there was a cavity in the wall, Dr. Zicherman states that “in the time period of 1995–1997, there would be *no expectation that it would be available* as it could be filled with thermal insulation, sound deadening material, wiring and cable and an array of structural members.” Ex. 2009 ¶ 29 (emphasis added).

By way of background, the ’602 patent establishes that “[a] subway car is normally constructed so that it has a cavity wall, defined between its outer structural shell and its inner lining wall.” Ex. 1001, 3:55–57. Lowell Malo, Petitioner’s declarant, confirms consistently with the ’602 patent specification and Mr. Zicherman’s testimony, that this cavity between an interior wall and an outer shell of the railcar was used for thermal insulation, sound deadening material, wires and cabling, and “an array of structural members which could be used for the mounting of interior equipment.” Ex.

1034 ¶ 29. Mr. Malo, however, disagrees with Dr. Zicherman’s conclusion that due to the thermal insulation, deadening material, and wires in the cavity, there was insufficient space available in the wall to flush mount a monitor. Mr. Malo testifies that

[d]espite these materials and structures in the cavity, there still would have been sufficient space to place the televisions substantially flush with adjacent wall surfaces. In particular, not much space would have been needed to flush-mount the LCD televisions because the televisions would have been relatively thin.

Ex. 1034 ¶ 31. Mr. Malo explains further that

a POSITA would have known that, if necessary to create more space, many of the components or materials included in the cavity could have been moved around. For example, thermal insulation, sound deadening material, wires and cables could be moved to make room for other components.

Id. ¶ 32.

We are persuaded by the evidence and testimony, above, that it was known to have a cavity between an inner and outer wall of a railcar. *See, e.g.,* Ex. 1001, 3:55–57; *see also* Ex. 1038, 16:5–13 (Patent Owner’s declarant, Dr. Zicherman, provided deposition testimony confirming that it was known to have a cavity between an inner wall and outer shell of a railcar in the 1995-97 time frame.). The harder question results from the declarants’ competing testimony, i.e., whether or not a person of skill in the art would have known there was sufficient space *available* to accommodate a monitor. *Compare* Ex. 2009 ¶ 29, *with* Ex. 1034 ¶ 31.

Although the declarants agree that there would be insulation, wires, and structural components in the cavity, Mr. Malo explains that a person of ordinary skill in the art “would have known that, if necessary to create more

space, many of the components or materials included in the cavity could have been moved around.” Ex. 1034 ¶ 32. Neither Patent Owner nor Dr. Zicherman expressly contests this testimony or explains why moving and arranging such materials and components in a wall to accommodate a monitor would have been particularly difficult or beyond the skill of a person of ordinary skill in the art. See Ex. 2009 ¶ 29; *see also KSR*, 550 U.S. at 417 (“[I]f a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.”).

Also, Patent Owner’s argument states that the asserted references would not “teach or suggest” to a person of ordinary skill in the art the availability of space at the junction of the sidewall and the ceiling. PO Resp. 17, 21. Based on well-settled case law, it is not necessary to find in the prior art a specific teaching or suggestion. See *KSR*, 550 U.S. at 419 (2007) (“The obviousness analysis cannot be confined by a formalistic conception of the words teaching, suggestion, and motivation, or by overemphasis on the importance of published articles and the explicit content of issued patents.”). “[A]n analysis of obviousness . . . may include recourse to logic, judgment, and common sense available to the person of ordinary skill in the art that do not necessarily require explication in any reference or expert opinion.” *Perfect Web Techs., Inc. v. InfoUSA, Inc.*, 587 F.3d 1324, 1329 (Fed. Cir. 2009). Without persuasive evidence to the contrary, we determine that it would have been within the level of ordinary skill in the art to arrange materials and components in a wall so as to accommodate other components, such as a monitor. One of ordinary skill can use his or her ordinary skill and

creativity to make the necessary adjustments and further modifications to result in a properly functioning device. *See KSR*, 550 U.S. at 418 (2007) (“the [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.”).

We find Mr. Malo’s testimony and reasoning credible, namely that a person of ordinary skill in the art would have known that within a cavity in the wall of a railcar “thermal insulation, sound deadening material, wires and cables could be moved to make room for other components” in such a manner as to accommodate a monitor and necessary fittings and components within the wall. Ex. 1034 ¶ 32.

Whether a POSITA would have been motivated to mount a monitor substantially flush with an adjacent wall surface structure of a subway car in light of heightened safety requirements

To persuade us that a person of ordinary skill in the art would have known and been motivated to flush mount monitors in railcars, Petitioner relies upon Lowell Malo’s testimony referring to Federal Railroad Administration, (“FRA”), including proposed safety standards promulgated in 1996. Pet. 28–29 (citing Ex. 1015 ¶¶ 31, 53–54). According to Mr. Malo, the FRA proposed rulemaking and “a proposed rule in June 1996 that required interior fittings of railcars (e.g., TVs) to be ‘recessed or flush-mounted.’” Ex. 1015 ¶ 31 (citing 61 Fed. Reg. 30672-01, 30672, 30707 (proposed June 17, 1996)). Mr. Malo appended relevant portions of the proposed rules to his declaration and points to Paragraph (d) of proposed § 238.233, titled, Interior Fittings and Surfaces, which states that “[t]o the extent possible, all interior fittings in a passenger car, except seats, shall be

recessed or flush-mounted.” Ex. 1015, App. J, 142. Petitioner, and Mr. Malo, point out that the rule making reasoning for recess or flush-mounting of interior fittings is so, “[s]uch fittings do not protrude above interior surfaces and thereby help to minimize occupant injuries.” Pet. 29; Ex. 1015 ¶¶31, 54 (citing *id.*).

Flipping the script on Petitioner, Patent Owner counters that the FRA proposed rules would not have motivated one of ordinary skill in the art to flush mount a monitor, or put it inside an enclosure, because doing so could be a fire hazard. PO Resp. 27 (citing Ex. 2004, 73). Patent Owner initially points out that the enacted FRA rule does not *require* flush mounting, but that the rule states “**to the extent possible**, interior fittings shall be recessed or flush mounted.” PO Resp. 25–26 (citing Ex. 1015, 154). Patent Owner argues essentially that flush mounting is not required for monitors, because “[t]he FRA would not require an ‘interior fitting’ if it would pose a fire hazard.” *Id.* at 26 (citing Exs. 2007 ¶ 26). Patent Owner’s declarant, Dr. Zicherman testifies that a person of ordinary skill in the art would not have mounted a monitor flush in a railcar due to “an extreme aversion to any potential fire hazards.” Ex. 2007 ¶ 26. In his declaration, Mr. Zicherman stated that

[a] POSITA, in the 1995-1997 timeframe, would not have been motivated to mount a monitor substantially flush with an adjacent wall surface structure of a subway car because of heightened safety requirements, an extreme aversion to any potential fire hazards and knowledge a television should never be put in a “built-in” enclosure and the ventilation slots should never be blocked.

Ex. 2009 ¶ 26. Both parties’ declarants acknowledge that televisions produce heat. *Compare* Ex. 1034 ¶ 8, *with* Ex. 1035, 116:25–117:4.

Following Dr. Zicherman's testimony, the question becomes whether one of ordinary skill in the art understood a television or monitor to produce sufficient heat to be a fire hazard, and whether ventilation and cooling could be utilized to cool a television or monitor.

Petitioner points out that during his deposition Dr. Zicherman stated he did not know if the LCD televisions in Namikawa produce enough heat to be a fire hazard:

Q. Do you know if the heat produced by the televisions of Namikawa pose a fire hazard?

MR. KEYHANI: Objection.

A. No, I don't know.

Q. So you don't know if by flush mounting the televisions of Namikawa, they would pose a fire hazard?

MR. KEYHANI: Objection. Asked and answered.

A. I don't know until I have the technical parameters of these TVs. You're pulling all this hypothetical stuff out of the air.

Q. It is your testimony today that you do not have enough information about the televisions of Namikawa to know that if they would pose a fire hazard?

A. That's correct.

Ex. 1035, 150:21–151:13. Petitioner contends, further, that Namikawa discloses the use of LCD televisions, and that even in 1997 LCD televisions did not generate as much heat as cathode ray tube (CRT) televisions. Pet. Reply 5. Mr. Malo supports Petitioner's argument testifying that in the mid 1990's he designed and tested a railcar interior having a flush mounted LCD television in it. Ex. 1034 ¶ 10. Mr. Malo explained that

I built a mock-up including a representative LCD television which was flush-mounted, and measured the temperature of the

television during operation to determine whether it would pose a fire hazard. The measured temperature was less than 125 degrees Fahrenheit, which meant . . . that the heat generated by the representative LCD television was not enough to pose a fire hazard. As a result, it was not necessary to propose a cooling system for the LCD televisions of the railcars.

Id. And, with respect to the question of whether a transparent cover unit over the LCD screen would create a hazard, Mr. Malo testifies further that “in 1997, LCD televisions typically did not generate much heat, and they would not have generated enough heat to create a fire hazard, even if their screens were covered by flush-mounted cover units.” *Id.* ¶ 11.

Importantly, Mr. Malo states in his declaration that if a person of ordinary skill in the art “determined that a flush-mounted television would generate excess heat, he or she also would have known how to safely dissipate that heat.” *Id.* ¶ 15. Mr. Malo testifies that providing ventilation space or forced air ventilation in the wall of a railcar “would have been a straightforward engineering project that a POSITA would have known how to evaluate and address.” *Id.* ¶ 16.

We appreciate, as Patent Owner argues and Dr. Zicherman testifies, that fire safety is a critical concern for rail transit, particularly in subway tunnels. *See* PO Resp. 27–28 (citing Ex. 2007 ¶ 9). We are not apprised, however, of persuasive evidence that LCD monitors as disclosed by Namikawa create a fire hazard. Neither Patent Owner, nor Dr. Zicherman, has presented persuasive evidence that LCD televisions and monitors generate sufficient heat to constitute a fire hazard. Moreover, there is no persuasive evidence presented by Patent Owner that explains why a person of ordinary skill in the art would *not* have been able, with a reasonable expectation of success, to dissipate excess heat by ventilating monitors in the

wall of a railcar. In his deposition Mr. Zicherman describes that an LCD screen could be cooled with appropriate space and ventilation.

Q. How much space would have been needed for one to be able to flush mount an LCD screen and provide sufficient ventilation?

MR. KEYHANI: Objection.

A. At least 2 centimeters behind it and a channel or mechanism to ensure airflow. In other words, you couldn't just shove the insulation back and put the unit in there. You'd have to make sure the insulation had a stand-off distance of at least 2 centimeters and that there was some channel, so that when heat were produced, it could make its way to the outside. And that might have been through a vent fan or something like that.

Q. And what you just described would have been implemented in a subway car; is that correct?

MR. KEYHANI: Objection.

A. In a subway car?

Q. Mm-hmm.

A. Yeah, I would think so.

Ex. 1035, 58:2–21.

Patent Owner argues also that Consumer Product Safety Commission guidelines would have deterred a person of skill in the art from “plac[ing] a television set in a “built-in” enclosure.” PO Resp. 31–32 (citing Ex. 2005, 2). The CPSC guidelines are dated June 1, 1974, and do not specify what type, apart from home and portable, of “TV” is referred to in the guidelines. *See* Ex. 2005. Petitioner asserts that these guidelines are applicable to cathode ray tube (“CRT”) televisions, not LCD television which were not available in 1974. Pet. Reply 5. Moreover, Petitioner elicited from Dr. Zicherman during his deposition that the CPSC guidelines apply to CRT

televisions, and that LCD televisions were not available any earlier than 1980 and the guidelines did not address fire hazard concerns with respect to LCD televisions. Ex. 1035, 112:13–116:17. Dr. Zicherman expresses his view that any type of TV is a potential “ignition source.” *See id.* at 116:25–117:4 (Mr. Zicherman stated that “[a]ny television, whether it’s built in 1974 or 2014, poses a potential fire hazard and needs to be examined on that basis.”). Yet Dr. Zicherman does not explain why a person of ordinary skill in the art could not have determined, as Mr. Malo testifies he did in a test for Colorado Railcar in the mid-1990’s, whether an LCD television generated sufficient heat to be a fire hazard. *See* Ex. 1034 ¶ 10. Overall, the declarant’s testimony best supports Petitioner and Mr. Malo’s position that generated heat in an LCD, or any other monitor for that matter, would have been accounted for and if necessary mitigated by one of ordinary skill in the art with appropriate ventilation. *See id.* at ¶¶ 13–18.

Overall, despite the fact that FRA rules stress concerns relating to fire safety in railcars, and understanding from the CPSC guidelines that televisions produce heat, we are not convinced that one of ordinary skill in the art would have been dissuaded from flush mounting of an LCD monitor or television in a railcar because of a potential fire hazard. We credit the testimony of Mr. Malo in this proceeding and are persuaded that LCD monitors would not have posed such an overwhelming fire hazard in railcar applications that a person of ordinary skill in the art would been led away from, and not investigated ways to mount an LCD flush in the wall of a railcar. *See* Ex. 1034 ¶ 7 (Mr. Malo states that Namikawa’s “liquid crystal display (LCD) televisions [] would not have generated sufficient heat to create any fire hazard.”).

To the extent that the evidence shows that LCD's were known to generate heat, both Mr. Malo and Dr. Zicherman provide consistent testimony that excess heat could have been mitigated through known ventilation and ducting techniques available to those of ordinary skill in the art in railcar design. *Compare* Ex. 1034 ¶¶ 15–17, *with* Ex. 1035, 65:2–22.

Whether the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified

Making another argument, Patent Owner cites to *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959), alleging that incorporating the fire-safe television cabinet of Sasao into Namikawa would change the principle of operation of Namikawa. PO Resp. 32–33. Patent Owner argues, specifically, that Sasao's cabinet is important for fire protection “and the removal thereof would frustrate the purpose of the system.” *Id.* at 33. Therefore, with the cabinet as part of the overall combination of Namikawa and Sasao, Petitioner contends that “the cabinet would frustrate the purpose of Namikawa being mounted at the junction of the sidewall and the ceiling and being substantially flush.” *Id.*

As discussed above, Sasao discloses a television cabinet housed within a wall “so that the front face 3a of the screen and the wall surface 15a in the room 14 are substantially flush.” Ex. 1011, 2. Sasao states also that “safety can be improved by making this cabinet 12 out of a material having good fire resistance.” *Id.* at ¶ 15.

Petitioner, however, simply relies upon Sasao for generally teaching that it was known in the art to have a television screen flush mounted with a wall. *See* Pet. 27–28. Petitioner reasoned that one of skill in the art would have been motivated to mount the screen in this manner to conserve space inside the railcar, as taught by Namikawa. *Id.* Petitioner, however, does not

assert that Sasao's specific structure, including the fire safe television cabinet is necessary to incorporate into Namikwa. Pet. 27–28. We determine that Petitioner's reliance on Sasao's teaching of a flush mounted screen does not, in and of itself, implicate or impose the necessity to incorporate the entirety of Sasao's rear projection CRT television 11 into the wall of the railcar in Namikawa. *See In re Nievelt*, 482 F.2d 965, 968 (CCPA 1973) (“Combining the teachings of references does not involve an ability to combine their specific structures.”). Petitioner's contention is simply “that a POSITA would flush-mount Namikawa's LCD televisions based on Sasao's teaching.” Pet. Reply 17. “The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference.” *In re Keller*, 642 F.2d 413, 425 (CCPA 1981).

Even without Sasao's fire resistant cabinet, we are persuaded by Petitioner's evidence and the knowledge of one of ordinary skill in the art that a person of ordinary skill in the art would have successfully mitigated fire hazard concerns for a flush mounted monitor. Given that the combination of Namikawa and Sasao does not combine the specific fire proof cabinet structure from Sasao, the same evidence and reasoning as discussed above relative to Namikawa and fire safety is applicable here. We are persuaded by the generally consistent testimonial evidence from Mr. Malo and Dr. Zicherman explaining that a person of ordinary skill in the art would have known to provide LCD televisions with appropriate ventilation where heat dissipation was necessary. *Compare* Ex. 1034 ¶¶ 15–17, *with* Ex. 1035, 65:2–22. Based on the evidence of record on this point it is reasonable that a person of ordinary skill in the art of railcar design would

have understood that proper ventilation techniques and structure could be arranged within the wall space and the junction of the ceiling and wall to dissipate heat in railcar and accomplish flush mounting of Namikawa's LCD television.

For all the reasons stated above, and those in our Final Written Decision in IPR2017-00117, we are persuaded that Petitioner has shown by a preponderance of the evidence that the combination of Namikawa, Sasao, Amano, and Maekawa teaches all the limitations of independent claim 1 and arranged in the manner as is required by claim 1.

6. Claims 5 and 7

Claim 5

Petitioner contends that Amano as combined with Namikawa discloses a video disk or videotape player for use on a transportation vehicle. Pet. 30 (citing Ex. 1021, 2–3; Ex. 1015 ¶ 39). For example, Amano expressly discloses “an airplane, train or bus,” having “a display information signal transmitter . . . which primarily plays back motion pictures stored on a video disk or a videotape.” Ex. 1021, 1–3. Petitioner reasons that Amano describes a specific signal source and that a person of ordinary skill in the art would have “combine[d] the video disk player of Amano, or the receivers/antenna of Maekawa, with the television system of Namikawa, in order to display desired content to passengers. Pet. 24 (citing Ex. 1015 ¶ 38).

Patent Owner argues only that claim 5, which specifies that the “video signal source unit,” (referred to in the parties' briefs as “VSSU”), recited in claim 1 is, “a video tape player, a video disk player or computer-based

digital video recorder,” is not obvious for the same reasons as claim 1. PO Resp. 34.

We are persuaded by Petitioner’s evidence and arguments that Petitioner has shown by a preponderance of the evidence that the combination of Namikawa, Sasao, Amano, and Maekawa teach all the limitations of independent 1 as well as the “video signal source unit,” recited by dependent claim 5.

Claim 7

Petitioner contends that each of Namikawa, Amano, and Maekawa disclose “a self-contained wiring-cabling system connecting the video monitors to the video signal source unit,” (“VSSU”), as required by claim 7. Pet. 30–31 (citing Ex. 1015 ¶ 63). Amano’s transmitter, Petitioner argues, must be connected to its display devices in order to function as intended. *Id.* at 30–31 (citing Ex. 1021, 3, Fig. 2). Similarly, Petitioner contends that Maekawa’s transmitter would have been connected by a wire or cable to video monitors and that “the necessary connection between video monitors and a VSSU in Namikawa (or Amano or Maekawa) would have been an obvious design choice for a [person of ordinary skill in the art].” *Id.* at 31 (citing Ex. 1009, 4; Ex. 1015 ¶¶ 62–65).

Patent Owner, relying on its proposed claim construction, alleges that none of Namikawa, Amano, and Maekawa discloses a “‘self-contained wiring cabling system’ as being independent of any previously installed track, tunnel or control systems.” PO Resp. 34–35. We do not agree with Patent Owner that the references fail to teach such a self-contained wiring cable system” as properly construed. We determined, above, that a “self-contained wiring-cabling system” is properly understood in light of the

specification as “a wiring-cabling system that is physically located within a subway car and operates independent of any previously installed track, tunnel or control systems.” Section II.A.4. Maekawa’s Figures 1 and 3 disclose in a rail car, coaxial cable 35 connecting antennas 30a–d to a receiver, i.e. under floor unit 40, that is further wired to send a television or video signal to video monitors 101–124. Maekawa’s video system components, including the wiring cable system 35, are physically located on the rail car.

Petitioner argues that even under Patent Owner’s construction the “wiring-cabling system” is independent of previously installed track, tunnel, or control systems, “because the television receivers in the car display the signal received by the antennas on the roof.” Pet. Reply 19 (citing Ex. 1034 ¶ 41). In other words, as Mr. Malo testifies in more detail, Maekawa’s wiring-cabling system is independent “because the signal displayed on the television receivers in each railcar is received by antennas on the roof of that railcar and transmitted via cables in the car to the televisions *in the same car.*” Ex. 1034 ¶ 41 (emphasis added).

We are persuaded by Petitioner’s argument and our own review of Maekawa, that Maekawa’s wiring-cabling system is independent of any outside system. See Ex. 1009, Figs. 1–2. We agree that Maekawa discloses an antenna and a receiver for receiving a broadcast television signal. That does not, however, change the fact that the connecting wiring-cabling system is dependent only upon the components in the railcar. Moreover, the specification of the ’602 patent explains that “[t]he term ‘video signal source unit’ as used herein embraces video tape players and video disk players, *and television receivers* for receiving live or pre-recorded broadcast television

signals from a remote transmitter.” Ex. 1001, 2:15–21 (emphasis added). Thus, nothing remote from the railcar need be connected by wiring cable system 35.

We find Petitioner’s evidence and arguments persuasive, for example because Amano describes and illustrates a “transmission path [9]” connecting display information signal transmitter 7 to display devices 8a–n as shown below in Figure 2 reproduced from Amano.

FIG. 2

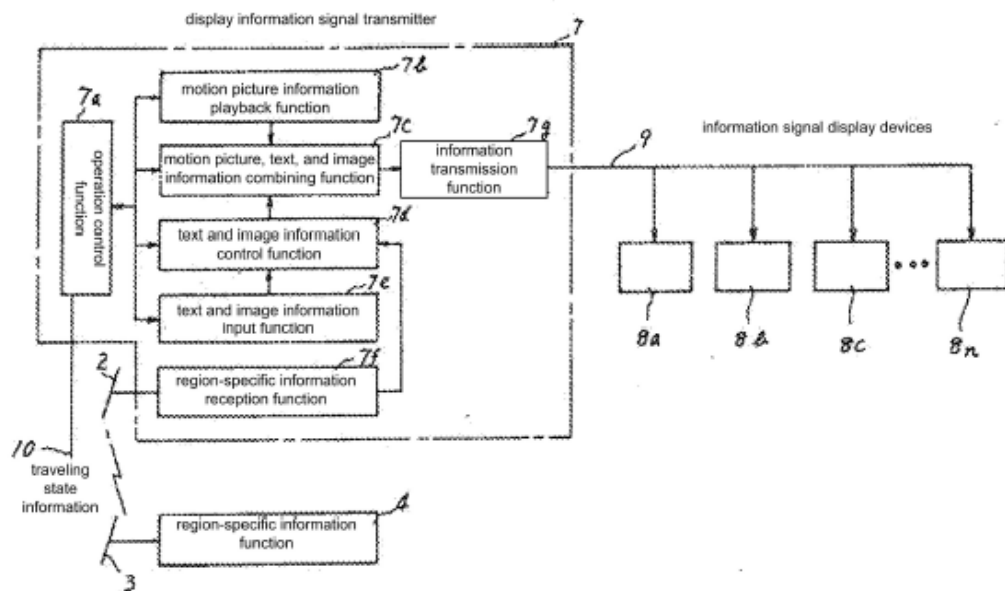


Figure 2, above, illustrates a general schematic for an information transmission system described in Amano’s specification as “an information signal display device installed in the transportation equipment.” Ex. 1021, 2. Addressing the limitations in claim 7, Mr. Malo testifies credibly that “[b]y 1997, use of a wire or cable was a commonly used method to connect a

video signal source unit to a video monitor.” Ex. 1015 ¶ 63. Mr. Malo explains further that

[b]ecause use of a wire or cable was a commonly used method to connect a video signal source unit to a video monitor, it would have been obvious to one of skill in the art combining either Namikawa or Miyajima with Amano to use a wire or cable as the “transmission path” to connect the video monitors to the video signal source unit.

Id. ¶ 64. Mr. Malo’s testimony on this point is unrebutted. *See* PO Resp. 37 (Referring to its claim construction, Patent Owner contends that Mr. Malo’s testimony is “disingenuous and undermined by his own exhibits, which teach a system that interfaces with previously installed control systems and is not self-contained.”). As discussed above, we do not agree with Patent Owner’s argument the “self-contained wiring-cabling system” in the prior art is dependent on “previously installed track, tunnel or control systems.”

We are persuaded, therefore, that Petitioner has shown by a preponderance of the evidence that that the combination of Namikawa, Sasao, Amano, and Maekawa teach all the limitations of dependent claim 7.

*D. Claims 8, 9, 12–14, 20–22, and 24–29 as unpatentable over
Namikawa, Sasao, Amano, and Yamada or Sedighzadeh*

Claims 8, 9, 12–14, 20–22, and 24–29 were added to the ’602 patent during reexamination. Ex. 1001, Reexam, 1. Claims 8 and 20 are independent. Claims 8 and 20 contain very similar limitations to claim 1, but include additional limitations discussed in greater detail below, for example, “transparent cover unit[s]” covering the monitor screens. *Id.* at 1:28, 2:41.

1. Yamada (Exs. 1026, 1027)

Yamada discloses a protective enclosure, e.g., a case, for a television or LCD-type image display, the case is rotatably mounted in a seat or wall such as on a railway car or bus. Ex. 1028, ¶ 1. The enclosure includes a transparent cover screen 5 that is spaced from LCD surface 21a of television 21. *Id.* ¶¶ 26, 46, Fig. 2.

2. Sedighzadeh

Sedighzadeh teaches support structure 10, i.e. a casing, for a television monitor including a transparent window “plexiglass pane 70” so that the television monitor screen can be viewed inside the casing. Ex. 1025, 2:32–33, 6:2–11, Figs. 1–2. The casing is intended to be “aesthetically pleasing . . . such that the monitor can be positioned for easing viewing by large numbers of individuals in a room.” *Id.* at 1:59–62.

3. Independent claims 8 and 20

Claim 8

Independent claim 8 is very similar to claim 1 but includes the additional limitation that the video monitors are covered by “transparent cover units,” within a “transitional wall portion,” that is located at the “junction of the sidewall and ceiling.” Ex. 1001, Reexam 1:28–29, 38, 42–43. We determine, based on the same analysis, reasoning and findings from IPR2017-00117 with respect to claim 1, that Petitioner has shown by a preponderance of the evidence that the corresponding limitations in claim 8 are also obvious over Namikawa, Sasao, Amano, and Maekawa. See Case IPR2017-00117, slip op. at 13–31, 39 (PTAB May 2, 2018).

Claim 8 recites that “the transparent cover units covering respective ones of the video display monitors are substantially flush with the adjacent

surface structure,” which is slightly different from, “the screen of the monitor substantially flushed with the adjacent wall surface structure,” as recited in claim 1. This difference is discussed in further detail below.

Turning to the additional limitations in claim 8, Petitioner contends that a “transitional wall portion” is essentially the same as the “junction of the sidewall and ceiling” recited in claim 1, and that Namikawa teaches monitors positioned at the wall-ceiling transition, and also that the monitors facing downwards towards the seats. Pet. 44, 46. Patent Owner does not expressly contest this position. Claim 8 recites “a transitional wall portion at the junction of the sidewall and ceiling.” Ex. 1001, Reexam 1:31–32. The claim language is clear on its face—that the “transitional wall portion” is “at the junction of the sidewall and ceiling.” A reasonable reading of this phrase, therefore, is consistent with Petitioner’s assertion that a “transitional wall portion” is essentially the same as the “junction of the sidewall and ceiling.” For purposes of this Decision we treat these terms, “transitional wall portion” and “junction of the sidewall and ceiling,” as referencing the same general location and region where the railcar wall transitions to the railcar ceiling. *See, e.g.*, PO Resp. 7, Annotated Figure 4A of the ’602 patent.

For the limitations of the “transparent cover units covering respective ones of the video display monitors,” Petitioner relies on either Yamada, or Sedighzadeh, and the knowledge of a person of ordinary skill in the art to show that it would have been obvious to cover an LCD screen with a transparent cover unit. Pet. 41–42. Petitioner’s declarant, Mr. Malo testifies that “[i]n 1997, those skilled in the art knew that video displays (such as LCDs) had screens that were made from fragile materials, and as a result

such screens were often covered with transparent cover units to protect from damage.” Ex. 1015 ¶ 66. Mr. Malo points to Yamada, asserting that Yamada teaches an LCD screen “covered by a screen through which the liquid crystal television is visible.” *Id.* citing Ex. 1028, 5 [0026], 7 [0046], Figs. 2, 4).

Our review of Yamada is consistent with Mr. Malo’s testimony. Yamada expressly describes front cover panel 4 and transparent screen 5, that are spaced by gap S2 from LCD screen 21a. Ex. 1028 ¶ 26. Figure 2 of Yamada is reproduced below.

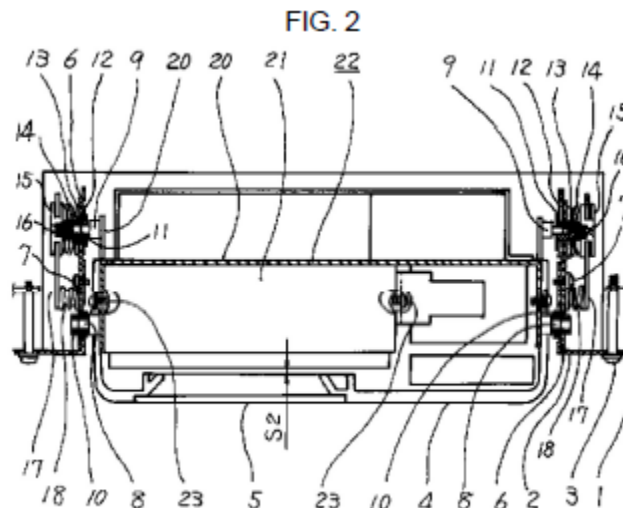


Figure 2 of Yamada, above, is a top cross-section view of LCD television unit 21 within turning body 22, i.e. an encasement. Yamada explains that gap S2 is provided so “force is [not] transmitted to the liquid crystal surface 21a of the liquid crystal television unit 21.” *Id.*

Patent Owner asserts, again, the issue of fire safety as its main argument. See PO Resp. 35 (Patent Owner argues, e.g., “(4) The proposed FRA rules provide, ‘The intent of the guidelines is to prevent fire ignition.’”). Considering the new limitation of “a transparent cover unit”

Patent Owner argues specifically that a person of ordinary skill in the art would not have mounted a screen flush with a wall because “a transparent cover unit would further prevent ventilation of the display monitor, cause heat buildup and create a fire hazard.” PO Resp. 37–38 (citing Ex. 2009 ¶ 34; Ex. 2007 ¶ 33). In addition, Patent Owner argues that “Yamada does not teach a transparent cover unit” and that “the screen of Yamada is not substantially flush with the adjacent surface structure or directed obliquely downward.” PO Resp. 37.

We do not discern a meaningful difference between Patent Owner’s fire safety arguments here, for claim 8, and those presented by Patent Owner for independent claim 1 which we have already discussed above. Patent Owner, echoing its declarant’s, Dr. Zicherman’s testimony, contends for claim 8 that a person of ordinary skill in the art “would expect that a transparent cover unit would further prevent ventilation of the display monitor, cause heat build-up and create a fire hazard.” *Id.* For the reasons as discussed above with respect to claim 1, we are persuaded that a person of ordinary skill in the art would have understood that proper ventilation techniques and structure could be arranged within the wall space and at the junction of the ceiling and wall to dissipate heat in railcar, even with an enclosure and a cover unit, and accomplish flush mounting of Namikawa’s LCD television. Indeed, Dr. Zicherman’s deposition testimony with respect to cover units and enclosures contradicts Patent Owner’s argument. Dr. Zicherman refers in his deposition to Figure 4 of the ’602 patent, and confirms in somewhat colloquial terms, that a person of ordinary skill in the art would know to ventilate a monitor :

Q. Do you see a potential fire hazard here?

A. Not if it's properly ventilated.

Q. Do you see any discussion in the '602 patent about ventilation of the monitor?

A. No.

Q. Is there any reason for you to believe that this monitor is ventilated?

A. Yes.

Q. How do you know that?

A. Because only an idiot would install it without ventilation.

Ex. 1034, 118:17–119:3. Figure 4 of the '602 patent, is reproduced below.

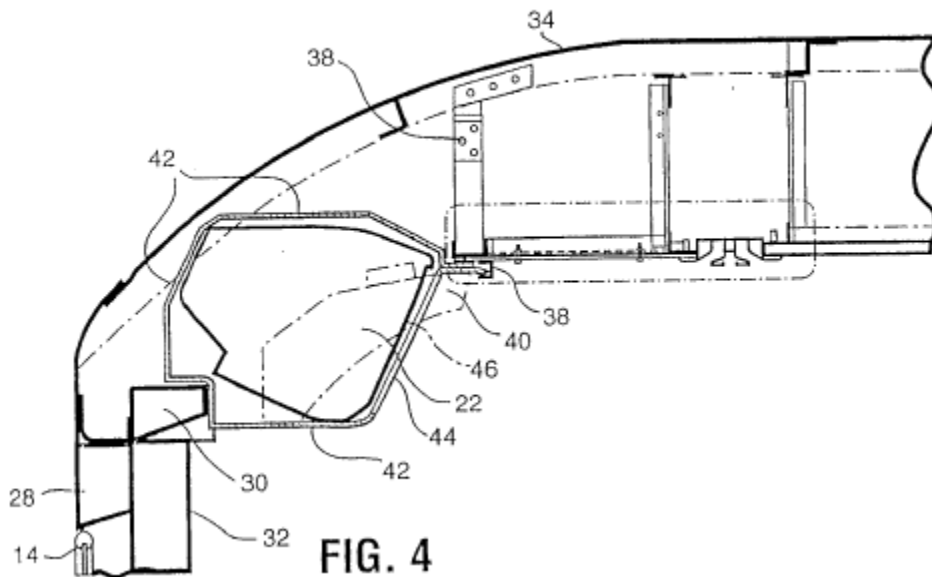


Figure 4 of the '602 patent, above, illustrates monitor 22 within enclosure 42, and the enclosure having a clear polycarbonate shield 44 to view the screen of monitor 22. We acknowledge that Dr. Zicherman's testimony is, on the one hand, based on the '602 patent figures. On the other hand, we find Mr. Malo's testimony credible regarding ventilation and cooling, as it is essentially corroborated by Dr. Zicherman and directly relevant to the level

of ordinary skill in the art. Both declarant’s testimony explains that a person of ordinary skill in the art would have known that an enclosed monitor should be properly and adequately ventilated. *Id.* at 117:20–122:4.

With respect to Patent Owner’s assertion that Yamada does not disclose a screen “cover unit,” we disagree. Yamada discloses a cover unit 5 protecting a monitor screen as shown in Yamada’s Figure 2 above. For the limitations reciting that the cover units are “substantially flush with adjacent surface structure,” and “directed obliquely downward,” as called for in claim 8, Petitioner relies upon Sasao and Namikawa for these limitations. Pet. 46. We addressed the issue of Sasao and the feasibility of flush mounted screens, above, and determine that the same analysis applies here for claim 8. *See* Section III.C.5. Also, our review of Namikawa is consistent with Petitioner’s contention that Namikawa discloses, at least in Figure 1, that the monitor screens are shown facing downwards towards the seats on the opposite side of the railcar to facilitate viewing by passengers. *See Lear Siegler, Inc. v. Aeroquip Corp.*, 733 F.2d 881, 889 (Fed. Cir. 1984) (“Neither is the practitioner in reading the [prior art] disclosure compelled to adopt every single aspect of its teaching without the exercise of independent judgment.”); *In re Keller*, 642 F.2d 413, 425 (CCPA 1981) (“The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference”).

We are persuaded that Petitioner has shown by a preponderance of the evidence that the combination of Namikawa, Sasao, Amano, and Yamada teach the additional limitation of substantially flush “transparent cover units” and that the monitors are directed “obliquely downwardly” as called for in independent claim 8.

Claim 20

Independent claim 20 includes similar limitations to claim 1 including, for example, “a video display system comprising a plurality of video display monitors.” Ex. 1001, Reexam, 2:32–46. Claim 20 is worded slightly different from claim 1, in that it recites, more similar to independent claim 8, “a transparent cover unit flushed with the adjacent wall surface structure of the car.” *Id.* .

Claim 20 recites the monitor “being covered with a transparent cover unit, with the transparent cover unit flushed with the adjacent wall surface structure,” which generally corresponds to “the screen of the monitor substantially flushed with the adjacent wall surface structure,” as recited in claim 1, and more specifically corresponds to “the transparent cover units covering respective ones of the video display monitors are substantially flush with the adjacent surface structure,” as recited in claim 8.

We determine, based on the same analysis, reasoning and findings from IPR2017-00117 with respect to the above noted limitations in claim 1, that Petitioner has shown by a preponderance of the evidence that the corresponding limitations in claim 20 are also obvious over Namikawa, Sasao, Amano, and Maekawa. *See* Case IPR2017-00117, slip op. at 13–31, 39 (PTAB May 2, 2018).

For the additional limitations of independent claim 20 Petitioner relies on its earlier arguments for obviousness in view of Namikawa, Sasao, Amano, and Yamada or Sedighzadeh made with respect to claims 1 and 8. Pet. 46–47. Patent Owner relies expressly on its arguments made for claims 1 and 8 in responding to Petitioners challenge to claim 20. *See* PO Resp.

43–44 (“PO reiterates arguments made above, including in sections V.A. and V.B.”).

For the reasons set forth above with respect to claims 1 and 8, we are persuaded that Petitioner has shown by a preponderance of the evidence that the combination of Namikawa, Sasao, Amano, and Yamada teach the additional limitations of “transparent cover units flushed with the adjacent wall surface structure” as called for in independent claim 20.

4. Claims 9, 12–14, 21, and 24–26

Claims 9 and 12–14 depend directly or indirectly from independent claim 8, and correspond to claims 21 and 24–26, which depend directly or indirectly from claim 20. Ex. 1001, Reexam, 1:45–62, 2:47–63. The limitations added by claims 9 and 12–14 are substantively identical to the limitations added by claims 21 and 24–26. Therefore, we address the two sets of dependent claims together. Claims 9 and 21 for example add the limitation that “the plurality of transparent cover units are rigid.” *Id.* at 1:45–46, 2:47–49.

Patent Owner asserts that these claims are patentable for the same reasons as claims 1 and 8, again relying on its fire safety arguments made with respect to claims 1 and 8. See PO Resp. 40. (“PO reiterates the arguments made above in V.A. and V.B.i.”).

Claims 9 and 21

Petitioner argues that Namikawa as combined with Yamada or Sedighzadeh renders claim 9 and 21 obvious because a person of ordinary skill in the art would understand both references to disclose transparent rigid cover units protecting a video display screen in a transportation vehicle. Pet. 50 (citing Ex. 1015 ¶ 73; Ex. 1025, 6:4, Figs. 1, 2, 11). Sedighzadeh, for

example, describes “a tinted plexiglass pane 70.” Ex. 1025, 6:4. In addition, for the same reasons as discussed above with respect to claims 8 and 20, we find Mr. Malo’s testimony credible and are persuaded that Petitioner has shown by a preponderance of the evidence that addressing fire safety concerns with adequate ventilation and cooling for a monitor in an enclosure with a cover unit that is “rigid,” as set forth in claims 9 and 21, would have been obvious to one of ordinary skill in the art.

Claims 12 and 24

Both claims 12 and 24 recite the limitation that the “monitors are enclosed within an enclosure.” Ex. 1001 Reexam, 1:55–56, 2:56–57.

Patent Owner argues with respect to the combination of Yamada’s or Sedighzadeh’s enclosure with Namikawa, that Petitioner’s “articulated motivation to include an enclosure to make the television more aesthetically pleasing lacks a rational underpinning.” *Id.* at 41–42 (citing Ex. 2009 ¶ 37, *KSR*, 127 S. Ct. at 1741). Dr. Zicherman states that “[a]n enclosure enclosing the monitor and disposed within the transitional wall portion would not make the television more aesthetically pleasing.” Ex. 2009 ¶ 37.

Contrary to Patent Owner’s contentions, we find that Petitioner has provided sufficient reasoning supported by evidentiary underpinnings supporting the combination of Yamada or Sedighzadeh, with Namikawa. Petitioner argues with respect to the person of ordinary skill in the art considering Yamada or Sedighzadeh, that

[i]n 1997, it was known that adding an enclosure to an interior fitting in a railcar would have made it an integral unit, thereby facilitating proper mounting and ease of maintenance (such as removal/repair), and would have protected the interior fitting from damage.

Pet. 50–51 (citing Ex. 1015 ¶¶ 83–85). Mr. Malo testifies further that

Designing the interior of a railcar to be aesthetically pleasing was a major motivation in the railcar industry in 1997. Moreover, at the time of the invention, it was known that adding an enclosure to an interior fitting would have made the interior fitting an integral unit, and . . . concealed the more delicate components of the interior fitting, and thus, would have prevented damage by the maintenance employees while shipping and handling the interior fitting.

Ex. 1015 ¶ 85 (citing Ex. 1015, Appx. F ¶¶ 2.1.1, 4.1.1 (providing that the PA unit should be enclosed so that it can be “handled and shipped without damage”)). Mr. Malo points out that Sedighzadeh specifically discloses the monitor “encasing as ‘[a]n aesthetically attractive shell [that] is releasably connectable to the framework so as to enclose the framework and the television monitor seated thereon such that the television monitor is suitably disposed for easy viewing within the room in which the structure is mounted.’” Ex. 1015 ¶ 84 (citing Ex. 1025, 2:4–9). Despite Dr. Zicherman’s opinion regarding aesthetics to the contrary, overall we credit Mr. Malo’s reasoning and testimony explaining that the concealing and protective nature of enclosures such as those disclosed by Yamada and Sedighzadeh along with the desire for aesthetically pleasing appearances for railcar fittings would have motivated one of ordinary skill in the art to combine the enclosures taught by Yamada or Sedighzadeh with Namikawa. Ex. 1015 ¶¶ 83–85.

We find, on the basis of the evidence and explanation provided by Petitioner, and notwithstanding the counterarguments of Patent Owner, that Namikawa in combination with Yamada’s or Sedighzadeh’s enclosures, teaches the recited limitation where the “monitors are enclosed within an enclosure” of claims 12 and 24.

Claims 13 and 25

Claim 13 and 25 depend from claims 12 and 24 respectively and recite that “the enclosure is secured to a structural member disposed between an inner wall and an outer structural shell of the subway car.” Ex. 1001, Reexam, 1:57–59, 2:58–60.

Patent Owner relies upon Dr. Zicherman to support the argument that “a POSITA, in the 1995-1997 timeframe, would have no knowledge of a structural member disposed between an inner wall and an outer structural shell for securing the enclosure.” PO Resp. 42 (citing Ex. 2009 ¶ 33).

Mr. Malo’s testimony, on the other hand, is that one of ordinary skill in the art understood that “[i]n 1997, a typical subway car would have included pillars (or side posts) and structural members between the interior wall and exterior shell of the car.” Ex. 1034 ¶ 35. Mr. Malo notes that, consistent with his testimony, the ’602 patent describes a “typical subway car 10” as having “structural pillars 30 mounted at intervals and secured to the vertical structural member 32.” *Id.* ¶ 36 (citing Ex. 1001, 3:57, 5:9–12, Fig. 3). Although Mr. Malo refers to the ’602 patent specification for support, we agree that read in context the ’602 patent is describing a previously known, i.e., “typical” railcar wall structure. *See, e.g.*, Ex. 1001, 3:55–57 (“A subway car is normally constructed so that it has a cavity wall, defined between its outer structural shell and its inner lining wall.”). Indeed, Dr. Zicherman agreed in his deposition that typical subway cars contained such structural pillars. *See* Ex. 1038, 20:24–21:18. Mr. Malo’s testimony on this point is credible, particularly, where it is supported by at least some degree of evidence in the ’602 patent.

With such structural pillars in railcars, Petitioner reasons that a person of ordinary skill in the art would have known that to support the weight of the enclosure and monitor, “the most logical place to secure the enclosure holding the screen would be to a structural member disposed between the inner wall and outer structural shell of the subway car.” Pet. 53 (citing Ex. 1015 ¶ 87). We are persuaded that Petitioner has shown by a preponderance of the evidence that one of ordinary skill in the art would have known that a typical railcar included structural members between the interior and exterior walls of the railcar, and also that it would have been obvious to one of skill in the art to use such structural members in Namikawa for supporting a monitor and enclosure as recited in claims 13 and 25.

Claims 14 and 26

Dependent claims 14 and 26 add the limitation that “the enclosure and a respective video display monitor is removable from the subway car as a unit.” Ex. 1001, Reexam, 1:60–62, 2:56–57.

Petitioner accounts for this limitation by relying on the testimony of Mr. Malo. Pet. 52 (citing Ex. 1015 ¶ 91). Specifically, Mr. Malo testifies that such an enclosure was known to those of ordinary skill in the art to “facilitate faster assembly or disassembly of the display monitor for maintenance purposes as the maintenance employees would have to replace only one component, as was done for the Viewliner.” Ex. 1015 ¶ 91 (citing *id.* Appx. F, ¶ 2.1.1). Mr. Malo bases his testimony on citations to Appendix F of his declaration which describes a known public address (“PA”) system contained within an enclosure and designed for mounting in Amtrak passenger vehicles, i.e., railcars. Ex. 1015 ¶ 91 (citing *id.* at App. F, 2.1.1). The PA system specification states that “[t]his package is the self-contained

electronics assembly” and that “[t]he unit is an enclosed module, which slides into the PA unit enclosure for mounting. Unit packaging shall be such that it can be handled and shipped without damage within Amtrak without an additional-shipping container.” Ex. 1015, App. F, 2.1.1.

Patent Owner argues to the contrary that “[a]dding an additional enclosure to a television would make assembly or disassembly for maintenance purposes more difficult.” PO Resp. 42 (citing Ex. 2007 ¶ 17). Also, Patent Owner contends that none of the prior art teaches an enclosure and monitor removable as a unit and argues that Petitioner’s “only basis for this conclusion is hindsight.” *Id.* at 43.

Mr. Malo’s testimony is credible, and not simply hindsight as Patent Owner alleges, because Mr. Malo is testifying based on the level of ordinary skill in the art and has cited to known arrangements for protecting and mounting electronic hardware in a railcar, such as the PA system. *Id.* The PA system cited by Mr. Malo describes that “[t]he unit was an enclosed module, which slides into the PA unit enclosure for mounting.” Ex. 1015, Appx. F, ¶ 2.1.1. And, while the PA system is not a video system per se, according to Mr. Malo, “[t]he design consideration goals were the same as the audio-visual system: safety, reliability, maintainability, availability, and interchangeability.” Ex. 1015 ¶ 31. We give more weight to Mr. Malo’s testimony in this instance. Dr. Zicherman states, without explaining why or relying on a supporting disclosure or information, that adding an enclosure “mak[es] assembly or disassembly for maintenance purposes more difficult than merely removing a television.” Ex. 2007 ¶ 17.

We are persuaded that Petitioner has shown by a preponderance of the evidence that a person of ordinary skill in the art would have known that an

enclosure for an electronics device, such as a PA system, or a video monitor, would facilitate handling of the device and that it would have been obvious to one of ordinary skill in the art to modify Namikawa so that an enclosure of an electronic device could make mounting and removal of the assembly more easily “as a unit” from the railcar as called for in claims 14 and 26.

5. Claim 22

Petitioner argues that dependent claim 22, which recites that “the transparent cover unit is flushed within the adjacent wall structure *such that it contains no protuberances*,” is little different from the language in independent claims 1, 8, and 20. Pet. 47–48 (emphasis added). The recitation “no protuberances” Petitioner asserts, is not a substantive limitation because “[f]lush placement necessarily means that there would be no protuberances.” *Id.* at 48 (citing Ex. 1015 ¶ 110).

Patent Owner reiterates its argument that flushed mounting of a video display monitor “would further prevent ventilation of the display monitor, cause heat build-up and create a fire hazard” because “nothing depicts any availability of space beyond the wall.” PO Resp. 44 (citing Ex. 2007 ¶ 33). Patent Owner asserts also that neither Yamada nor Sedighzadeh disclose a flush mounted cover unit, and that “each of the references does in fact contain protuberances.” PO Supp. Resp. 68.

We agree with Patent Owner’s position that neither Yamada nor Sedighzadeh shows, distinctly, a cover unit *flush* with adjacent walls. Petitioner did not, however, rely specifically on the screen cover units disclosed by Yamada and Sedighzadeh for teaching *flush mounting* of a cover unit or the lack of protuberances. *See, e.g.*, Pet. 47–48 (citing Ex. 1015 ¶¶ 31, 110). For claim 22, Petitioner references its argument earlier in

the Petition, (Petition Section VII.A.1.i[1g]), reasserting that Namikawa in view of Sasao teaches mounting of a screen flush, and without protuberances, with the adjacent wall structure. *See id.*; *see also* Pet. 28 (citing Ex. 1015 ¶¶ 49–52).

Where it relies again on its previous arguments with respect to the “flushed” limitation, Patent Owner provides no explanation or position to explain why “no protuberances” as recited in claim 22, is a substantive difference or limitation. *See* PO Resp. 43–46. The specification of the ’602 patent states that “the monitor, including the cover unit if used, is suitably housed in a stainless steel or strong plastic casement, designed to appear integral with the subway car, without visible edges or protuberances.” Ex. 1001, 4:10–12. A reasonable reading of this description is consistent with Petitioner’s assertion that “no protuberances” means essentially “flush[ed]” placement. We are therefore, not apprised of any discernable, or patentable distinction, between these claim terms. Courts have consistently found that minor word changes do not alter the scope of a claim. *See Slimfold Mfg. Co. v. Kinkead Indus., Inc.*, 810 F.2d 1113, 1115 (Fed. Cir. 1987) (In the context of reissued claims, “[i]dential’ has consistently been interpreted as not excluding minor word changes.”).

For the same reasons as discussed above in Section III.C.5. of this Decision, we find persuasive Petitioner’s arguments and evidence that a person of ordinary skill in the art would have known there was a cavity and available space between an inner and outer wall of a railcar, and, that components and materials within the cavity could be arranged so as to accommodate cooling of a video monitor within the cavity to ameliorate fire hazards. *See* Ex. 1015 ¶ 70 (Mr. Malo testifies that it was known to one of

ordinary skill in the art in 1997 to mount a video screen “to be ‘substantially flush’ with adjacent surfaces, as disclosed in Sasao and suggested by FRA’s proposed rules, so that additional space inside the car could be conserved.”); *see also* Ex. 1034 ¶ 32 (“[A person of ordinary skill in the art] would have known that, if necessary to create more space, many of the components or materials included in the cavity could have been moved around.”).

We are persuaded that Petitioner has shown by a preponderance of the evidence that it would have been obvious to one with ordinary skill in the art to modify Namikawa to flush mount an enclosure enclosing a monitor, and that flush mounting included ensuring that the enclosure had “no protuberances,” as recited in claim 22.

6. Claim 27

Claim 27 recites the limitation “wherein an external surface of the longitudinal opposed sidewalls, the adjacent wall surface structure and an external surface of the ceiling comprise a blended contour.” Ex. 1001, Reexam, 2:64–67.

Petitioner contends that Namikawa discloses that the railcar walls and surfaces at the junction of the sidewall and ceiling, as well as the ceiling itself, are smooth and continuous so as to have a “‘blended contour’ to the same extent as the ’602 patent.” Pet. 48. Patent Owner proffers no argument for claim 27. *See* PO Resp. 43–47.

For some perspective, the specification of the ’602 patent is somewhat helpful in understanding what is meant by “blended contour,” describing that “the transparent cover unit is suitably similarly concavely curved, so that it can be mounted as a continuum with the internal walls and *blended to contours* thereof.” Ex. 1001, 4:3–6 (emphasis added). Discussing the

embodiment in Figure 6, the specification further describes that “[t]he shield 44 now *blends with* forward facing part 48 the exterior skin and body structure 34, to provide a perhaps more aesthetically appealing arrangement.” *Id.* at 5:59–62 (emphasis added).

A review of Namikawa’s Figure 1, illustrating the interior of a railcar, shows on its face, a relatively smooth curved transition occurring between the wall and ceiling of the railcar interior. Ex. 1005, Fig. 1. We are persuaded by Petitioner’s assertion that Namikawa’s smooth curved interior evokes a continuum of the internal walls and thus a “blended contour” as recited in claim 27. We credit also Mr. Malo’s un rebutted testimony that a person of ordinary skill in the art would build railcar interiors with “blended contours” that are aesthetically pleasing. Ex. 1015 ¶ 98. Even though the ’602 patent also talks about blended structures being aesthetically appealing, Mr. Malo’s testimony is credible where he explains that even prior to the ’602 patent one of ordinary skill in the art would have been motivated to make “the walls, ceiling and surfaces at the ‘transition segment’ (or at or near a ‘junction’ location) appear integral in order to provide the desired “clean” and “smooth” surfaces in railcar interiors.” Ex. 1015 ¶ 98 (citing Ex. 1026, 3:23–27, 7:11–13).

We are persuaded that Petitioner has shown by a preponderance of the evidence that it would have been obvious to one with ordinary skill in the art, with respect to the disclosure of Namikawa, to make the walls, ceiling and junction between the wall and ceiling of a railcar or subway car with “blended contours” as recited in claim 27.

7. *Claims 28–29*

Claim 28 recites the limitation “wherein the video signal source unit is configured to display a series of short messages in sequence on said plurality of video display monitors.” Ex. 1001, Reexam, 3:1–3. Claim 29 depends from claim 28 and recites “wherein the series of short messages comprise advertising content, said advertising content providing an additional source of revenue for the operator of the subway car.” *Id.* at 3:4–6.

Petitioner argues persuasively that Namikawa teaches broadcasting commercials and other media on monitors in a railcar. Pet. 49 (citing Ex. 1005, 3–4). Mr. Malo testifies that a person of ordinary skill in the art “would understand Namikawa to teach the display of a ‘series of short messages in sequence’ typically found in broadcast media when commercials are shown,” and from Namikawa in view of Amano, a railcar operator would have known to “charge money and receive revenue in return for displaying advertising content.” Ex. 1015 ¶ 103 (citing Ex. 1021, 1). Patent Owner provides no arguments with respect to claims 28 and 29. *See* PO Resp. 43–47.

As pointed out by Petitioner, Namikawa describes that “[w]hen commercials that are taken from broadcasting media are broadcast to televisions, passengers in a car can see dynamic advertisements in the car rather than conventional static advertisements.” Ex. 1005, 4–5. Mr. Malo’s un rebutted testimony with respect to advertising revenue is also credible. Mr. Malo basis his testimony on Amano, which describes that

[c]onventionally, in transportation means used by a large indefinite number of people, such as a train or a bus, information such as advertisements and notifications normally hang down as printed material, or are posted on the walls in the equipment. These are normally displayed for a limited time period, and in

the case of advertisements, the provider of the transportation means obtains income from advertising contracts over a fixed period.

Ex. 1021, 1.

We are persuaded that Petitioner has shown by a preponderance of the evidence that Namikawa, and Namikawa in view of Amano teaches media messages, including advertising content, and that a person of ordinary skill in the art would understand advertising content as “an additional source of revenue” as recited in claims 28 and 29.

We are persuaded, therefore, on the record before us that Petitioner has shown by a preponderance of the evidence that the combination of Namikawa, Sasao, Amano, and Yamada or Sedighzadeh teaches all the limitations of claims 8, 9, 12–14, 20–22, and 24–29.

E. Claims 11 and 23 as unpatentable over Namikawa, Sasao, Amano, Schwenkler, and Yamada or Sedighzadeh

Claim 11 depends from independent claim 8 and recites “[t]he subway car . . . further comprising a backlit panel disposed on the transitional wall portion, the back lit panel disposed adjacent the video screen of the video display monitor.” Ex. 1001, Reexam 1:50–53. Similarly, claim 23 depends from independent claim 20 and recites more succinctly “[t]he subway car . . . further comprising a back lit panel disposed on the adjacent wall surface structure of the car.” *Id.* at 2:53–55.

Petitioner relies on Schwenkler to show that it was well known to those of ordinary skill in the art, and an obvious design choice, “to use a back lit panel in subway cars to provide proper illumination.” Pet. 67 (citing Ex. 1015 ¶ 75; Ex. 1001, 5:15–17). Petitioner reasons that one of ordinary skill in the art would have been motivated to place Schwenkler’s “back lit

panels next to the video screens (on the “transitional” or “adjacent” wall surfaces), in order to provide proper illumination and to maximize the effective advertising area. Pet. 69 (citing Ex. 1015 ¶¶ 74–76).

Patent Owner argues that Schwenkler’s lighting panels are intended to replace “individual or spot type reading lamps,” and “directed to lighting fixtures that run the entire length of the subway car.” PO Resp. 48.

Therefore, Patent Owner contends, Schwenkler “expressly teaches away from individual lights as would be required to place back lit panels next to the video screens.” PO Resp. 48.

Schwenkler is directed to lighting fixture 13 for a subway car or bus, in “one area for general illumination, another area for concentrated illumination and still another for advertising illumination.” Ex. 1026, 1:40–42. As shown in Figure 1 reproduced below, Schwenkler describes further that the lighting fixture is positioned at an “arcuate cornice . . . provided at the junction of each side wall and ceiling portion and serves as a mounting for the cornice type lighting arrangement of the present invention.” *Id.* at 2:57–61.

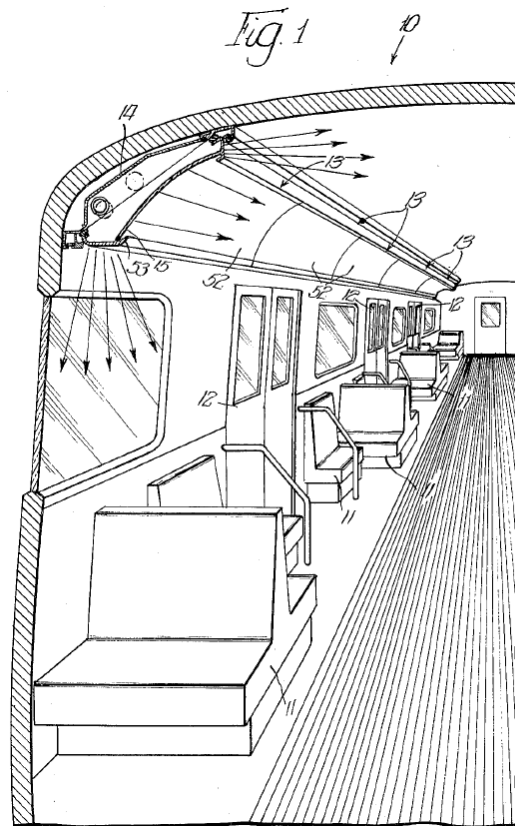


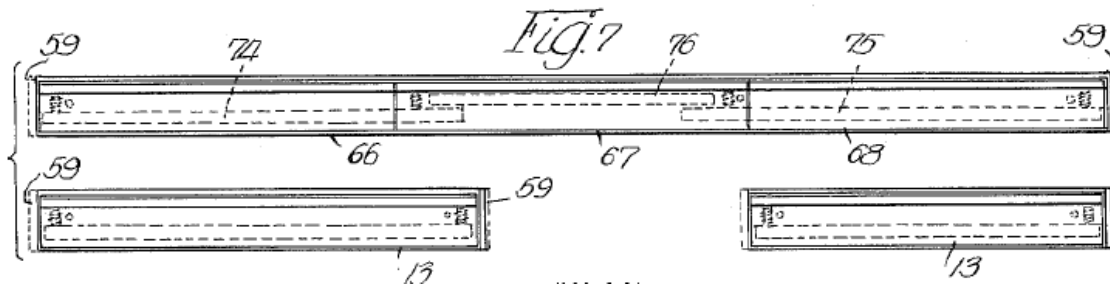
Figure 1 of Schwenkler, above, illustrates lighting fixture 13 in a cornice area of passenger transporting vehicle 10.

Petitioner responds to Patent Owner's teaching away argument, explaining that the asserted combination of Namikawa and Schwenkler does not rely upon spot reading lamps, but specifically incorporates Schwenkler's illuminated panels, and, that Schwenkler teaches illuminated panels that do not extend the entire length of the car. Pet. Reply 23 (citing Ex. 1026, Fig. 7, 8:52–71).

Teaching away requires a reference to actually criticize, discredit, or otherwise discourage investigation into the claimed solution. See *In re Fulton*, 391 F.3d 1195, 1201 (Fed. Cir. 2004) (prior art does not teach away from claimed subject matter merely by disclosing a different solution to a

similar problem unless the prior art also criticizes, discredits, or otherwise discourages the solution claimed).

We do not agree with Patent Owner's position that Schwenkler teaches away from segmenting, i.e., making discontinuous, a light fixture to accommodate a video monitor. For one thing, Schwenkler discloses an embodiment where the illuminated panels do not extend the entire length of the car, but are expressly shown as discontinuous on either side of a door, as illustrated in Figure 7 from Schwenkler, reproduced below.



Schwenkler's Figure 7, above, illustrates an embodiment having two illuminated panels, i.e. light fixtures 13, each illuminated panel being a separate section on either side of a space for a door. See Ex. 1026, 8:51–55 (Schwenkler describes “[a]n alternative embodiment is illustrated in the lower half of FIG. 7 wherein the fixtures extend only from the end of the vehicle to adjacent the door area with a break in the continuity of fixtures in the region of the door.”). Indeed, during his deposition Patent Owner's declarant, Dr. Zicherman, agreed that Schwenkler discloses an embodiment of illuminated panel that had a break in it. Ex. 1038, 40:3–22. Schwenkler does not, therefore, discredit or criticize an illuminated light panel that is discontinuous, i.e., does not extend the entire length of the car, as required for a teaching away.

Petitioner has shown persuasively that the limitations of claims 11 and 23 would have been obvious over Namikawa and Schwenkler as we see no

reason why the proposed modification of placing illuminated panels adjacent a video monitor in a railcar is anything more than the predictable use of prior art elements according to their established functions. We are persuaded by Petitioner's evidence and arguments that positioning a discontinuous back lit panel along the length of a railcar, with spaces or breaks, for instance to accommodate a door, or a video monitor, was an arrangement well known to a person of ordinary skill in the art. *See* Ex. 1026, 8:67–70. (Schwenkler states that “[o]bviously, other light fixture arrangements other than those illustrated in FIG. 7 are feasible, limited only by the ingenuity of the interior decorator.”).

We determine that Petitioner has shown by a preponderance of the evidence that that the combination of Namikawa and Schwenkler teaches disposing a back lit panel “adjacent the video screen” as well as “on the adjacent wall surface structure of the car” as recited in claims 11 and 23.

F. Claims 15–19 as unpatentable over Namikawa, Sasao, Amano, and Schwenkler

Independent claim 15 contains the same and similar limitations as those previously discussed with respect to independent claims 1, 8, and 20. We determine, based on the same analysis, reasoning and findings from IPR2017-00117 with respect to the limitations in claim 1, and our analysis above with respect to claims 8 and 20, that Petitioner has shown by a preponderance of the evidence that the corresponding limitations in claim 15 are sufficiently accounted for by the combined teachings of Namikawa, Sasao, Amano, and Maekawa. *See* Case IPR2017-00117, slip op. at 13–31, 39 (PTAB May 2, 2018), *see also* Section III.D.3.

Claim 15 differs slightly from independent claims 1, 8, and 20 in that claim 15 recites “each video display monitor being *substantially contiguous* with an exterior surface,” which generally corresponds to “the screen of the monitor *substantially flushed* with the adjacent wall surface structure of the car,” as recited in claim 1, “the display monitors are *substantially flush*” in claim 8, and “*flushed* with the adjacent wall surface structure,” as recited in claim 20. Also, claim 15 recites a “transitional segment,” as compared to claim 1 which recites “said monitor being mounted *at the junction* of the sidewall and ceiling.” We determined with respect to claims 8 and 20 that the terms, “transitional wall portion” and “junction of the sidewall and ceiling,” as referencing the same general location and region where the railcar wall transitions to the railcar ceiling. Section III.D.3. For claim 15, we understand no substantive difference in a “transitional segment” as compared to the “transitional wall portion” recited in claim 8 or the “junction of the sidewall and ceiling” recited in claim 20. Petitioner argues that the term “substantially contiguous” as recited in claim 15, and “substantially flush[ed],” as recited in independent claims 1 and 8 are synonymous. Pet. 73. We determined in our claim construction that they are not. See Section II.A.1–2. We determined that “substantially contiguous” means “a surface which is to a great extent touching throughout in an unbroken sequence.” However, to the extent we have construed “substantially contiguous,” differently from “substantially flush[ed],” we are persuaded that Petitioner’s asserted combination of Namikawa and Sasao teaches not only a monitor screen *flush* with the adjacent wall, but also one that is “to a great extent touching” the adjacent wall. Sasao describes that the television screen is positioned in a wall opening, and “a frame [] member

22 is disposed at the peripheral edge of the screen 3, which covers a gap 21 between the rear projection television 11 and the edge of the opening 16 in the wall 15.” Ex. 1011 ¶ 12. Sasao’s Figure 6 illustrates how frame member 22 covers gap 21 between screen 3 and wall 15. Therefore, despite the difference in claim construction, we are persuaded that a preponderance of the evidence shows that Sasao teaches a “video display monitor being substantially contiguous with an exterior surface,” as recited in claim 15.

The main difference from the other independent claims is that claim 15 includes the limitation “the subway car further comprising . . . a back lit panel disposed on the transitional segment disposed adjacent the ceiling and a respective sidewall.” Ex. 1001, 2:16–17. Patent Owner argues for the patentability of claim 15, relying on its previous arguments with respect to independent claims 1 and 8, and previous arguments with respect to dependent claims 11 and 23 to address the “back lit panel” limitation. *See* PO Resp. 51 (“PO advances the same arguments as made above in [PO Reply] Sections V.A. [claim 1], V.B.[claim 8] and V.C. [claims 11 and 23]”). Patent Owner reiterates, for instance, as it did for claims 1 and 8 that “[t]he prior art does not teach or suggest the availability of space behind the wall at the junction of the sidewall and the ceiling.” *Id.* at 51. We determined, above, that the combination of Namikawa, Sasao, and Amano as understood by those of ordinary skill in the art, disclose all the limitations in claim 15, as they correspond to the other independent claims. *See* Section III.C.5. For example, despite the fact that insulation, wires, and structural components may be disposed in a cavity at the transition section and a junction of the ceiling and sidewall of a railcar, we found Mr. Malo’s explanation credible that a person of ordinary skill in the art “would have

known that, if necessary to create more space, many of the components or materials included in the cavity could have been moved around.” Ex. 1034 ¶ 32.

We determined, above, in our analysis of claims 11 and 23, that Schwenkler as combined with Namikawa shows that one of ordinary skill in the art would have known to position back lit panels on the “transitional segments” of the railcar walls next to the monitors. *See* Section III. E. Therefore, for the same reasons discussed above with respect to claims 1, 8, 11, 20, and 23, we are persuaded that Petitioner has shown by a preponderance of the evidence that that the combination of Namikawa, Sasao, Amano, and Schwenkler teaches all the limitations of independent claim 15.

Claim 16 depends from claim 15 and, similar to claim 27 discussed above, recites “a blended contour.” Ex. 1001, Reexam, 2:18–21. Patent Owner asserts that claims 16–18 are “patentable for at least their dependence on an allowable base claim.” PO Resp. 52.

We are not apprised of any substantive difference in the change of nomenclature where claim 16 recites “exterior surface of said transitional segment” instead of, “the adjacent wall surface structure,” as called for in claim 27. Even if these two elements are somehow different, and Patent Owner has not argued that they are different, we are persuaded by Petitioner’s arguments and evidence that a person of ordinary skill in the art would have understood Namikawa as disclosing the “desired ‘smooth’ and ‘clean’ interiors,” to achieve a “blended contour” of the wall, ceiling, and transitional segment as recited in claim 16. Pet. 75 (citing Ex. 1015 ¶ 98). Mr. Malo provides credible, and un rebutted testimony, supported by

citations to relevant prior art, namely Schwenkler and Sasao, that a person of ordinary skill in the art “in 1997 would be motivated to build railcar interiors that are aesthetically pleasing, and provide components within the railcar in a manner where the walls, ceiling and surfaces at the ‘transition segment’ (or at or near a ‘junction’ location) appear integral in order to provide the desired ‘clean’ and ‘smooth’ surfaces in railcar interiors.” Ex. 1015 ¶ 98 (citing Ex. 1026, 3:23–27, 7:11–13, Ex. 1010, 4:20–23).

Apart from their respective dependencies, claims 17 and 18 are identical to claims 28 and 29 discussed above. *Compare* Ex. 1001, Reexam, 2:22–28, *with id.* at 3:1–7. Petitioner makes the same assertions of obviousness, referring to previous arguments and evidence for claims 28 and 29. Pet. 75. We are persuaded, for the same reasons as discussed above, that Petitioner has shown by a preponderance of the evidence that that one of ordinary skill in the art would have known from Namikawa, as well as Namikawa in view of Amano, that short media messages, such as advertising messages and content, could be displayed on the monitors. *See* Section III.D.7. Also, for the reasons set forth above, we are persuaded that a preponderance of the evidence shows that a railcar operator would have known that advertising content could be “an additional source of revenue for the operator of the subway car,” as recited in claim 18. *Id.*

Petitioner argues that claim 19, which recites that the “back lit panel is disposed adjacent the video screen,” is rendered obvious by Namikawa in view of Schwenkler for the same reasons set forth with respect to independent claim 15. Pet. 75–76 (citing Ex. 1015 ¶ 81). Pointing to Schwenkler, Mr. Malo’s un rebutted testimony is that at the time of filing of the application that became the ’602 patent, “the use of back lit panels for

illumination and advertising purposes was well-known in the art.” Ex. 1015 ¶ 78. Mr. Malo reasons, credibly, that placing the back lit panels on the “transitional segment” adjacent the monitor screen would “both provide proper illumination and maximize the effective advertising area in what was known to be limited space.” *Id.* ¶ 79.

Patent Owner does not expressly dispute Mr. Malo’s testimony but argues, as before, that Schwenkler’s lighting fixtures which run the length of the car teach away from their use with video monitors because “end-to-end illumination . . . specifically discredits creating diverse levels of lights intensity, which contributes to passenger eye discomfort.” PO Resp. 53. For the same reasons discussed, above, with respect to claims 11 and 23 we do not agree that Schwenkler teaches away from adapting its illumination panels for use adjacent video monitors, such as in Namikawa. *See* Section III. E.

We determine that Petitioner’s arguments and evidence show by a preponderance of the evidence that that the combination of Namikawa, Sasao, Amano, and Schwenkler teach all the limitations of claim 15–19 in the arrangement as recited in those claims.

IV. OTHER GROUNDS

Above, we addressed all the challenged claims 5, 7–9, and 11–29 of the ’602 patent as set forth in ground A (claims 5 and 7), ground E (claims 8, 9, 12–14, 20–22, and 24–29), ground I (claims 11 and 23) and ground M (claims 15–19) in the Petition. Pet. 3–4. The Petition also challenged the exact same claims 5, 7–9, and 11–29 in the exact same claim groupings, on other combinations of similar prior art in the remaining grounds B, C, D, F, G, H, J, K, L, N, O, and P. Because all of the challenged claims are

unpatentable over Namikawa, Sasao, Amano, and either one or more of, Maekawa, Yamada, Sedighzadeh, and Schwenkler, in grounds A, E, I, and M as set forth in our analysis above, we need not reach Petitioner's challenges asserted in the remaining grounds for unpatentability.

V. CONCLUSION

After considering the evidence and arguments presented by the parties, we determine that Petitioner has demonstrated by a preponderance of the evidence that all the challenged claims 5, 7–9, and 11–29 of the '602 patent are unpatentable.

VI. ORDER

For the reasons given, it is

ORDERED that claims 5, 7–9, and 11–29 of the '602 patent are *unpatentable*;

FURTHER ORDERED that, because this is a Final Written Decision, the 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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