

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

LG ELECTRONICS, INC. and LG ELECTRONICS U.S.A., INC., and
VIZIO, INC.¹
Petitioner,

v.

MULTIMEDIA TECHNOLOGIES PTE. LTD.,
Patent Owner.

IPR2024-00351
Patent 9,510,040 B2

Before ST. JOHN COURTENAY III, ROBERT L. KINDER, and
SHARON FENICK, *Administrative Patent Judges*.

KINDER, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining Some Challenged Claims Unpatentable
35 U.S.C. § 318(a)

¹ VIZIO, Inc. filed a petition in IPR2024-00694 and was joined as a petitioner in an understudy role in this proceeding. Paper 11.

I. INTRODUCTION

Petitioner, LG Electronics, Inc. and LG Electronics U.S.A., Inc. (collectively, “Petitioner” or “LG”), filed a Petition requesting an *inter partes* review (“IPR”) of claims 1–6, 11–16, 21, and 22 of U.S. Patent No. 9,510,040 B2 (Ex. 1001, “the ’040 patent”). Paper 1 (“Pet.”). Patent Owner, Multimedia Technologies Pte. Ltd. (“Patent Owner” or “Multimedia”), filed a Preliminary Response. Paper 5 (“Prelim. Resp.”). Pursuant to § 314, on June 24, 2024, we instituted review of claims 1–6, 11–16, 21, and 22 of the ’040 patent as unpatentable. Paper 14.

Multimedia filed a Patent Owner Response (Paper 19 “PO Resp.”) to oppose the Petition. LG filed a Reply (Paper 22 “Pet. Reply”) to the Patent Owner Response. Multimedia filed a Sur-reply (Paper 26 “Sur-reply”) to the Reply. We conducted an oral hearing on February 19, 2025. A transcript has been entered into the record (Paper 31, “Tr.”).

We have jurisdiction under 35 U.S.C. § 6(b)(4) and § 318(a). This Decision is a final written decision under 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73 as to the patentability of claims 1–6, 11–16, 21, and 22 of the ’040 patent. We determine that LG has shown by a preponderance of the evidence that claims 1, 4–6, 11, 14–16, 21, and 22 are unpatentable. LG has not shown by a preponderance of the evidence that claims 2, 3, 12, and 13 are unpatentable.

A. Real Parties in Interest (“RPIs”)

The Petition identifies LG Electronics, Inc. and LG Electronics U.S.A., Inc. as RPIs. Pet. 95. Multimedia identifies itself as the only RPI. Paper 4 (Multimedia’s Mandatory Notices), 2. Joined petitioner VIZIO, Inc. identifies itself and Walmart Inc. as RPIs. IPR2024-00694, Paper 15 (Petitioner’s Updated Mandatory Notices), 2.

B. Related Matters

The parties indicate that the ’040 patent is the subject of the following two district court cases: (1) *Multimedia Technologies Pte. Ltd. v. LG Electronics Inc.*, No. 2:22-cv-00494 (E.D. Tex. filed Dec. 23, 2022); and (2) *Multimedia Technologies Pte. Ltd. v. Vizio, Inc.*, No. 2:23-cv-00124 (E.D. Tex. Filed Mar. 24, 2023). Pet. 95; Paper 4, 2. In addition to this Petition, LG filed the following three other petitions challenging related patents owned by Multimedia: (1) *LG Electronics, Inc. v. Multimedia Technologies Pte. Ltd.*, IPR2024-00352, Paper 1 (PTAB Dec. 20, 2023) (challenging claims 1–14 of U.S. Patent No. 9,247,174 B2); (2) *LG Electronics, Inc. v. Multimedia Technologies Pte. Ltd.*, IPR2024-00353, Paper 1 (PTAB Dec. 22, 2023) (challenging claims 1–4, 6, 8–10, 12–17, and 19 of U.S. Patent No. 9,055,254 B2); and (3) *LG Electronics, Inc. v. Multimedia Technologies Pte. Ltd.*, IPR2024-00354, Paper 1 (PTAB Dec. 22, 2023) (challenging claims 1–18 of U.S. Patent No. 10,419,805 B2)). Paper 4, 2.

C. The ’040 Patent

The ’040 patent, titled “Global Panel,” issued from U.S. Patent Application No. 14/834,316, filed on August 24, 2015. Ex. 1001, codes (54), (21), (22). The ’040 patent has an extensive priority chain of

continuation and provisional applications that ultimately results in a claim of priority to U.S. Provisional Patent Application No. 61/684,672 (“the ’672 application”), which was filed on August 17, 2012. *Id.* at codes (60), (63).

The ’040 patent relates to “methods and systems of displaying content on a television” that includes “receiving an indication associated with a selection by a user,” determining “a global panel to display via the television” based on the received indication,” retrieving “a first content information for display in the global panel” from memory, and then displaying “the retrieved content information in the specified global panel” on the television. Ex. 1001, code (57). According to the ’040 patent, “[a] Smart TV [television] is generally conceived as a device that integrates access to the Internet and Web 2.0 features into television sets.” *Id.* at 2:15–17. The ’040 patent, however, states that “most Smart TV’s have yet to provide seamless and intuitive user interfaces for navigating and/or executing the various features of the Smart TV” and, as a result, “there are still issues with the consolidation of features and the presentation of these features in Smart TVs.” *Id.* at 2:21–26.

The ’040 patent ostensibly addresses these issues with smart TVs by providing “intuitive user interfaces . . . with seamless user interaction capability.” Ex. 1001, 2:30–31. Figure 15B of the ’040 patent, reproduced below, illustrates a global panel configuration consistent with one embodiment. *Id.* at 11:31–32, 29:60–62.

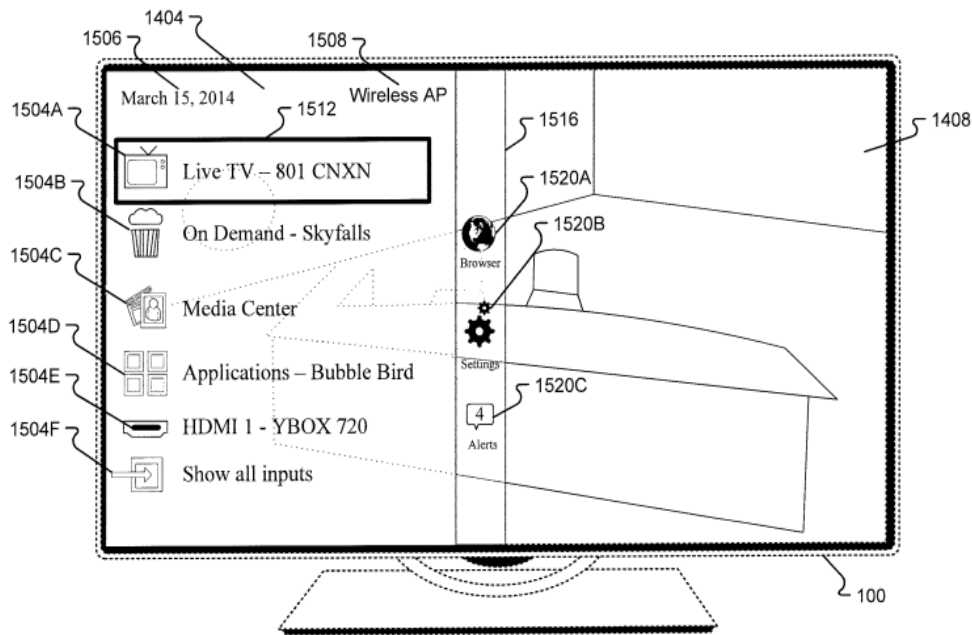


Fig. 15B

Figure 15B illustrates intelligent TV 100 that includes global panel 1404 on the left and active content area 1408 on the right. *See id.* at 29:60–30:5. Global panel 1404 includes, among other things, one or more sources 1504A–E represented by icons or texts. *Id.* at 30:26–27. Global panel 1404 also “indicate[s] a source that is selected or highlight[ed] using indicator 1512.” *Id.* at 30:41–43. As shown above, indicator 1512 is represented as “a box positioned around Live TV—801 CNXN,” which, in turn, results in displaying Live TV in active content area 1408. *Id.* at 30:43–44, 30:65–67.

Figure 15C of the ’040 patent, reproduced below, illustrates that same global panel configuration as Figure 15B, except indicator 1512 was moved to a different source. Ex. 1001, 11:31–32, 32:9–12.

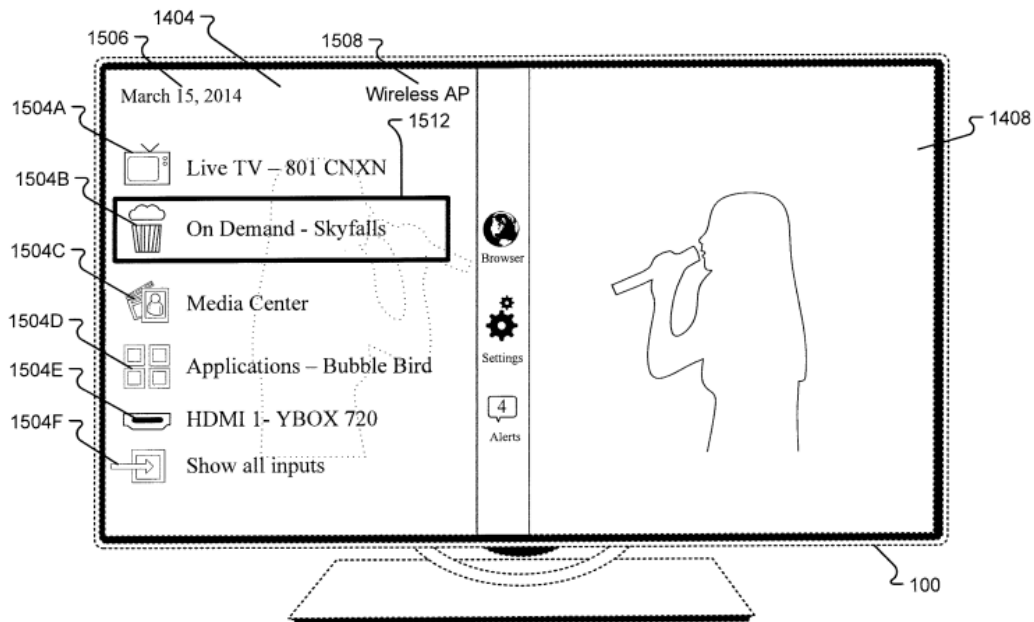


Fig. 15C

Figure 15C illustrates positioning indicator 1512 within global panel 1404 around “On Demand – Skyfalls,” which, in turn, results in displaying an image or video associated with Skyfalls in active content area 1408. *Id.* at 32:12–14.

D. Challenged Claims

Of the challenged claims, claims 1, 11 and 21 are independent. Independent claim 1 is directed to “[a] method of displaying content on a television,” independent claim 11 is directed to “[a] non-transitory computer readable information storage medium having stored thereon instructions that cause a computing system to execute a method of displaying content on a television,” and independent claim 21 is directed to “[a] system for displaying content on a television.” Ex. 1001, 39:58–59, 41:1–4, 42:29–30. Claims 2–6 directly depend from independent claim 1, claims 12–16 directly depend from independent claim 11, and claim 22 directly depends from independent claim 21. *Id.* at 40:8–49, 41:20–42:5, 42:49–61. Independent claim 1 is illustrative of the challenged claims and is reproduced below.

1. A method of displaying content on a television, comprising:

receiving, by a processor, an indication associated with a selection by a user;

determining, by the processor, based on the received indication, a global panel to display via the television;

retrieving, by the processor, from memory, a first content information for display in the global panel; and

displaying, via the television, the retrieved content information in the global panel, wherein the global panel includes a list of sources of content for the intelligent television, wherein at least one of the sources is highlighted as being associated with the first content information, and wherein the sources include a live television source, a video on demand source, a media center source, an applications source, and an electrical input associated with the television.

Id. at 39:58–40:7.

E. Asserted Prior Art References

LG relies on the prior art references set forth in the table below.

Name²	Reference	Dates	Exhibit Nos.
Kim	US 2012/0054791 A1	published Mar. 1, 2012; filed Mar. 9, 2011	1005
Lee ("Lee-1")	US 9,008,190 B2	issued Apr. 14, 2015; filed Jan. 4, 2010	1006
Choi	US 2013/0057764 A1	published Mar. 7, 2013; filed June 28, 2012	1007
Lee ("Lee-2")	US 9,398,339 B2	issued July 19, 2016; filed Dec. 16, 2010	1010

F. Asserted Grounds of Unpatentability

LG challenges claims 1–6, 11–16, 21, and 22 of the '040 patent based on the asserted grounds of unpatentability set forth in the table below. Pet. 10–92.

Claims Challenged	35 U.S.C. §	References/Basis
1–5, 11–15, 21	103(a) ³	Kim, Lee-1, Choi
2, 3, 6, 12, 13, 16, 22	103(a)	Kim, Lee-1, Choi, Lee-2

² For clarity and ease of reference, we only list the first named inventor.

³ The Leahy-Smith America Invents Act ("AIA"), Pub. L. No. 112-29, 125 Stat. 284, 287–88 (2011), amended 35 U.S.C. § 103, effective March 16, 2013. Because the '040 patent claims the benefit of the '672 application, which was filed before this date, the pre-AIA version of § 103 applies. Ex. 1001, code (60).

II. ANALYSIS

A. Claim Construction

In this IPR, claim terms are construed using the same claim construction standard as in a civil action under 35 U.S.C. § 282(b). *See* 37 C.F.R. § 42.100(b) (2023). That is, claim terms generally are construed in accordance with their ordinary and customary meaning, as would have been understood by a person of ordinary skill in the art, in view of the specification and the prosecution history pertaining to the patent at issue. *See id.* The ordinary and customary meaning of a claim term “is its meaning to the ordinary artisan after reading the entire patent,” and “as of the effective filing date of the patent application.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313, 1321 (Fed. Cir. 2005) (en banc).

In its Petition, LG contends that, “for the purposes of this proceeding and the grounds presented herein, no claim term requires express construction.” Pet. 9. Despite this contention, LG proposes that we construe the claim term “at least one,” as recited in each of claims 1, 6, 11, 21, and 22. *Id.* According to LG, “the phrasing of ‘at least one of A, B, C’ and ‘at least one of A, B, or C’ includes ‘A alone, B alone, C alone, A and B together, B and C together, or A, B, and C together.’” *Id.* (citing Ex. 1001, 3:49–56; Ex. 1003 (Declaration of Andrew Lippman, Ph.D.) ¶¶ 34–39).

Multimedia “has applied the ordinary and customary meaning of the claim terms in establishing the patentability of the claims of the ’040 Patent,” and likewise does not request the express construction of any claim term. PO Resp. 8. Multimedia notes that it applied the ordinary and customary meaning to the claim limitations, “‘an electrical input associated

with the television’ in limitation 1.7 and ‘*settings associated with the identified user*’ in limitation 2.2.” *Id.*

Based on the final record, including the parties’ contention that no claim term requires express construction, there is no readily discernible controversy between the parties that requires us to construe any claim terms, and thus we do not construe any claim terms except as discussed below with respect to limitation 1.6. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (noting that “we need only construe terms ‘that are in controversy, and only to the extent necessary to resolve the controversy’” (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

B. Obviousness Over the Combined Teachings of Kim, Lee-1, and Choi

LG contends that claims 1–5, 11–15, and 21 of the ’040 patent are unpatentable under 35 U.S.C. § 103(a) as obvious over the combined teachings of Kim, Lee-1, and Choi. Pet. 10–76; Pet. Reply 6–26. LG contends that the combined teachings of Kim, Lee-1, and Choi account for the subject matter of each challenged claim, and provides reasoning as to why a person of ordinary skill in the art would have been prompted to modify the teachings of these references. *Id.* LG also relies on the testimony of Dr. Lippman to support its positions. *See* Ex. 1003.

Multimedia offers several arguments against LG’s contentions in its Response, with most of these directed to limitations of claim 1. *See, e.g.*, PO Resp. 13, 17, 31. Among these, Multimedia contends that the asserted prior art fails to teach the claim 1 limitations, “wherein at least one of the sources is highlighted as being associated with the first content information” and “an electrical input associated with the television.” *Id.* at 15–45. Our

analysis below for claim 1 focuses on these limitations. Multimedia relies on the testimony of Dr. Surati to support its positions. *See* Ex. 2011.

As explained below, and based on the final record before us, we determine that LG has shown by a preponderance of the evidence that claims 1, 4, 5, 11, 14, 15, and 21 of the '040 patent would have been obvious over the combined teachings of Kim, Lee-1, and Choi and thus unpatentable. LG has not proven, however, that claims 2, 3, 12, and 13 would have been obvious over the combined teachings of Kim, Lee-1, and Choi.

We begin our analysis with the principles of law that generally apply to an asserted ground based on obviousness, followed by an assessment of the level of skill in the art. Next, we provide overviews of Kim, Lee-1, and Choi. Then, we address the parties' contentions with respect to independent claims 1, 11, and 21 before addressing issues raised with respect to the dependent claims.

1. Principles of Law

"In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable." *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review petitions to identify "with particularity . . . the evidence that supports the grounds for the challenge to each claim"))). This burden of persuasion never shifts to Patent Owner, except in certain limited circumstances not present here. *See Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (discussing the burden of proof in *inter partes* review).

A claim is unpatentable under § 103(a) if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, “would have been obvious at the time 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) when in evidence, objective indicia of obviousness or non-obviousness (i.e., secondary considerations, such as commercial success, long-felt but unsolved needs, failure of others, etc.).⁴ *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17–18 (1966). We analyze the asserted grounds based on obviousness with the principles we identify above in mind.

2. 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). The “person having ordinary skill in the art” is a hypothetical construct, from whose vantage point obviousness is assessed. *In re Rouffet*, 149 F.3d 1350, 1357 (Fed. Cir. 1998).

⁴ Based on the final record, neither party has presented arguments or evidence related to secondary considerations.

Based on the final record before us, we determine the knowledge level of a person of ordinary skill in the art. Relying on the testimony of Dr. Lippman, LG argues the following:

[a] Person of Ordinary Skill in The Art . . . in August of 2012 would have been someone knowledgeable and familiar with the interactive media guide arts that are pertinent to the '040 patent. A [person of ordinary skill in the art] would have had a bachelor's degree in Electrical Engineering, Software Engineering, or Computer Engineering, or equivalent training, and approximately two years of experience working in the field of television systems and networking, human-computer interaction, or related technologies. Lack of professional experience can be remedied by additional education, and vice versa.

Pet. 8–9 (citing Ex. 1003 ¶¶ 18–20).

In its Response, “Patent Owner accepts the Petitioner’s definition of the POSITA” and Multimedia and its expert, Dr. Surati, “find that definition to be reasonable.” PO Resp. 7 (citing Ex. 2011 ¶¶ 43, 44). Accordingly, we adopt LG’s assessment of the level of skill in the art because it is consistent with the '040 patent and the asserted prior art.

3. Overview of Kim

Kim generally relates to “[a] multifunctional display device” that displays multiple card objects in different portions of the display. Ex. 1005, code (57). Kim discloses image display apparatus 100 (e.g. a smart TV) that includes, among other things, display 180. *Id.* ¶¶ 38, 65, Figs. 2, 6. Figure 19 of Kim, reproduced below, illustrates an exemplary home screen display according to one embodiment. *Id.* ¶¶ 21, 192.

FIG. 19

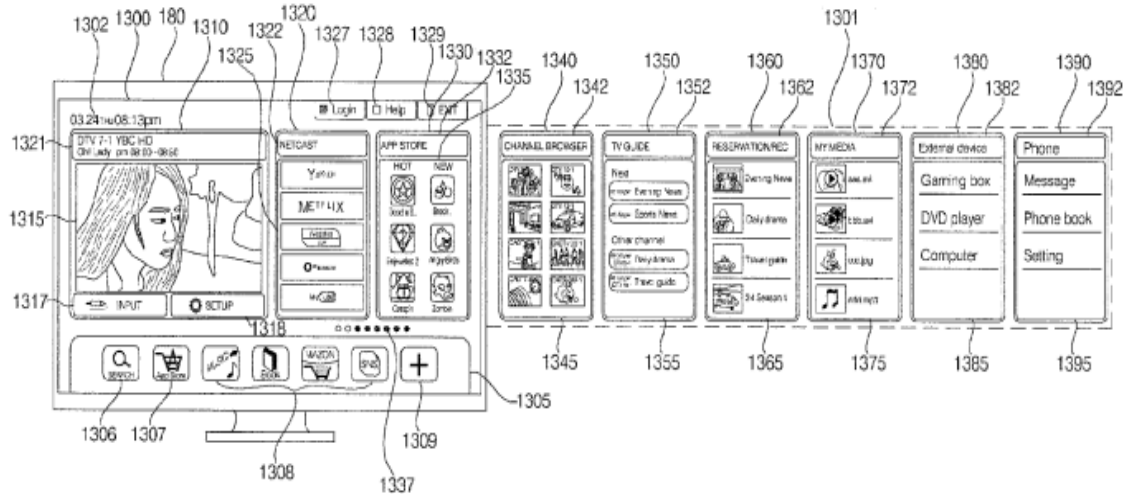


Figure 19 illustrates display 180 that includes home screen 1300 displaying three card objects: (1) card object 1310 named BROADCAST, (2) card object 1320 named NETCAST, and (3) card object 1330 named APP STORE. *Id.* ¶¶ 192, 193, 195. Hidden area 1301 includes additional card objects 1340, 1350, 1360, 1370, 1380, and 1390, which a user may shift or scroll to on display 180 to replace card objects 1310, 1320, or 1330. *Id.* ¶ 196. The number of card objects included in display 180 may vary “from three to either four or two card objects.” *Id.* ¶ 198. As one example, “upon receipt of an incoming call,” if display 180 already includes card object 1390, “it may be highlighted or otherwise distinguished from the other card objects.” *Id.* ¶ 211.

4. Overview of Lee-1

Lee-1 generally relates to “an apparatus for processing images and an operating method thereof.” Ex. 1006, 1:15–19. Lee-1 discloses an apparatus for displaying images 100 that includes, among other things,

display 180. *Id.* at 1:66–2:6, Fig. 1. Display 180 is capable of displaying thumbnail image screen 500. *Id.* at 12:38–43, Fig. 10. Thumbnail image screen 500 displays thumbnail images that may include “a currently inputted image, or a previously stored image.” *Id.* at 12:65–67.

5. Overview of Choi

Choi generally relates to “an image display device” and, in particular, “to a method for providing a list of external devices.” Ex. 1007 ¶ 2. Figure 11 of Choi, reproduced below, illustrates “a screen that provides an external device list” according to one embodiment. *Id.* ¶¶ 19, 250.

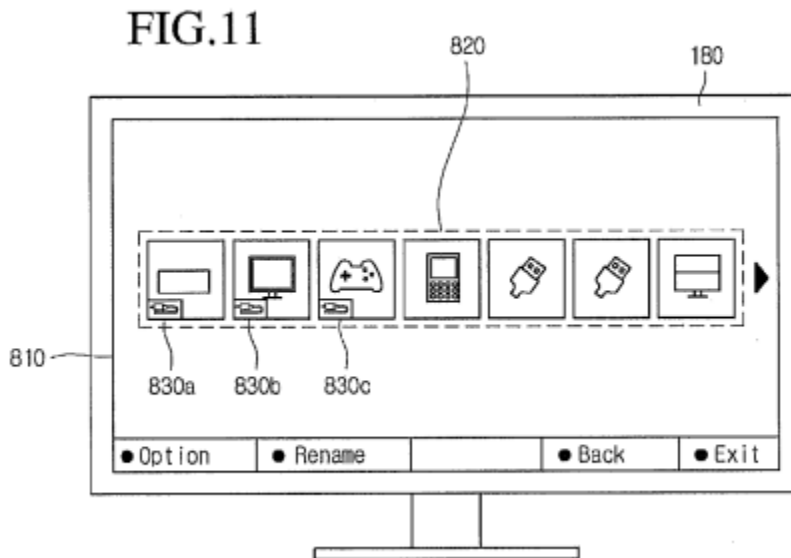


Figure 11 illustrates display unit 180 that includes full screen 810 displaying a plurality of external device icons 820. *Id.* ¶ 250. The external devices actually connected to the image display device are identified using specific symbols 830a, 830b, and 830c. *Id.*

6. Whether Choi and Kim Are Printed Publications Pursuant to 35 U.S.C. § 311(b)

Multimedia contends that Choi and Kim are not printed publications

under 35 U.S.C. § 311(b) because they were not published before the '040 patent's priority date of August 17, 2012. PO Resp. 13–14. Multimedia referenced a case pending at the Federal Circuit, *Lynk Labs, Inc. v. Samsung Electronics Co., Ltd.*, as pertinent to addressing whether applications for patent published after the priority date of the challenged patent are permissible “printed publications” in IPRs. *Id.*

Multimedia's arguments are not persuasive because on January 14, 2025, the Federal Circuit in *Lynk Labs Inc. v. Samsung Electronics Co. Ltd.*, clarified that *inter partes* review challenges may be based upon published patent applications, and such published patent applications can be deemed prior art in IPRs as of their filing date. 125 F.4th 1120, 1127 (Fed. Cir. 2025). As such, both Choi and Kim are prior art pursuant to 35 U.S.C. § 311(b).

7. Claims 1, 11, and 21

LG contends that claims 1, 11, and 21 would have been obvious over the combined teachings of Kim, Lee-1, and Choi. Pet. 15–56, 72, 75. Multimedia opposes, contending several limitations are not taught by the prior art and a person of ordinary skill would not have combined the references as proposed by LG. PO Resp. 15–47.

Below, we provide an overview of LG's contentions for the limitations of these claims. We then address Multimedia's challenges that are directed to limitations [1.6] and [1.7], providing our analysis for each. For the reasons set forth below, LG has demonstrated by a preponderance of the evidence that claims 1, 11, and 21 would have been obvious over Kim, Lee-1, and Choi.

a. Petitioner's Contentions

For purposes of consistency and clarity, we address each limitation of independent claims 1, 11, and 21 in turn by relying on the bracketed annotations provided by LG in the Petition. *See* Pet. 15–56, 72–73, 75–76, 97–103 (Claims App.).

The preamble of independent claim 1 recites [1.0]—“[a] method of displaying content on a television, comprising[.]” Ex. 1001, 39:58–59. To the extent the preamble should be treated as limiting, LG contends that Kim teaches the features recited therein because it discloses smart TV 100 displaying exemplary content, including, among other things, BROADCAST image 1315, NETCAST content 1320 and APP STORE content 1330. Pet. 15–17 (citing Ex. 1005 ¶¶ 193–202, 282–289, Figs. 9, 19–21; Ex. 1003 ¶¶ 63–65).

The first step of independent claim 1 recites limitation [1.1]—“receiving, by a processor, an indication associated with a selection by a user.” Ex. 1001, 39:60–61. LG contends that Kim teaches this limitation because it discloses controller 170, which includes a video processor, audio processor, data processor, and application processor, that executes software to operate smart TV 100 by receiving a user selection from input interface 150 via remote controller 200. Pet. 17–23 (citing Ex. 1005 ¶¶ 85–87, 90, 94, 109, 110, 112, 113, 133, 145, 166–175, 187, 192, Figs. 6, 11, 12; Ex. 1003 ¶¶ 66–79; Ex. 1001, 17:5–9).

The second method step of independent claim 1 recites limitation [1.2]—“determining, by the processor, based on the received indication, a global panel to display via the television.” Ex. 1001, 39:62–63.

LG contends that Kim teaches this limitation because it discloses, “upon receipt of a go-to-home screen input,” controller 170 displays the home screen on display 180 that includes “a plurality of card objects classified according to content sources.” Pet. 23 (quoting Ex. 1005 ¶ 94) (emphasis omitted) (citing Ex. 1005 ¶ 192; Ex. 1003 ¶ 81), Pet. 24–27 (citing Ex. 1005 ¶¶ 89, 94, 96, 193, 196, Figs. 6, 19–23; Ex. 1003 ¶¶ 82–86; Ex. 1001, 29:58–59, 32:60–65). LG argues that Kim’s home screen may include card objects representing “a thumbnail list of broadcast channels,” “a broadcast program guide,” “a program reservation list or a program recording list,” “a media list of a device connected to [smart TV] 100,” “a list of connected external devices,” “an application menu,” etc. *Id.* at 23–24 (quoting Ex. 1005 ¶ 94) (citing Ex. 1003 ¶¶ 81, 82).

The third method step of independent claim 1 recites limitation [1.3]—“retrieving, by the processor, from memory, a first content information for display in the global panel.” Ex. 1001, 39:64–65. Relying on its argument and evidence for limitations [1.1] and [1.2], LG contends that Kim in combination with Lee-1 teaches this limitation because Kim’s controller 170 determines the home screen to display on smart TV 100, including whether the home screen displays descriptive text (e.g., application names, video genre, video title, and audio/visual indicator) and thumbnails. Pet. 27 (citing Ex. 1003 ¶¶ 87, 88). More specifically, LG argues that Kim’s card objects 1330, 1360, and 1370 include descriptive text informing the user of available content. *Id.* at 27–28 (citing Ex. 1005 ¶¶ 137, 208, Fig. 21). As one example, LG argues that Kim’s card object 1330 includes “Angry Birds” and “Bejeweled 2,” both of which are descriptive text because they correspond to a “title” or “name” of an

application available to the user. *Id.* at 28 (citing Ex. 1005, Fig. 21; Ex. 1003 ¶¶ 89–91; Ex. 1001, 25:41–49, 27:23–30, Fig. 15C). LG also argues that Kim’s card objects 1330, 1360, and 1370 include thumbnails informing the user of available content. *Id.* at 29–30 (citing Ex. 1005 ¶¶ 137, 184–186, 208, 209, Figs. 19–21). As one example, Kim’s card object 1330 displays a thumbnail image informing the user that the application “Angry Birds” is available. *Id.* at 30 (citing Ex. 1005 ¶¶ 84, 208; Ex. 1003 ¶¶ 95–97; Ex. 1001, Fig. 15C).

LG further contends that Kim’s smart TV 100 “reproduce[s] content stored in memory 140” and that “controller 170 may control display of the home screen on the display 180.” Pet. 31 (quoting Ex. 1005 ¶ 85, then quoting *id.* ¶ 94 (emphasis omitted)) (citing Ex. 1005 ¶¶ 84–86, 92–94; Ex. 1003 ¶ 102); *see also id.* at 32–33 (arguing the same) (quoting Ex. 1005 ¶ 92) (citing Ex. 1005 ¶¶ 94, 117, 206; Ex. 1003 ¶ 105).

Based on these and other cited disclosures in Kim, LG asserts that it would have been obvious to a person of ordinary skill in the art for Kim’s controller 170 to retrieve content stored in memory 140, such as descriptive text and thumbnails, so it may reproduce the retrieved content on the home screen of display 180. *Id.* at 31–34 (citing Ex. 1005 ¶¶ 65, 84, 85, 89, 92, 117, 192, 213, 293, claim 1, Fig. 6; Ex. 1003 ¶¶ 103, 104, 106, 107).

In addition, LG contends that Kim incorporates by reference Lee-1. Pet. 34 (citing Ex. 1005 ¶ 106). LG argues that Lee-1 discloses that the “displayed thumbnail images may be a . . . previously stored image.” *Id.* at 34–35 (quoting Ex. 1006, 12:65–67) (emphasis omitted). Based on this cited disclosure in Lee-1, LG asserts that it would have been obvious to a person of ordinary skill in the art for Kim’s smart TV 100 to store Lee-1’s

thumbnails in memory 140 and display those images to the user. *Id.* at 35 (citing Ex. 1005 ¶¶ 65, 192, 239; Ex. 1006, 12:65–67; Ex. 1003 ¶ 108).

Turning to rationale to combine, LG contends that a person of ordinary skill in the art would have “considered and applied Lee-1’s incorporated by reference thumbnail teachings to successfully implement Kim’s system and method thereof, which [also] uses thumbnails.” *Id.* at 12–13 (citing Ex. 1005 ¶ 106). Stated differently, LG asserts that it would have been obvious to combine the teachings of Kim and Lee-1 because “[Lee-1] provide[s] implementation details directly applicable to successfully implementing Kim’s system and method.” *Id.* (citing Ex. 1003 ¶¶ 53, 54).

The fourth method step of independent claim 1 recites limitation [1.4]—“displaying, via the television, the retrieved content information in the global panel.” Ex. 1001, 39:66–67. Relying on its arguments and evidence for limitations [1.1], [1.2], and [1.3], LG contends that Kim teaches this limitation because it discloses controller 170 retrieving from memory 140 descriptive text and thumbnails to display on the home screen of smart TV 100. Pet. 36 (citing Ex. 1003 ¶ 111). According to LG, Kim’s controller 170 controls the display of the home screen because it “control[s] movement of a [home screen] card object corresponding to the card object move input on the display 180, or if the card object is not displayed on the display 180, the controller 170 may control the display to show the card object on the display 180.” *Id.* at 36–37 (quoting Ex. 1005 ¶ 96) (emphasis omitted; second alteration in original) (citing Ex. 1005 ¶¶ 65, 94, 196, 213, Fig. 6). In addition, LG argues that Kim’s BROADCAST image 1315 may be resized or reduced to display a home screen with more card objects (e.g.,

four card objects instead of three card objects). *Id.* at 37–38 (citing Ex. 1005 ¶ 198).

Based on these disclosures in Kim, LG contends that, when the user desires to access specific card objects, it would have been obvious to a person of ordinary skill in the art to reduce the size of Kim’s BROADCAST image 1315 or, alternatively, scroll or shift card objects, so that display 180 presents more or different card objects (e.g., card objects 1360 and 1370). Pet. 38 (citing Ex. 1003 ¶¶ 112–116). LG then asserts that Figure 21 of Kim illustrates one example of how, by shifting and scrolling, descriptive text and thumbnails present in card objects 1330 and 1360 would be displayed on the home screen. *Id.* (citing Ex. 1005 ¶¶ 138, 208, Figs. 21, 22; Ex. 1003 ¶ 117).

The first wherein clause of independent claim 1 recites limitation [1.5]—“wherein the global panel includes a list of sources of content for the intelligent television.” Ex. 1001, 39:67–40:2. Relying on its arguments and evidence for limitations [1.0] and [1.2], LG contends that Kim teaches this limitation because it discloses how smart TV 100 displays the home screen, which “may include a plurality of card objects classified according to content sources.” Pet. 39 (quoting Ex. 1005 ¶ 94) (emphasis omitted) (citing Ex. 1005 ¶¶ 192, 193, 282, 283, Figs. 1, 19; Ex. 1003 ¶¶ 119, 120; Ex. 1001, 7:14–17). LG then argues that Figure 19 of Kim illustrates one example where the home screen includes cards objects 1310, 1320, 1330, 1340, 1350, 1360, 1370, 1380, and 1390, which, separately or together, amount to the claimed “list of sources of content.” *Id.* at 39–41 (citing Ex. 1005 ¶¶ 195–202, 205–211, Fig. 19; Ex. 1003 ¶¶ 121–123).

Alternatively, LG contends that Choi teaches the claimed “list of sources of content” required by limitation [1.5] because Figure 11 of Choi illustrates a plurality of external device icons 820 that include specific symbols 830a, 830b, and 830c representing external devices connected to image display device 100. Pet. 41–42 (citing Ex. 1007, Fig. 11; Ex. 1003 ¶ 124). Similar to Kim, LG argues that Choi’s external devices connect to an input port of image display device 100. *Id.* at 42 (citing Ex. 1005 ¶¶ 76, 77, 131; Ex. 1007 ¶¶ 99, 249; Ex. 1003 ¶¶ 125, 126).

Turning to rationale to combine, LG contends that it would have been obvious to a person of ordinary skill in the art to implement Kim’s EXTERNAL DEVICE card object 1380 to include Choi’s specific symbols representing external devices connected to the input ports of smart TV 100 to inform the user which external devices are actually connected to the smart TV versus those that are not connected. Pet. 42–44 (citing Ex. 1005, Fig. 19 (modifying card object 1380); Ex. 1003 ¶ 137); *see also id.* at 14 (arguing the same).

LG argues this proposed combination is merely combining prior art elements (i.e., Choi’s specific symbols representing external devices connected via input ports, with Kim’s EXTERNAL DEVICE card object 1380) according to known methods to yield the predictable result of “informing the user which external device is connected to an input port.” *Id.* at 45; *see also id.* at 14–15 (arguing the same). LG also argues that this proposed combination represents the use of a known technique (i.e., Choi’s specific symbols representing external devices connected via input ports) to improve a similar device (i.e., Kim’s smart TV 100) in the same way (i.e., “to inform the user which external device is connected to an input

port”). *See id.* at 45 (citing Ex. 1003 ¶ 130); *see also id.* at 15 (arguing the same). LG asserts that there would have been a reasonable expectation of success in making this proposed combination because both Kim and Choi disclose “similar televisions” with “external devices connected via an input port,” and implementing Kim with Choi’s thumbnail icons that have specific symbols representing input ports would have been “a matter of routine software programming.” *Id.* at 15 (citing Ex. 1003 ¶ 61).

LG’s contentions with respect to the next two limitations ([1.6] and [1.7]) are challenged by Multimedia and are the central focus of our analysis below. The second “wherein” clause of independent claim 1 is limitation [1.6]—“wherein at least one of the sources is highlighted as being associated with the first content information.” Ex. 1001, 40:2–4. Relying on its arguments and evidence for limitations [1.3] and [1.5], LG contends that Kim teaches this limitation because its card objects (e.g., card objects 1330, 1360, and 1370) include descriptive text and thumbnails indicative of content sources. Pet. 46 (citing Ex. 1003 ¶¶ 132, 133). LG further argues that Kim teaches the highlighting required by this limitation because it discloses that, “[i]f the card object 1390 is already displayed on the display 180, it may be highlighted.” *Id.* (quoting Ex. 1005 ¶ 211) (emphasis omitted, alteration in original) (citing Ex. 1003 ¶ 134). LG then argues that, although Kim provides a highlighting example in the context of displaying card object 1390, it would have been understood by a person of ordinary skill in the art that highlighting would generally apply to Kim’s other card objects. *Id.*

As one example, LG asserts that, when APP STORE card object 1330 is being displayed on display 180 (as illustrated in Kim’s Figure 21), it

would have been obvious to a person of ordinary skill in the art to highlight APP STORE card object 1330 so as to distinguish it from other card objects and make it readily identifiable by the user. Pet. 46–47 (citing Ex. 1010, 38:7–11, Fig. 33B; Ex. 1003 ¶ 135). Relying on a disclosure in Lee-2 as background knowledge, LG also asserts that it was known in the art to highlight a card object with a surrounding box, and a person of ordinary skill in the art would have understood that this same technique of visually distinguishing a card object would apply to Kim’s card objects. *Id.* at 47–48 (citing Fig. 1005, Fig. 21; Ex. 1010, Fig. 33B; Ex. 1003 ¶ 137–139; Ex. 1001, Fig. 15C). Lastly, LG argues that Kim’s technique of distinguishing active card objects from partially displayed card objects by using “color, tint, brightness, shading, fading, or another appropriate characteristic” renders obvious the highlighting required by this limitation. *Id.* at 49 (quoting Ex. 1005 ¶ 228) (emphases omitted) (citing Ex. 1003 ¶¶ 140, 141; Ex. 1001, 30:41–51).

The third wherein clause of independent claim 1 is limitation [1.7]—“and wherein the sources include a live television source, a video on demand source, a media center source, an application source, and electrical input associated with the television.” Ex. 1001, 40:4–7. As a threshold matter, LG contends that this limitation does not require that each of the identified sources be displayed at the same time. Pet. 49–50 (citing Ex. 1001, 32:60–64; Ex. 1008 (Multimedia’s Infringement Contentions); Ex. 1003 ¶ 143). LG argues that Kim’s card objects teach each of the content sources as follows: (1) BROADCAST card object 1310 or CHANNEL BROWSER card object 1340 each teach the claimed “live television source”; (2) NETCAST card object 1320, which include a plurality of content providers

that provide video on demand, teaches the claimed “video on demand source”; (3) RESERVATION/REC card object 1360 and MY MEDIA card object 1370, individually or collectively, teach the claimed “media center source”; (4) APP STORE card object 1330, which provides a list of applications, teaches the claimed “application source”; and (5) EXTERNAL DEVICE card object 1380, which, as discussed above with respect to limitation [1.5], would include Choi’s specific symbols representing external devices connected to the input ports of smart TV 100, teach the claimed “electrical input associated with the television.” *Id.* at 50–56 (citing Ex. 1005 ¶¶ 38, 56, 63, 75–80, 82, 128, 131, 132 185, 195–197, 201, 202, 205, 206, 208–210, Figs. 9, 19; Ex. 1003 ¶¶ 145–162; Ex. 1001, 6:16–22, 7:39–41, 8:4–6, 20:39–47).

Independent claim 11 includes essentially the same limitations as independent claim 1, except the preamble of independent claim 11 recites “a non-transitory computer readable information storage medium having stored thereon instructions that cause a computing system to execute a method of displaying content on a television, comprising[.]” *Compare* Ex. 1001, 41:1–19 (claim 11), *with id.* at 39:58–40:7 (claim 1). For the most part, LG contends that the same arguments and evidence it provides to explain how the combined teachings of Kim, Lee-1, and Choi account for all the limitations of independent claim 1 equally apply to the limitations of independent claim 11. Pet. 72 (citing Ex. 1003 ¶¶ 224, 230–236). Turning to the unique recitation of the preamble of independent claim 11, LG argues that, to the extent the preamble should be treated as limiting, Kim discloses the features recited therein because it discloses a method of displaying content on smart TV 100 that uses “non-transitory medium such as ‘a [read

only memory], a [compact disc-read only memory], a magnetic tape, a floppy disc, an optical storage' having 'code that is written on a computer-readable recording medium and, can thus, be read by a processor' and 'executed' to perform the noted method.” *Id.* at 72–73 (quoting Ex. 1005 ¶ 299) (emphasis omitted)(citing Ex. 1003 ¶¶ 225–229; Ex. 1001, 4:32–49).

Independent claim 21 includes essentially the same limitations as independent claim 1, except the preamble of independent claim 21 recites “[a] system for displaying content on a television, comprising[],” and the body of independent claim 21 recites “an input device associated with the television,” “a memory,” and “a microprocessor that is programmed to” perform certain steps. *Compare* Ex. 1001, 42:29–48 (claim 21), *with id.* at 39:58–40:7 (claim 1). For the most part, LG contends that the same arguments and evidence it provides to explain how the combined teachings of Kim, Lee-1, and Choi account for all the limitations of independent claim 1 equally apply to the limitations of independent claim 21. Pet. 75 (citing Ex. 1003 ¶¶ 256, 264–270). Examining the unique recitation of the preamble of independent claim 21, LG argues that, to the extent the preamble should be treated as limiting, Kim discloses the features recited therein because it discloses a system for displaying content on smart TV 100. *Id.* (citing Ex. 1005 ¶¶ 31, 38, Figs. 1, 2; Ex. 1003 ¶¶ 257–260). LG argues that Kim’s remote controller 200 and user input interface 150, either individually or collectively, teach the claimed “input device associated with the television,” Kim’s memory 140 teaches the claimed “memory,” and Kim’s controller 170 that stores a software platform with an operating system that enables the controller to implement display operations teaches the claimed “microprocessor that is programmed to” perform certain steps.

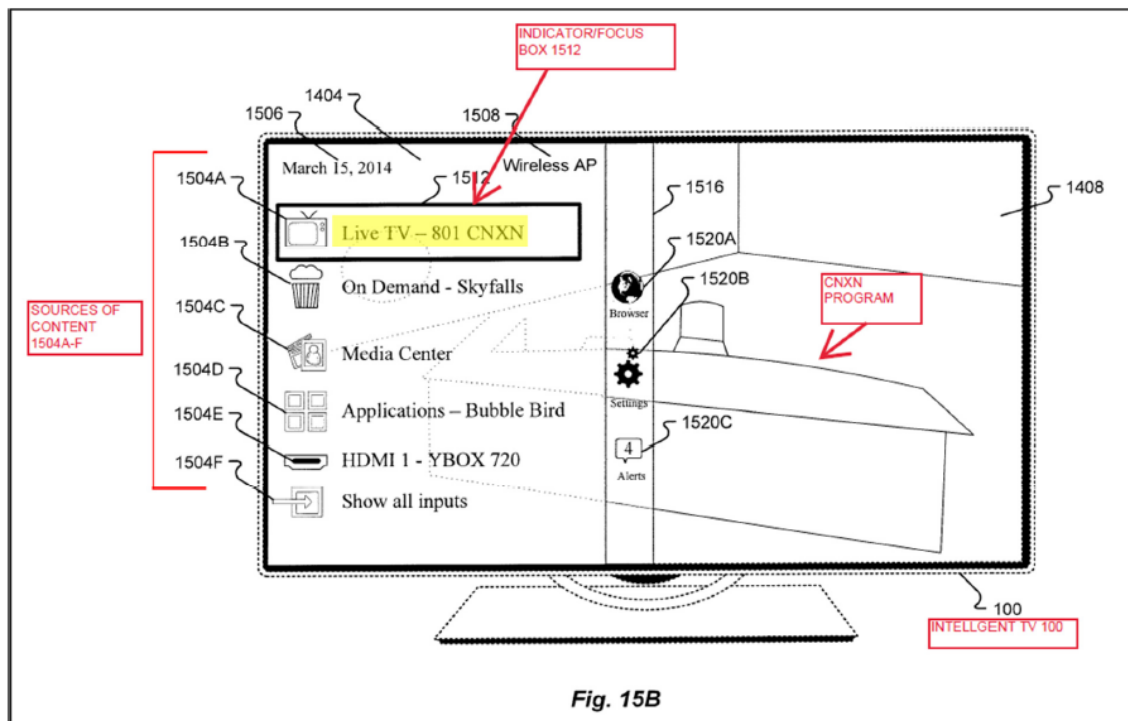
Id. at 75–76 (citing Ex. 1005 ¶ 140; Ex. 1009, 1; Ex. 1012, 3; Ex. 1013, 1–2; Ex. 1003 ¶¶ 261–263).

Based on the final record, we find LG’s reasoning persuasive as to the claim limitations and reasons for combining the references not challenged by Multimedia. Below, we address Multimedia challenges directed to claim limitations [1.6] and [1.7]. *See* PO Resp. 15.

b. [1.6] “*wherein at least one of the sources is highlighted as being associated with the first content information*”

Multimedia contends that Kim fails to teach highlighting that indicates association with the first content information displayed on the screen, as further required by limitations 1.3–1.4. PO Resp. 15. As argued by Multimedia, Kim fails to teach that “one of the content sources listed in the global panel is highlighted because it is associated with the ‘*first content information*’ that is retrieved and displayed in limitations 1.3-1.4.” *Id.* at 17. Thus, we consider whether the asserted prior art teaches “one of the sources is highlighted as being associated with the first content information.” For the reasons discussed below, we find LG’s evidence and argument persuasive.

Multimedia first argues: “[t]he ’040 Patent discloses that a content source may be highlighted *when it corresponds to* information content *that is being displayed.*” PO Resp. 17 (emphasis added). Similarly, Multimedia contends with respect to the ’040 patent’s description of Figure 15B, “‘Live TV-801’ 1504A on the left hand side is highlighted with a box 1512 *because it corresponds to* the program ‘CNXN’ that is being displayed on the right hand side.” *Id.* at 18 (emphasis added).



Multimedia's annotated Figure 15B depicts a panel of a smart television with indicator box 1512 highlighted on the left side and CNXN program being displayed on the right side of the screen. *Id.*

But we determine that Multimedia's characterization of the '040 patent is contrary to its disclosure. Multimedia infers from its reading of the '040 patent that a causal relationship is required wherein the content source (1504A above) is highlighted because of the display of information – such as CNXN being displayed in the right panel in Figure 15B. *See* Sur-reply 2 (“in Figure 15B the content source LiveTV-801 CNXN 1504A is highlighted **because** the CNXN program is being displayed”) (emphasis added). We disagree with this erroneous premise that Multimedia's arguments rest upon, as applied to the prior art discussed below.

The '040 patent does not require the display of first content to cause the highlighting of a displayed source identifier. As noted above, the claim

language recites, “wherein at least one of the sources is highlighted as being associated with the first content information.” Below, we first consider the specification of the ’040 patent before addressing the teachings of Kim.

Referring to Figure 15B of the ’040 patent, Live TV 1504A is highlighted when a user selects this content source in some manner. Ex. 1001, 30:27–51. At that juncture, after a user selects the content source and it is highlighted, the content source is then associated with the first content information, “801 – CNXN,” which is displayed on the right panel of Figure 15B. *See id.* We do not understand the ’040 patent as requiring the display “801 – CNXN” to *cause* the corresponding highlighting of Live TV 1504A as suggested by Multimedia. The claim language requires the two elements “being associated with”⁵ one another, but it does not require that one element’s display (first content information) causes the highlighting of the other element (content source).

Our view is supported by the only description of highlighting a content source found in the specification of the ’040 patent. In regard to Figure 15B, the specification describes that “global panel 1404 may include one or more sources represented by icons and text, or shortcuts, 1504A-E.” Ex. 1001, 30:27–28. The specification describes how highlighting the source is user directed:

Global panel 1404 may additionally indicate a source that is selected or **highlight** [sic] using indicator 1512; for example, indicator 1512 may comprise a box positioned around Live TV

⁵ As the Federal Circuit has explained, “the plain meaning of associating relates to a mere commonality.” *Apple Inc. v. Motorola, Inc.*, 757 F.3d 1286, 1306 (Fed. Cir. 2014), *overruled by Williamson v. Citrix Online, LLC*, 792 F.3d 1339 (Fed. Cir. 2015) (on unrelated grounds).

801 CNXN. Although illustrated as a box, other methods or configurations which provide for icon selection and/or identification may be used. For example, instead of a box, indicator 1512 may comprise adjusting the background of an icon and text, such as 1504A for example, such that the color, shade, or hue is different.

Id. at 30:41–49 (emphasis added). Highlighting, as the specification describes, occurs when a **user selects** a source using indicator 1512 and that source is boxed or differentiated by color or shading. *Id.* The specification, in relation to Figure 15C, further describes a user moving indicator 1512 to another source such that the “the content or a preview of the content may be displayed in active content area 1408.” *Id.* at 32:9–17 (“For example, FIG. 15C illustrates an image or video associated with Skyfalls being displayed in content area 1408.”). Thus, the specification is clear that the highlighting function results from **user selection** of the source and the corresponding association of the first content information with that source flows from that user selection. *See also id.* at 2:30–31 (describing a purpose of the ’040 patent as “an Intelligent TV with intuitive user interfaces and with seamless user interaction capability”), 32:35–43 (“[t]he user . . . move[s] the focus box”). This supports our understanding that the claim language does not require that the display of first content to cause the highlighting of a displayed source identifier.

Multimedia’s arguments related to Kim are primarily based on the incorrect premise addressed above and are therefore unpersuasive. Specifically, Multimedia argues that limitation [1.6] requires that a content source be “highlighted *because*” it corresponds to a program “being displayed on the right-hand side” and that one reason Kim is distinguished is because Kim’s objects are highlighted because a user must select them. PO

Resp. 17–30 (emphasis added), 19 (“Kim does not teach or suggest that any of the specifically-identified card objects 1330, 1340, 1360, 1370, and 1310 is highlighted *because* the text/thumbnail in that card object is being displayed.”) (emphasis added), 21 (“the card is highlighted because it is partially-displayed, not because its information content (‘first content information’) has been displayed”), 23 (“That does not meet limitation 1.6, which requires highlighting the card object (alleged “*source of content*”) based on the information in the card object (the alleged “*first content information*”) being retrieved and displayed pursuant to limitations 1.3–1.4.”). *See also* Ex. 2011 ¶¶ 133, 136.

Based on the final record, we are persuaded that LG has shown by a preponderance of the evidence that Kim teaches “wherein at least one of the sources is highlighted as being associated with the first content information.” Pet. 46–48 (citing Ex. 1005 ¶¶ 211, 228; Ex. 1003 ¶¶ 133–142). As explained by Dr. Lippman “Kim discloses thumbnails and descriptive text in each card object 1330 and 1360 (separately and together ‘*first content information*[, ’]) and “content sources (‘*the sources*’).” Ex. 1003 ¶ 133. LG has established that it was known in the art to highlight or emphasize a card object, and a person of ordinary skill in the art would have understood that this same technique of visually distinguishing a card object would apply to Kim’s card objects. Pet. 47–48 (citing Ex. 1005, Fig. 21; Ex. 1003 ¶¶ 137–139; Ex. 1010, Fig. 33B). We find persuasive Dr. Lippman’s testimony that “[a] POSITA would have understood that Kim’s card object may be highlighted with a box surrounding the card object, as was known in the art,” because Dr. Lippman provides several tangible examples from Kim to support this conclusion. *See* Ex. 1003 ¶¶ 134–139. We discuss some of

these examples below.

Kim discloses that, “[u]pon receipt of an incoming call,” smart TV 100 automatically displays PHONE card object 1390 on display 180. Ex. 1005 ¶ 211. If the incoming call is received while PHONE card object 1390 is already being displayed on display 180, “[PHONE card object 1390] may be highlighted or otherwise distinguished from the other card objects.” *Id.* This is consistent with another passage in Kim, which discloses distinguishing active card objects from partially displayed card objects using “*color, tint, brightness, shading, fading, or another appropriate characteristic.*” *Id.* ¶ 228 (emphases added). Based on the final evidence of record, these cited disclosures in Kim collectively teach that, when smart TV 100 actively displays a card object, it may distinguish the active card object from other card objects presented on display 180 by using highlighting or other means. *See* Ex. 1003 ¶¶ 134, 135 (“it would have been understood by a POSITA that this teaching generally applies to Kim’s other card objects”).

LG has persuasively shown how the teachings related to the examples above (e.g., PHONE card object 1390 being highlighted) would have made it obvious to a POSITA to apply to another card object “to be highlighted so that it is distinguished from the other card objects and readily identified by the user.” Pet. 46–47 (citing Ex. 1003 ¶ 135). As Dr. Lippman explains, “where the APP STORE card object 1330 is already displayed on the display 180 (see Figure 21), it would have been obvious . . . for the APP STORE card object 1330 to be highlighted so that it is distinguished from the other card objects and readily identified by the user.” Ex. 1003 ¶ 135 (citing Ex. 1010, 38:7–11). In regards to the embodiment of Figure 21 of Kim, user selection is evidenced by pointer 205 that moves in accordance with a

remote controller and allows selection of Kim's card objects. Ex. 1005 ¶¶ 167, 223; Ex. 1003 ¶ 135.

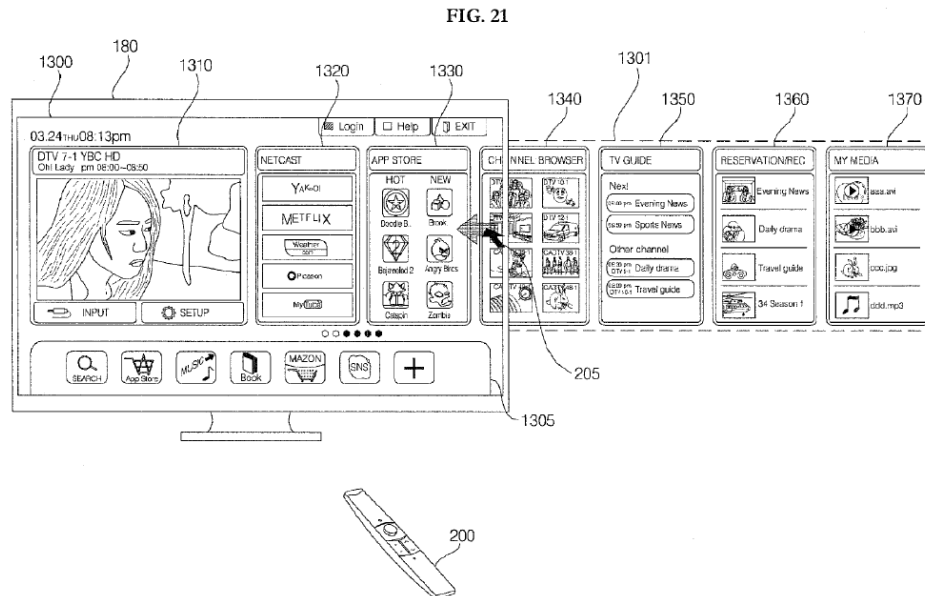


Figure 21 of Kim demonstrating how “[a] card object may be selected through manipulation of input device such as the pointer 205 which may be controlled by a movement of the remote controller 200.” Ex. 1005 ¶ 223. As noted above, and although not depicted, when selected the card objects may be further emphasized by “color, tint, brightness, shading, fading, or another appropriate characteristic.” *Id.* ¶ 228. These teachings of Kim also align with the descriptions of highlighting found in the ’040 patent. See Ex. 1001, 30:41–49.

Multimedia contends that “a POSITA would readily understand from Kim that the five card objects (‘sources of content’) and their text/thumbnails (‘first content information’) are automatically displayed together when the user invokes the home screen.” PO Resp. 20. Further, at that juncture, Multimedia notes that “[n]one of the five card objects are highlighted.” *Id.* We do not see any error in Multimedia’s statement, but we

also do not believe this snapshot of Kim’s home screen launch embodiment is dispositive as to whether those portions of Kim relied upon by LG teach the highlighting claim limitation, as those portions of Kim relate to activity subsequent to the display of the home screen launch. Similarly to the ’040 patent’s disclosure, and as examined above, Kim teaches user selection of a card object and the ability to highlight or distinguish a card object, regardless of whether or not the card object is initially highlighted during the home screen launch. *See* Ex. 1003 ¶¶ 134, 135. Kim expressly discloses that “[i]f the card object 1390 *is already displayed* on the display 180, it may be highlighted or otherwise distinguished from the other card objects.” Ex. 1005 ¶ 211 (emphasis added).

We have considered Multimedia’s contentions that “a POSITA would not have reason to apply Kim’s teaching for the Phone object 1390 to the other card objects” and thus, there is no motivation to highlight Kim’s card objects. PO Resp. 23. According to Multimedia, applying Kim’s highlighting teachings to card objects (other than the phone embodiment) would not work because another card object “would be highlighted when an incoming call is detected” and “it would confuse the user because it would distract from the Phone object that is receiving the call.” *Id.* at 22–23 (citing Ex. 2011 ¶ 134). Further, Multimedia argues that “Petitioner and its expert never provide a reason why a POSITA would apply the incoming-call highlighting of the Phone card object to the five other card objects,” and LG never “identifies or explains why another card object would need to be highlighted to distinguish it.” *Id.* at 24.

LG and Dr. Lippman establish persuasively that a person of ordinary skill in the art would highlight a card object within Kim “so that it is

distinguished from the other card objects and readily identified by the user.” Pet. 46–47 (citing Ex. 1003 ¶ 135). Multimedia’s expert, Dr. Surati, generally agrees with this rationale. Ex. 1015, 53:19–24, 54:14–18. Further, we agree with LG that the Petition “did not argue that another card object would be highlighted when a phone call is received,” but instead LG persuasively established that a person of ordinary skill in the art would apply the phone card object teaching to Kim’s other card objects. Pet. Reply 9–10. As Dr. Lippman explained, “[a]lthough Kim provides a highlighting example in the context of presently displayed card object 1390, it would have been understood by a POSITA that this teaching generally applies to Kim’s other card objects,” and “[t]he same reasoning would apply to Kim’s other card objects.” Ex. 1003 ¶¶ 135, 138.

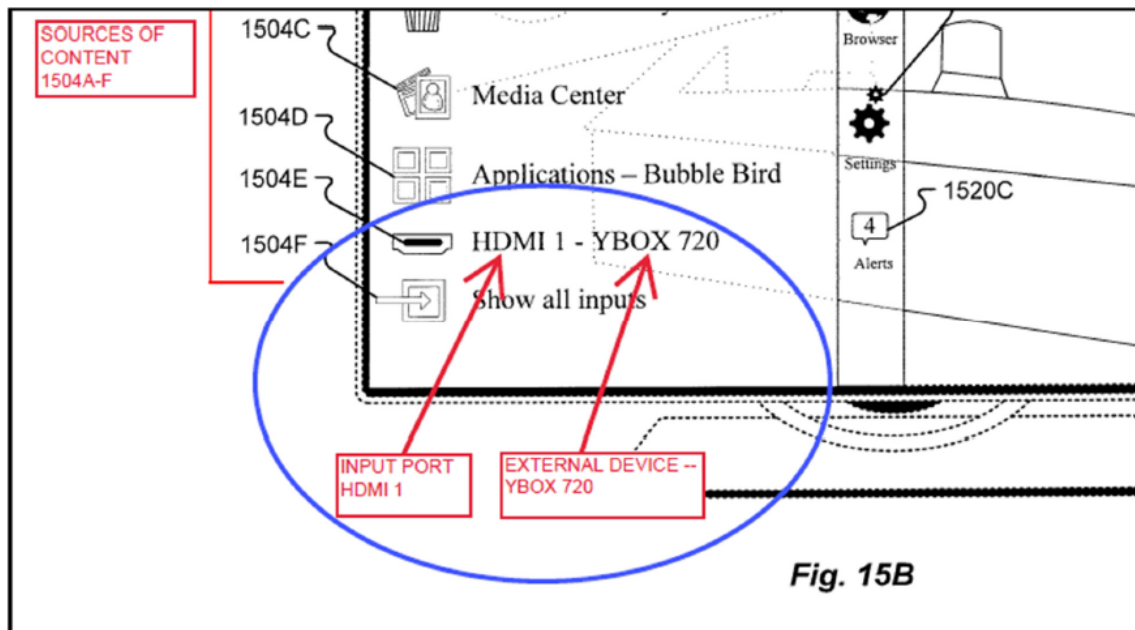
Based on the final record before us, LG has shown persuasively how Kim’s card objects correspond to the claimed “*content source*” and that the thumbnails and text correspond to the claimed “*content information*” such that “one of the sources is highlighted as being associated with the first content information.” Pet. 27–39.

c. [1.7] “the global panel includes a list of sources of content . . . wherein the sources include . . . an electrical input associated with the television”

The claim language for this limitation, similar to that examined above, states “an electrical input *associated with* the television,” which generally requires a commonality between the two components. Below, we consider Multimedia’s contentions and provide our analysis for this limitation.

Multimedia contends that limitations [1.5] and [1.7] require that “the global panel includes at least one input port that is a source of content for the television.” PO Resp. 31. Multimedia notes “that televisions in the 2012

timeframe include electrically connected input ports for connecting external sources, a few examples being an HDMI port, a USB port, a DVI port, and so forth.” *Id.* Multimedia contends that the “*electrical input associated with the television*” requires the display of “a specific input port (HDMI 1) source that is an electrical input to the television,” such as that depicted in Figure 15B of the ’040 patent as text 1504E:

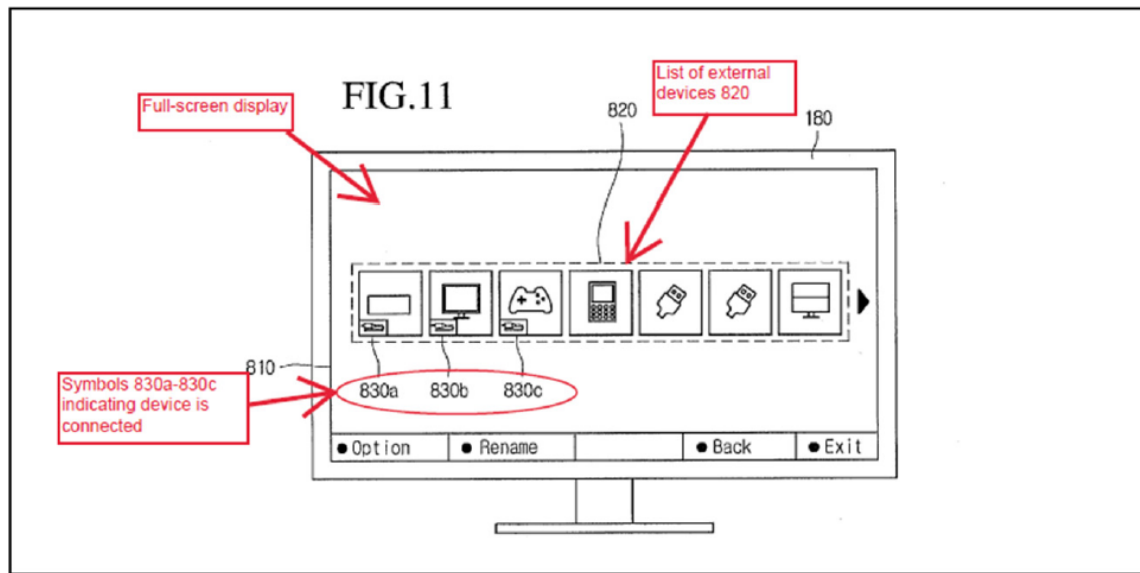


Multimedia’s excerpted and annotated Figure 15B with text 1504E labeled as both “Input Port HDMI 1” and “External Device -- YBOX 720.” PO Resp. 32; Ex. 1001, 30:37–39 (“icon and text 1504E may be associated with one or more sources of content, either internal or external”). According to Multimedia and Dr. Surati, “[a] POSITA would readily appreciate that the ordinary and customary meaning of the ‘electrical input associated with the Television’ in limitation 1.7 as referring to an input port.” PO Resp. 33 (citing Ex. 2011 ¶ 153).

Multimedia next argues that Kim as modified by Choi does not teach

the display of an input port. PO Resp. 33. Multimedia reasons that “Kim’s External devices card only displays external devices that are connected to the television,” but “[i]t does not display input ports of the television.” *Id.* (quoting Ex. 1005 ¶ 94 (“The card objects may further include at least one of a card object representing a list of connected external devices.”)). Within Kim, the home screen of Figure 19 “discloses external devices including a gaming box, DVD player, and Computer,” yet, “[t]here is no display of any input ports to the television,” according to Multimedia. *Id.* Further, Multimedia contends that each of the symbols in Kim is identical and does not designate specific input ports. *Id.* at 37 (citing Ex. 2015, 119:3–6, 121:12–15, 167:22–25).

Multimedia further contends that Choi’s teachings likewise fail to teach limitation [1.7] because “Choi’s symbols indicate which external devices are connected, not that an external device is connected to a particular input port.” PO Resp. 34 (quoting Ex. 1007 ¶ 250; citing Ex. 2011 ¶¶ 155–157). According to Multimedia, “a POSITA would understand Choi as teaching that the controller 170 ‘determines which external device icons 820 are connected,’ not that it determines which input ports are connected.” *Id.* at 35.

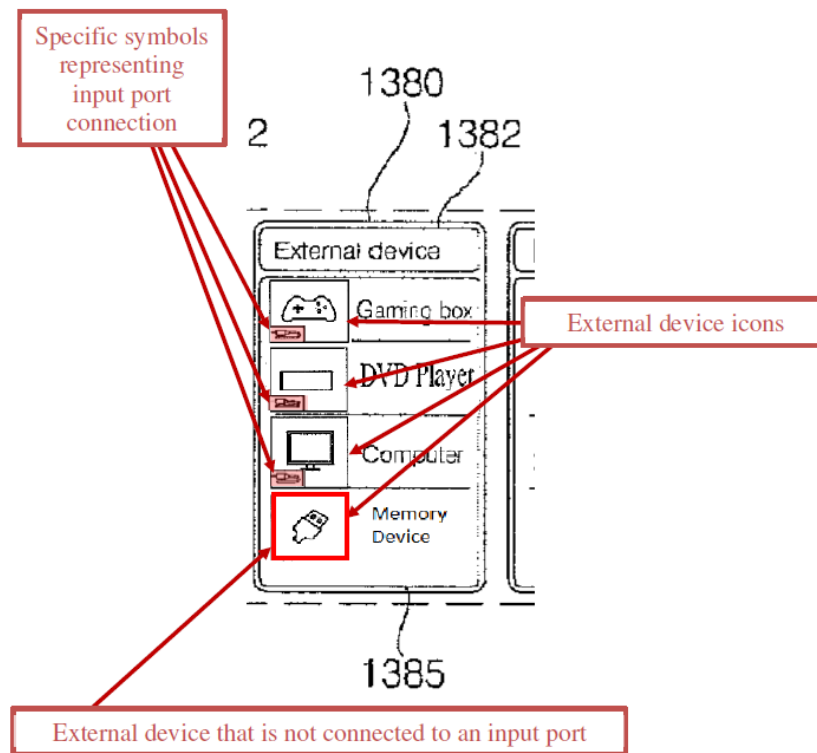


Multimedia's annotated Figure 11 of Choi showing plurality of external device icons 820 labeled as "List of external devices 820" and further labeling "Symbols 830a-830c indicating device is connected." PO Resp. 35; Ex. 1007 ¶ 250. According to Multimedia, "Choi does not teach symbols that identify an input port to meet limitation 1.7, and it is not even capable of providing symbols identifying specific input ports." PO Resp. 35 (citing Ex. 2011 ¶ 158; Ex. 1007 ¶ 250). Further, Multimedia contends "[t]he Reply does not meaningfully contest that modifying Kim according to Choi . . . would render an external device card object 1380 with icons indicating which devices are connected, but no indications of an input port connected to an external device to meet limitations 1.5 and 1.7." Sur-reply 11.

We determine that Multimedia's arguments are again premised on an overly narrow reading of the claim limitation. Multimedia "asserts that the claimed 'electrical input' corresponds to 'at least one **input port** that is a source of content for the television' and that the limitation requires showing 'a **specific input port.**'" Pet. Reply 11 (quoting PO Resp. 31–33). The

claims, however, require only “an electrical input associated with the television,” and we agree with LG that there is “no requirement that it be an ‘input port,’ much less a ‘specific input port.’” *Id.* The specification of the ’040 patent contains several examples “where an ‘input can be a device or devices (e.g., DVD, VCR, etc.) electrically connected to the television through a port (e.g., HDMI, video/audio inputs, etc.) or through a network (e.g., LAN WAN, etc.).’” *Id.* at 12 (quoting Ex. 1001, 6:16–20).

Based on the final trial record before us, LG presents sufficient arguments and credible evidence demonstrating how a person of ordinary skill in the art would have combined Kim’s EXTERNAL DEVICE card object 1380, which illustrates external devices that may be connected via an input port of external device interface 135, with Choi’s teaching of icons representing external devices with specific symbols (or letters) that distinguish electrically connected devices from devices that are not connected to a port, to teach this claim limitation. Pet. 54–56. Relying on a modified and annotated Figure 19 of Kim, Dr. Lippman explains how Choi’s teaching of an icon with a specific symbol representing an input port of the smart TV 100 would be combined with Kim’s “EXTERNAL DEVICE card object 1380” and how “devices not connected have no symbol.” Ex. 1003 ¶ 159.



Ex.1005, Fig. 19 (partial, modified in view of Choi).

Modified and annotated Figure 19 of Kim depicting added “[s]pecific symbols representing input port connection” integrated with “[e]xternal device icons,” as taught by Choi. *Id.*

Dr. Lippman testifies persuasively that Choi teaches displaying symbols and letters to distinguish if an external device is connected to an input port. Ex. 1003 ¶¶ 157–160. According to Dr. Lippman, combining Kim and Choi in the proposed manner, “would inform the user as to which external device is connected to an input port of the display apparatus 100 and which external device is not connected,” such that “it would also allow the user . . . to determine if there is a problem with a connected external device.” *Id.* ¶ 58. We find these rationales for combining references persuasive.

As noted above, the '040 patent includes examples showing how an “input can be a device or devices (e.g., DVD, VCR, etc.) electrically connected to the television through a port (e.g., HDMI, video/audio inputs, etc.) or through a network (e.g., LAN WAN, etc.).” Ex.1001, 6:16–20. Dr. Surati, Multimedia’s expert, admitted on cross-examination that in the '040 patent, an externally connected device (e.g., YBOX) corresponds to an electrical input content source. *See* Ex. 1015, 25:9–14 (stating it was fair to say that the externally connected YBOX provides electrical input to a television and is a content source), 74:6–10 (agreeing that “external device interface unit 135 receives signals from connected devices and provides corresponding electrical inputs to the smart TV 100”), 89:22–90:3 (not willing to dispute whether claim 1 covers the port interface embodiment); Pet. Reply 12.

We have considered Multimedia’s contention that a person of ordinary skill in the art would not make the proposed modification to add identifiers of specific input ports (USB, HDMI) “because it would clutter the display with information the user does not need.” Sur-reply 11–12 (citing Ex. 2015, 212:6–10 (Dr. Lipmann testifying on cross-examination that “the user wouldn’t have to know that kind of technical information, like whether it’s a USB or a component video or an HDMI connection”)); Ex. 2011 ¶¶ 166–167 (Dr. Surati testifying that a POSITA would not make the proposed modification because it would render a display counter to the objective of Kim of providing a user-friendly home screen).

Multimedia’s complexity and cluttering arguments, although providing potential drawbacks of the combination, still do not contradict or overcome the persuasive rationales given by LG and Dr. Lipmann why a

person of ordinary skill in the art would have combined the features of Kim and Choi. *See* Pet. 12, 13 (“Choi complements Kim’s disclosure by teaching that external devices may be represented by icons with ‘specific symbols’ to distinguish devices connected to an input port such as HDMI port, USB port, etc.”), 14 (“would inform the user as to which external device is connected to an input port of the display apparatus 100 and which external device is not connected”), 41–45, 54–56; Ex. 1003 ¶¶ 57, 58, 128, 129, 157; Pet. Reply 16–17. Given that design tradeoffs do not necessarily obviate a motive to combine and considering the prior art for all its teachings, we find LG’s rationales outweigh the drawbacks evidenced by Multimedia. *See Henny Penny Corp. v. Frymaster LLC*, 938 F.3d 1324, 1332 (Fed. Cir. 2019) (“[T]he benefits, *both lost and gained*, should be weighed against one another.”) (alteration in original). Specifically, the drawbacks offered by Multimedia and Dr. Surati approximate that some users may prefer less complex or cluttered displays, but LG has offered reasoned rationales why users may prefer to have such a display to gain information as to which external device is connected to an input port of the display apparatus and which external device is not connected. Pet. 13, 14. Further, we find persuasive LG’s contentions that the volume of content on a display may be configured in several ways to distinguish input port connected devices. Pet. 44–45; Ex. 1003 ¶¶ 128–129 (“would have been obvious to include only icons (as Choi illustrates), so that more or larger icons for external devices can be shown on the EXTERNAL DEVICE card object 1380,” and “to utilize only letters to identify input port connected devices”) (citing Ex. 1007 ¶ 250).

Finally, Multimedia’s contentions “that the proposed combination ‘is not feasible’ because “Kim’s controller 170 is . . . not [capable of] detecting specific input ports’ and that there is no ‘reasonable expectation of success,’ is contradicted by” Dr. Surati’s testimony. Pet. Reply 17 (quoting PO Resp. 40, 43). Dr. Surati testified that it was a fair assessment to conclude it was known in the art to identify a specific port that is connected to a device, and he knew of existing products that showed if a specific device was connected to a specific port such that the device was associated with the port.

Ex. 1015, 92:5–12, 93:8–13. Further, Dr. Surati agreed that HDMI and USB protocols, used in Kim and Choi, enable the ability to detect specific ports. *See id.* at 79:9–21 (agreeing that with HDMI “in order to control an external device, you have to know that it’s there”), 81:11–14 (agreeing that “USB protocol informs a device that it connects to that a device is present”).

Based on the final trial record before us, LG presents sufficient arguments and credible evidence to support a finding that a person of ordinary skill in the art would have combined Choi and Kim in the manner proposed such that a user could identify a corresponding input port and determine which device is connected to which port. Pet. 45 (Ex. 1003 ¶¶ 128–129).

d. Summary

We have described our conclusions and reasoning with respect to the limitations for which Multimedia has contended LG’s showing fails, as discussed above. We have also considered LG’s unchallenged contentions, summarized above, with respect to the remaining limitations of claims 1, 11, and 21 and find that, based on the final trial record before us, this evidence and argument is persuasive. Further, Multimedia does not offer any

argument unique to claims 11 and 21. PO Resp. 47. LG has shown by a preponderance of the evidence that the subject matter of independent claims 1, 11, and 21 would have been obvious over the combined teachings of Kim, Lee-1, and Choi.

8. Claims 2–5 and 12–15

a. Claims 2, 3, 12, and 13

Claim 2 depends from independent claim 1, and further recites the following limitations:

[2.1] *identifying a user associated with the received indication;*

[2.2] retrieving one or more settings associated with the identified user;

[2.3] retrieving, from memory, content information associated with the identified user; and

[2.4] displaying, via the television, the retrieved content information in the global panel.

Ex. 1001, 40:8–15 (LG’s bracketing added) (emphasis added). Claims 3, 12, and 13 recite similar limitations, but each specifically requires limitation [2.1] “identifying a user associated with the received indication.” *Id.* at 40:16–25, 41:20–28, 41:29–30. Having now considered the evidence in the complete record established during trial, LG has not demonstrated by a preponderance of the evidence that these claims would have been obvious over Kim, Lee-1, and Choi.

i. Petitioner’s Contentions

Relying in part on its arguments and evidence for limitations [1.1] and [1.2], LG contends that Kim teaches limitation [2.1]—“identifying a user associated with the received indication”—because it discloses a user making a selection to go to the home screen, the user logging into APP STORE card

object 1330 via the home screen, and the user thereafter pre-registering or logging in to the APP STORE. Pet. 56–58 (citing Ex. 1005 ¶¶ 81, 203, Figs. 18, 19; Ex. 1003 ¶¶ 164–168). LG contends that Kim teaches limitation [2.2]—“retrieving one or more settings associated with the identified user”—because it discloses that, once the user pre-registers or logs into the APP STORE, controller 170 retrieves from memory 140 user-set application menu items 1308 specific to the user. *Id.* at 58 (citing Ex. 1005 ¶¶ 65, 89, 215–227; Ex. 1003 ¶¶ 169–172). LG contends that Kim teaches limitation [2.3]—“retrieving, from memory, content information associated with the identified user; []”—because it discloses controller 170 retrieving from memory 140 the application menu items 1308 that are specific to the user and displaying them as thumbnails on display 180. Pet. 59 (citing Ex. 1005 ¶ 206, Fig. 19; Ex. 1003 ¶¶ 173, 174). LG contends that Kim teaches limitation [2.4]—“displaying, via the television, the retrieved content information in the global panel”—because it discloses displaying the thumbnails representing the application menu items 1308 specific to the user on the home screen of smart TV 100. *Id.* at 59–60 (citing Ex. 1005 ¶¶ 205, 206, 215–28, Figs. 19–23; Ex. 1003 ¶¶ 175–177). LG contends that the same arguments and evidence it provides to explain how the combined teachings of Kim, Lee-1, and Choi account for all the limitations of dependent claim 2 equally apply to the limitations of dependent claim 12. *Id.* at 73.

ii. Patent Owner Contentions and Analysis

Multimedia contends that “limitation 2.1 is not met because Kim does not identify a user based on the ‘*received indication*’ for the user selecting the home screen.” PO Resp. 50. Although we do not agree with Multimedia

that the claim limitation requires user identification *based on* a received identification (as we determined with the “associated with” clauses of [1.6] and [1.7] above), we determine that LG has not met its burden to establish Kim teaches “identifying a user associated with the received indication.”

The “*received indication*” refers to the user selection in limitation [1.1]. Accordingly, executing the claimed method requires user identification be associated with the user input for the “*global panel*.” See PO Resp. 48; see also Ex. 1001, 36:48–52 (“[I]f it is determined that the analyzed communication is associated with displaying a global panel . . . then . . . the user, or a user profile associated with the user is identified”). According to LG, the “received indication” in Kim is the user’s input of a “home key” button or a “go-to-home screen” button. Pet. 20, 22. Thus, under LG’s theory, Kim identifies a user associated with the input of the home key/go-to-home screen button to invoke the home screen.

As Multimedia points out, however, LG’s theory for user identification does not have a direct relationship (an association) with the user’s selection of the home key button. PO Resp. 49. Instead of user identification associated with user’s selection of the home key button, “Petitioner observes that a user may login to the App Store or a network to identify himself/herself using the login 1327 icon on the home screen of Figure 19 of Kim.” *Id.* (citing Pet. 56–77).

Here, we agree with Multimedia that, “this does not satisfy limitation 2.1 because in Kim the user login takes place as [a] separate operation with additional user inputs after the user makes the ‘*received indication*’ user input of the home key button to open the home screen.” *Id.* As discussed more below, these intermediary steps and additional user inputs required by

Kim for user identification do not teach the claimed “identifying a user associated with the received indication,” as claimed.

Again, we disagree with Multimedia that “associated with” equates to the user being identified *based on* the “received indication,” but there must be some commonality or linkage and we believe LG has not persuasively established that identification of the user is associated with or linked to the home screen selection of Kim. For example, in the ’040 patent, the communication itself that is tied to display of a global panel also identifies the user. *See* Ex. 1001, 36:48–52 (“[I]f it is determined that the analyzed communication is associated with displaying a global panel . . . then . . . the user, or a user profile associated with the user is identified.”). LG has not persuasively shown how Kim teaches such a limitation.

Kim’s disclosure confirms that the user login occurs after the user opens the home screen. Ex. 1005 ¶ 192 (“a default screen which may be displayed when a local key on the display apparatus 100 or a home key on the remote controller 200 is selected”), Fig. 19. Specifically, Kim’s user login occurs via separate user inputs by selecting login object 1327 after the home screen is opened. *Id.* ¶ 203 (“A Login menu item 1327 . . . may be displayed above the card objects 1320 and 1330 [and] [t]he user may login to the APP STORE or a network connected to the image display apparatus 100.”); Ex. 2011 ¶ 178 (“Kim’s user login results from **separate user inputs** by selecting the login object 1327 **after** the home screen is opened”) (footnote omitted). According to Dr. Surati, this distinct “login operation involves at least three user inputs after the user made the input to invoke the home screen: (1) selection of login object 1327, (2) entry of user name, and (3) entry of password.” Ex. 2011 ¶ 178, n.5. We agree with Dr. Surati that

limitation [2.1] is not satisfied by Kim’s user login procedure because it occurs after the home screen is selected and displayed and requires several additional user inputs. Ex. 2011 ¶¶ 177–179.

In Reply, LG argues that the pre-registration feature of “Kim renders it obvious since an **already logged in or pre-registered** user may press the home screen button, as confirmed by Multimedia’s expert.” Pet. Reply 20 (citing Ex. 1015, 101:2–5; Ex. 1005 ¶¶ 81, 205). Kim describes, “network interface 130 may transmit data [to] electronic devices pre-registered with the image display apparatus 100.” Ex. 1005 ¶ 81. “In such instances,” Kim states that “the home screen would display content set by that identified user, including user set application items 1308.” *Id.*; Tr. 26:2–19.

Although this pre-registration process is a closer question, LG still has not persuasively established that Kim’s pre-registration capability teaches identifying a user associated with the received indication, which is the selection of the home screen key in Kim. *See* PO Resp. 49. LG relies on paragraph 81 of Kim, which describes sending data to pre-registered users or devices. Ex. 1005 ¶ 81 (“network interface 130 may transmit data to or receive data from another user or electronic device over a connected network” and “network interface 130 may transmit data stored in the image display apparatus 100 to a user or electronic device selected from among users or electronic devices pre-registered”). LG has not demonstrated how Kim’s teaching of sending data to pre-registered users or devices translates to identifying those users associated with the selection of the home screen – the users are already identified prior to selection of the home screen through the separate operations. *Id.* ¶¶ 192, 203.

LG has not established persuasively that a person of ordinary skill in the art would understand Kim's teaching of subsequent selection of a home screen, after identification of a user through either the distinct login procedure or pre-registration process, teaches claim limitation [2.1]. Kim's selection of a home screen is simply too attenuated from the pre-registration process to be associated with user identification. We agree with Multimedia's counsel that the pre-registration "disclosure doesn't teach identifying a user at all, and in fact, you could have pre-registered devices that are receiving information. That doesn't mean that the user has been identified, and that's what's required by limitation 2.1." Tr. 45:8–24.

As noted above, claim 3, 12, and 13 likewise require "identifying a user associated with the received indication," and LG relies upon its analysis for claim 2. *See* Pet. 60, 73. Similarly, Multimedia contends that claims 3, 12, and 13 are patentable for at least the same reasons as claim 2. PO Resp. 47, 56. Based on the final record before us, LG has not shown by a preponderance of the evidence that claims 2, 3, 12, and 13 would have been obvious over Kim, Lee-1, and Choi.

b. Claims 4 and 14

Claim 4 depends from independent claim 1, and further recites the following limitations:

[4.1] receiving a second indication associated with a selection by a user;

[4.2] determining, based on the second indication, a source of content information to be displayed in the global panel based;

[4.3] retrieving at least a portion of content information from the determined source; and

[4.4] displaying, via the television, the content information associated with the determined source.

Ex. 1001, 40:26–35 (LG’s bracketing added). Claim 14 recites essentially the same limitations, but depends from independent claim 11. *Id.* at 41:39–49. Having now considered the evidence in the complete record established during trial, LG has demonstrated by a preponderance of the evidence that the claims would have been obvious over Kim, Lee-1, and Choi.

i. Petitioner’s Contentions

LG contends that Kim teaches limitation [4.1] because it discloses controller 170 is operable to receive selection signals associated with a user selection from an input device such as remote controller 200. Pet. 61 (citing Ex. 1003 ¶ 185). LG argues that this limitation is taught in two different ways “in the context of: (1) the CHANNEL BROWSER card object 1340 (‘second card object’), and (2) the MY MEDIA card object 1370 (‘third card object’).” *Id.* (citing Ex. 1003 ¶ 185). Our analysis below focuses on the former – Channel Browser card object 1340.

As related to the “CHANNEL BROWSER card object 1340,” LG argues that Kim discloses that its home display may provide a plurality of objects, including a second card object with at least one link (user selectable icon) for connecting to a content provider, and this link corresponds to a channel in a broadcast signal. Pet. 62 (citing Ex. 1005 ¶¶ 287–289, 292). According to LG, “[b]ecause the second card object includes at least one link (or icon) that corresponds to a broadcast channel, a POSITA would have understood that the second card object corresponds to Kim’s earlier disclosed CHANNEL BROWSER card object 1340, which includes thumbnails (or icons) of broadcast channels.” *Id.* (citing Ex. 1003 ¶ 187).

LG relies on Kim’s disclosures of selecting a thumbnail from card object 1340 representing a list of broadcast channels, and argues that “Kim’s disclosure that the user selects a thumbnail or icon in the CHANNEL BROWSER card object 1340 (e.g., a second card object) using the remote control 200 and the controller 170 receives a corresponding signal from the user input interface 150, renders obvious this limitation.” Pet. 63 (citing Ex. 1003 ¶ 189).

Limitation [4.2] requires “determining, based on the second indication, a source of content information to be displayed in the global panel based.” LG again relies on the two disclosures examined above for “CHANNEL BROWSER card object 1340 (‘second card object’)” and “MY MEDIA card object 1370 (‘third card object’).” Pet. 64, 65.

As for the Channel Brower (second card) object, LG contends that Kim’s teaching of user selection of a thumbnail or icon that corresponds to link for connecting to a content provider and link’s URL configured to retrieve multimedia medial content teaches this limitation. Pet. 64 (citing Ex. 1005 ¶¶ 287–289). The retrieved content is displayed in a “first card object” on the home screen as is a broadcast channel. *Id.* (citing Ex. 1005 ¶¶ 205–206). Thus, according to LG, “[i]t would have been obvious to a POSITA for the CHANNEL BROWSER card object 1340, to include a ‘link for connecting to a content provider’ with ‘a URL configured to retrieve a multimedia content stored on the content server.’” Pet. 64 (citing Ex. 1005 ¶¶ 90, 97; Ex. 1003 ¶¶ 195–199). LG argues that a POSITA would have understood “that the smart TV 100 would be able to determine the content source that provides content (e.g., a selected channel) and related content information (e.g., program title) to display in the home screen.” *Id.*

Addressing limitation [4.3] (“retrieving at least a portion of content information from the determined source”) LG repeats for the second card object “that the link (corresponding to a thumbnail) in CHANNEL BROWSER card object 1340, ‘may include a URL configured to retrieve a multimedia content stored on the content server’ and that the ‘link corresponds to a channel in a broadcast signal.’” Pet. 67 (citing Ex. 1005 ¶ 292). LG contends that “when the URL is used to retrieve multimedia content corresponding to a broadcast channel for the retrieved content to include both the multimedia content (e.g., video) and related content information.” Pet. 67–68 (citing Ex. 1005 ¶¶ 82, 90, 97); Ex. 1003 ¶¶ 205–208).

Limitation [4.4] requires displaying the content information associated with the determined source. LG relies on much of the same evidence above for the second card object – Kim’s disclosure that the retrieved content is “displayed in the first card object” on the home screen. Pet. 68 (emphasis omitted) (citing Ex. 1005 ¶ 294). Thus, according to LG, “[i]t would have been obvious to a POSITA for the related content information (see [4.3]) to also be displayed so that the user is informed about the currently displayed content.” *Id.* (citing Ex. 1005 ¶¶ 82, 90, 97; Ex. 1003 ¶¶ 211, 214).

In its Reply, LG contends that it relied on the “combined teachings” of the “CHANNEL BROWSER card object 1340” and “second card object” for teaching limitation [4.2]. Pet. Reply 24. LG alleges that Multimedia attacks the teachings of Kim individually, without considering the combination upon which LG relies. *Id.* More specifically, LG contends that whether “the Channel Browser 1340 contains identification of available broadcast channels, not links to content stored on a content server,” (PO

Resp. 58–60 (emphasis omitted)) is not controlling because “the Petition did not rely on the CHANNEL BROWSER card object 1340 to teach the URL links but rather cited the ‘second card object’ teachings where ‘at least one [URL] link corresponds to a channel in a broadcast signal.’” Pet. Reply 24 (citing Ex. 1005 ¶ 292). LG alleges that “[u]tilizing links to request a digital channel is consistent with Kim’s digital broadcast teachings,” further noting that Multimedia’s expert concedes the same. *Id.* (citing Ex. 1015, 123:15–17, 124:9–127:23, 150:19–151:19).

ii. Patent Owner’s Contentions

Multimedia responds to LG by arguing that neither Kim’s Channel Browser nor My Media objects meet limitation [4.2]. PO Resp. 57, 60. Limitation [4.2] requires “determining, based on the second indication, a source of content information to be displayed in the global panel based.” We address Multimedia’s Channel Browser contentions below.

Multimedia first argues that “the Petitioner’s argument is based on the incorrect premise that the Channel browser card object in Kim has a URL to retrieve multimedia content stored on the content server.” PO Resp. 59. According to Multimedia, “Kim does not teach or suggest that the Channel Browser card object has a URL to retrieve content stored on a content server,” because “the Channel Browser is disclosed as identifying a list of broadcast channels.” *Id.* at 58 (citing Ex. 1005 ¶ 205) (emphases omitted). Multimedia contends “Petitioner has improperly and incorrectly conflated the Channel Browser 1340 with the so-called ‘second card object’ in Kim’s discussion of scrolling card objects.” *Id.* at 59 (citing Ex. 1005 ¶¶ 287–294). “But,” according to Multimedia, “that disclosure does not teach or suggest that the ‘second card object’ having ‘at least one link for connecting to a

content provider or to a storage device’ . . . is the Channel Browser 1340.” *Id.* Multimedia relies on the lack of reference to any of the card objects found in Figure 19 in the discussion of paragraphs 287–294 of Kim. *Id.* Multimedia contends “Kim does not remotely suggest that the ‘second card object’ corresponds to the Channel Browser.” Sur-reply 20 (citing Ex. 1005 ¶¶ 287–294).

iii. Analysis

Having now considered the evidence in the complete record established during trial, we are persuaded that, based on this record, LG has demonstrated by a preponderance of the evidence that Kim teaches claim limitation 4.2 and LG has provided a persuasive rationale for combining the teachings of Kim’s “CHANNEL BROWSER card object 1340” with those of the “second card object.” LG relies on the combination of teachings from Kim related to Channel Browser card object 1340 and the second card object. Pet. 64–65. We do not read the Petition to allege that Kim’s Channel Browser card object alone has a URL to retrieve multimedia content stored on the content server. *See* PO Resp. 59. Instead, LG relies on the “second card object” teaching where “at least one [URL] link corresponds to a channel in a broadcast signal” and LG demonstrates how this feature could be included with the Channel Browser card object 1340. *See* Pet. 64–65. Based on this combination, LG persuasively argues that a user may select a thumbnail corresponding to a link for connecting to a content provider but in Channel Browser card object 1340, such that the link may include a URL for retrieving multimedia content stored on the content server. Pet. 64 (citing Ex. 1005 ¶¶ 205, 206, 294). LG has shown that utilizing links to request a digital channel is consistent with Kim’s digital

broadcast teachings. Pet. Reply 24 (citing Ex. 1005 ¶¶ 67, 114, 285, claims 9, 10).

Limitation [4.2] requires “a source of content information to be displayed in the global panel” and LG further demonstrates persuasively how the retrieved video content would have been displayed by Kim’s “first card object” on the home screen and how a broadcast channel would have also been displayed in card object 1310 of the home screen upon a selection of a thumbnail. Pet. 64–65.

Finally, Multimedia contends that the Petition does not “articulate that the teachings from the Channel Browser [] card objects from Figure 19 are being combined with the teachings of the ‘second card object’[] from the scrolling cards embodiment in paragraphs [0287]-[0294]. Nor does the Petition articulate a reason to combine those teachings.” Sur-reply 20. We disagree. LG set forth its position that:

It would have been obvious to a POSITA for the CHANNEL BROWSER card object 1340, to include a “link for connecting to a content provider” with “a URL configured to retrieve a multimedia content stored on the content server” so that the smart TV 100 would be able to determine the content source that provides content (e.g., a selected channel) and related content information (e.g., program title) to display in the home screen.

Pet. 65 (quoting Ex. 1005 ¶¶ 90, 97). Dr. Lippman testifies persuasively for LG that integrating a link for connecting to a content provider into Channel Browser card object 1340 would enable smart TV 100 to “be able to determine the content source for receiving content (e.g., a selected channel) and related content information (e.g., program title) to display in the home screen.” Ex. 1003 ¶ 198. Multimedia has not effectively rebutted this

rationale. Instead, Dr. Surati also recognized that utilizing links to request a digital channel is consistent with Kim’s digital broadcast teachings. *See* Ex. 1015, 123:15–17, 124:9–127:23, 151:4–19 (“Q Like, for example, if you associate a thumbnail with a URL link, and you click the thumbnail, then it will make the request for the content associated with that thumbnail? . . . [A] That’s a way.”).

Because we determine that LG presents sufficient arguments and credible evidence to support a finding that Kim’s Channel Browser card object 1340 meets the requirements of limitation [4.2], we need not reach the My Media card object 1370 contentions. *See* Pet. 61 (“prior art discloses this limitation in two different ways”); PO Resp. 60 (recognizing “My Media card object 1370” as an “alternative argument”). Having now considered the evidence in the complete record established during trial, we are persuaded that, based on this record, LG has demonstrated by a preponderance of the evidence that claims 4 and 14 would have been obvious over those references in combination.

c. Claims 5 and 15

Claim 5 depends from claim 1 and further requires “wherein the global panel comprises information from at least two different panel types.” Ex. 1001, 40:36–38.

LG identifies “the information from at least two different panel types” of claim 5 as being taught by Kim’s disclosure of an application store screen displayed on a display area 1800 (which is a first type of panel) as depicted in Figure 25, and Netcast display area 2410 (which is a second type of panel), as depicted in Figure 42. Pet. 69–70 (citing Ex. 1007 ¶¶ 236–239, 277; Ex. 1003 ¶¶ 219–222).

Claim 15 depends from claim 11 and requires “retrieving from memory a second content information for display in the global panel, and displaying, via the television, the retrieved first content information and the retrieved second content information in the global panel.” Ex. 1001, 41:50–55. LG relies on Kim’s disclosure of controller 170 retrieving “thumbnails and descriptive text . . . for display in the home screen,” and “any combination of the thumbnails and descriptive text associated with the MY MEDIA card object 1370 corresponds to the ‘second content information.’” Pet. 74 (citing Ex. 1003 ¶¶ 253, 254) (emphasis omitted). LG identifies the claimed displaying the retrieved first and second content information as being taught by Kim’s disclosure of adjacent card objects 1360 and 1370 being displayed at the same time in the home screen via the smart TV 100. *Id.* (citing Ex. 1003 ¶ 255).

For claims 5 and 15, Multimedia relies on its arguments made for claim 1. PO Resp. 62.

Having now considered the evidence in the complete record established during trial, we are persuaded that, based on this record, LG has demonstrated by a preponderance of the evidence that claims 5 and 15 would have been obvious over those references in combination.

C. Obviousness Over the Combined Teachings of Kim, Lee-1, Choi, and Lee-2

LG contends that claims 2, 3, 6, 12, 13, 16, and 22 of the ’040 patent are unpatentable under 35 U.S.C. § 103 as obvious over the combined teachings of Kim, Lee-1, Choi, and Lee-2. Pet. 76–92. LG contends that the combined teachings of Kim, Lee-1, Choi, and Lee-2 account for the subject

matter of each challenged claim, and provides reasoning as to why a person of ordinary skill in the art would have been prompted to modify the teachings of these references. *Id.*

Multimedia challenges LG’s contentions and presents distinct arguments for claims 2, 3, 12, and 13 as well as claims 6, 16, and 22. We address these arguments in turn below. We begin our analysis with an overview of Lee-2, and then we address the parties’ contentions.

2. Overview of Lee-2

Lee-2 generally relates to “an image display apparatus and a method for operating the same.” Ex. 1010, 1:18–21. Lee-2 discloses image display apparatus 100 that includes, among other things, display 180. *Id.* at 8:37–47, Fig. 6. Display 180 is capable of displaying a favorite channel list screen that includes channel list area 3910 with thumbnails representing favorite channels, group area 3920 with tabbed menus for different groups A, B, C, and D, and channel setup menu 3930 that provides edit, zoom, group view, compact view, and exit functionalities. *Id.* at 41:47–67, Fig. 39B.

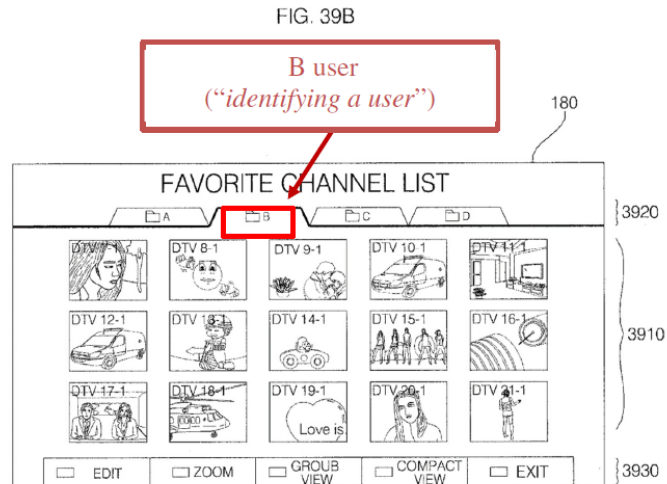
3. Claims 2, 3, 12, and 13

Having now considered the evidence in the complete record established during trial, LG has not demonstrated by a preponderance of the evidence that the claims would have been obvious over Kim, Lee-1, Choi, and Lee-2. Notably, claims 2, 3, 12, and 13 were also separately challenged as addressed above in Ground 1 – much of our analysis from above is also applicable for this Ground 2, which adds Lee-2 to the contention.

a. Petitioner’s Contentions

LG contends that the combination of Kim and Lee-2 teaches limitation [2.1]—“identifying a user associated with the received

indication”—because Kim identifies pre-stored user channels and “Lee-2 identifies a user (e.g., B user) for a given favorite channel list.” Pet. 78–79.



Ex.1010, Fig. 39B (annotated).

LG’s annotated Figure 39B of Lee-2 marking a “B” tab and labeling it as “identifying a user.” Pet. 79. According to LG, because “the channel list screen is displayed upon selection of the favorite channel object 2019 in the BROADCAST card object 2010 by a B user, the B group tabbed menu may be selected by default.” *Id.* (quoting Ex. 1010, 41:47–55) (emphasis omitted). According to LG, and Dr. Lippman, “[i]t would have been obvious to a POSITA that there are instances where B user made the initial home screen selection (see [1.1]) and therefore is “associated with the received indication” and is currently browsing the FAVORITE CHANNEL LIST illustrated at Figure 39B.” Pet. 79 (citing Ex. 1003 ¶ 286). Further, LG argues that “[i]t would have been obvious to a POSITA to implement Kim . . . to identify the user that made the home screen selection so that a corresponding tab may be selected by default when presenting the favorite channel list to the user.” Pet. 79–80 (citing Ex.1010, 41:47–55 (“B

user, the B group tabbed menu may be selected by default.”).

Limitation [2.2] requires “retrieving one or more settings associated with the identified user” and LG relies on Lee-2’s disclosure of a channel setup menu with items such as “EDIT” and “ZOOM” setup options for this limitation. Pet. 80 (citing Ex. 1010, 41:61–67; Ex. 1003 ¶¶ 289, 290). According to LG, it would have been obvious to store favorite channel list setup data based on Lee- 2’s disclosure of memory that stores user information and set up data for the system. *Id.* (citing Ex. 1010, 8:29, 11:3). Based on these teachings, LG argues “[i]t would have been obvious to a POSITA to implement Kim such that it stores and retrieves, from memory 140, setup data (e.g., the user’s favorite channel list and the number of displayed thumbnails), as Lee-2 teaches.” Pet. 81 (citing Ex. 1010, 42:3–4).

LG contends that Kim teaches limitation [2.3]—“retrieving, from memory, content information associated with the identified user”—because it discloses controller 170 retrieving from memory 140 the application menu items 1308 that are specific to the user and displaying them as thumbnails on display 180. Pet. 81–82.

Limitation [2.4] requires “displaying, via the television, the retrieved content information in the global panel.” LG relies on Lee-2’s disclosure of a favorite channel list with thumbnails being displayed on a home screen, and argues that “it would have been obvious . . . to apply Lee-2’s teachings to Kim, because it would make the user ‘instantly [] aware of the FAVORITE CH card object [] including the favorite channel list’ and also because displaying a thumbnail of the currently watched channel would allow the ‘the user [to] easily identify the channel that he or she is

watching.” Pet. 83 (quoting Ex. 1010, 31:14–21, 37:67–38:2) (alterations in original).

b. Patent Owner’s Contentions

Multimedia first notes that because the claimed “received indication” (limitation from claim [1.1–1.2]) is identified by LG as Kim’s “home key” or “go-to-home screen,” limitation [2.1] requires that the user be “identified based on the input of the home key/go-to-home screen button.” PO Resp. 63. Multimedia contends that Lee-2’s “B-user favorite channels in Figure 39B of Lee-2 are displayed in response to the user selection of favorite channel object 2019 on a home screen that is already displayed.” *Id.* at 64. Thus, according to Multimedia, “the display of user B’s favorite channels does not teach or suggest “identifying a user associated with the received indication” of limitation 2.1.” *Id.* at 64–65 (citing Ex. 2011 ¶ 217).

Multimedia next addresses LG’s argument concerning “instances” wherein a user may first provide an input for the initial home screen selection and then a second input to select favorite channel object 2019 to produce another display with user B’s favorite channels only. PO Resp. 65. Multimedia contends that this argument “simply confirms that the display of user B’s favorite channels is not based on the first input where the home screen is selected by the user, as required by limitations 1.1 and 2.1.” *Id.* (citing Ex. 2011 ¶ 218). Multimedia similarly argues that “because Figure 39B displays the favorite channels for four users A-D,” and “[t]he selection of tab B simply displays user B’s favorite channels,” the teachings fail to “identify user B as required for limitation 2.1, nor does it identify the person who is operating the television.” *Id.* (citing Ex. 2011 ¶ 219) (alteration in original).

Next, addressing LG’s argument to modify Kim “so that the user making the first input to call up the home screen would be identified by Kim’s image display apparatus,” Multimedia argues that “Kim does not disclose anywhere that its image display apparatus 100 stores information about a plurality of different users of the device, so there would be no need to identify the user invoking the home screen.” PO Resp. 65–66. Because “Kim’s only reference to favorite channels is to a single list for the image display apparatus, not to multiple lists for different users,” Multimedia contends that “a POSITA would not have reason to modify Kim as proposed to meet limitation 2.1.” *Id.* at 66 (citing Ex. 1005 ¶ 205; Ex. 2011 ¶ 220).

c. Analysis

We determine LG has not established persuasively that Kim and Lee-2 teach limitation [2.1]. According to LG, the Petition relies on Kim’s user preregistration process and Kim’s teaching of pre-stored user channels combined with Lee-2’s identification of a user having a favorite channel list (B user and Group B). Pet. Reply 26. We understand LG maintains its pre-registration arguments addressed above, for example again arguing “[t]o display favorite channels on the home screen (see e.g., Ex.1010, FIG. 33B) when the user pressed the home screen button, the user would have already been logged in or pre-registered with the television and therefore identified.” *Id.* at 27. LG’s arguments related to Lee-2 similarly require that the “B user” login and be pre-registered. *Id.*

Limitation [2.1] requires identifying a user associated with the “received indication,” which is the selection of a home key button or go-to-home button to invoke the home screen, as alleged by LG. See Pet. Reply

20–21. Both Kim and Lee-2 allow a distinct procedure wherein a user can login, but LG has not explained persuasively how these distinct procedures are associated with Kim’s home key button such that a user is identified through its selection. For example, Lee-2’s Favorite Channel List (Figure 39B) is displayed based on the user’s selection of the favorite channel object 2019 on a home screen, but not related to the user’s selection of the home key button to invoke the home screen. *See* Ex. 1010, 41:41–43 (“Referring to FIG. 39B, upon selection of the favorite channel object 2019 [in FIG. 39A], a favorite channel list screen including a favorite channel list is displayed fullscreen.”).

Even presuming that a user accessing the Favorite Channel List of Figure 39B of Lee-2 is already logged in or pre-registered, the display of the Favorite Channel List of Lee-2 is not in response to a user selecting the home key button. *See* Sur-reply 22. Further, even if pre-registered, LG has not established how the selection of Lee-2’s tab B by a user would identify the user so as to meet limitation [2.1] – the B user favorite channels are displayed in response to the user selection of favorite channel object 2019 on a home screen that is already displayed. Ex. 1010, 41:41–43.

LG also contends Kim could be modified in light of Lee-2 so that the user making the first input to call up the home screen would be identified by Kim’s image display apparatus 100. Pet. 79–80 (“to identify the user that made the home screen selection so that a corresponding tab may be selected by default when presenting the favorite channel list to the user”). This proposed modification of making a first home screen call up to identify the user, however, is not taught by Lee-2, and we find unpersuasive LG’s reliance on Lee-2’s B group tabbed menu being selected by default. Again,

in Lee-2, the B user favorite channels are displayed in response to the user selection of favorite channel object 2019 on a home screen that is already displayed. Ex. 1010, 41:41–43. Likewise, as Dr. Surati testifies, the selection of tab B simply displays user B’s favorite channels, but it does not identify a particular user. Ex. 2011 ¶ 219. Further, as noted by Multimedia, “Kim does not disclose anywhere that the image display apparatus 100 stores information about a plurality of different users of the device, so there would be no need to identify the user invoking the home screen.” PO Resp. 65–66. Although Kim discloses that thumbnail images may correspond to prestored user channels for a favorites list, there is no indication that Kim contemplates multiple lists for different users. Ex. 1005 ¶ 205. Even if it did, and as LG argues “the claims do not prohibit a user from selecting another user[’]s settings,” there is still no teaching of actually identifying a specific user related to selection of Kim’s home screen. Pet. Reply 28. LG has not persuasively established that a person of ordinary skill in the art would have modified Kim as proposed.

The Petition suggests that combining Lee-2 into Kim would have allowed a user to easily identify favorite channels for convenience. Pet. Reply 28 (citing Pet. 77, 80; Ex. 1010, 42:2–4). However, both Kim and Lee-2 contemplate user identification through distinct sign in procedures and that identification of the user is not associated with or linked to the home screen selection of Kim or any similar selection identified by LG for Lee-2. To us, the proposed modifications to Kim seem hindsight driven based on claim 2 and not based on the combined teachings of both Kim and Lee-2.

As noted above, claim 3, 12, and 13 likewise require “identifying a user associated with the received indication,” and LG relies upon its analysis

for claim 2. *See* Pet. 84, 91–92. Similarly, Multimedia contends that claims 3, 12, and 13 are patentable for at least the same reasons as claim 2. PO Resp. 62, 68. Based on the final record before us, LG has not shown by a preponderance of the evidence that claims 2, 3, 12, and 13 would have been obvious over Kim, Lee-1, Choi, and Lee-2.

4. Claims 6, 16, and 22

Claim 6 depends from independent claim 1, and further recites the following limitations:

[6.1] identifying at least one of a content source and content information currently being displayed via a television;

[6.2] selecting a panel type based on the identified at least one of content source and content information currently being displayed via the television;

[6.3] retrieving, from memory, content information based on the selected panel type; and

[6.4] displaying, via the television, the retrieved content information in the global panel based on the selected panel type.

Ex. 1001, 40:39–49 (LG’s bracketing added). Claims 16 and 22 recite essentially the same limitations, but depend from independent claims 11 and 21, respectively. *Id.* at 41:56–42:5, 42:49–61. Having now considered the evidence in the complete record established during trial, LG has demonstrated by a preponderance of the evidence that claims 6, 12, and 22 would have been obvious over Kim, Lee-1, Choi, and Lee-2.

a. Petitioner’s Contentions

LG contends that the combined teachings of Kim and Lee-2 account for limitation [6.1]—“identifying at least one of a content source and content information currently being displayed via a television”—because Lee-2 discloses using a favorite channel key on a remote controller to display

FAVORITE CH card object 2060 that highlights the thumbnail corresponding to the currently watched channel. Pet. 84–85 (citing Ex. 1010, 33:63–67, 37:61–38:2, Figs. 32A, 32B). According to LG, it would have been obvious to a person of ordinary skill in the art that Lee-2 “identif[ies]” the currently watched channel “so that it may be included in the FAVORITE CH card object 2060 as a corresponding highlighted thumbnail.” *Id.* at 85 (citing Ex. 1003 ¶¶ 306–309) (emphasis omitted).

LG contends that the combined teachings of Kim and Lee-2 account for limitation [6.2]—“selecting a panel type based on the identified at least one of content source and content information currently being displayed via the television”—because Lee-2’s disclosure of selecting FAVORITE CH card object 2060 that includes a thumbnail image corresponding to the currently watched channel is consistent with Kim’s disclosure of “thumbnail images [that] correspond to pre-stored user channels (e.g., favorite list).” Pet. 86–87 (quoting Ex. 1005 ¶ 206) (citing Ex. 1010, 33:63–67, 37:61–38:2, Figs. 32A, 32B; Ex. 1003 ¶¶ 313–315). Accordingly, LG asserts that Lee-2’s disclosure of selecting FAVORITE CH card object 2060 that includes a thumbnail image corresponding to the currently watched channel effectively amounts to “selecting a panel type” that is “based on” the content source, as required by limitation [6.2]. *Id.* at 87 (citing Ex. 1003 ¶ 316).

LG contends that the combined teachings of Kim and Lee-2 account for limitation [6.3]—“retrieving, from memory, content information based on the selected panel type”—because Lee-2 discloses that card object generator 345 generates FAVORITE CH card object 2060 using the list of favorite channels pre-stored in memory 140. Pet. 88 (citing Ex. 1010, 33:63–67, 38:4–11; Ex. 1003 ¶ 320). Relying on its argument and evidence

for limitation [1.3], LG argues that it would have been obvious to a person of ordinary skill in the art for Kim’s smart TV 100 to retrieve and display thumbnail images from memory 140, including Lee-2’s FAVORITE CH card object 2060. *Id.* at 88–89 (citing Ex. 1005 ¶ 206; Ex. 1010, Fig. 32B; Ex. 1003 ¶ 321). LG then asserts that, because Lee-2 discloses retrieving favorite channel thumbnail images from memory 140, Kim in combination with Lee-2 renders obvious the claimed retrieving “content information based on the selected panel type,” as required by limitation [6.3]. *Id.* at 89 (citing Ex. 1003 ¶¶ 322, 323).

Lastly, LG contends that the combined teachings of Kim and Lee-2 account for limitation [6.4]—“displaying, via the television, the retrieved content information in the global panel based on the selected panel type”—because Lee-2 discloses displaying the retrieved favorite channel list thumbnails 2065 in FAVORITE CH card object 2060 on the home screen. Pet. 90–91 (citing Ex. 1010, 38:4–11, Fig. 33B). LG contends that the same arguments and evidence it provides to explain how the combined teachings of Kim, Lee-1, Choi, and Lee-2 account for all the limitations of dependent claim 6 equally apply to the limitations of dependent claim 16 and 22. *Id.* at 92.

Turning to rationale to combine, LG contends that it would have been obvious to a person of ordinary skill in the art to apply Lee-2’s FAVORITE CH card object 2060 including favorite channel list 2065 to Kim’s smart TV 100 because “[Lee-2] provide[s] implementation details directly applicable to successfully implementing Kim’s [smart TV 100], which [explicitly] contemplates providing the user a favorite channel list.” Pet. 77. In addition, LG argues that the proposed combination “would make the user

‘instantly [] aware of the FAVORITE CH card object [] 2060 including the favorite channel list 2065,” and it would allow “the user [to] easily identify the channel that he or she is watching.” *Id.* at 83 (first two alterations in original) (quoting Ex. 1010, 37:67–38:2, then quoting Ex. 1010, 31:14–21) (citing Ex. 1003 ¶¶ 310, 311); *see also* Pet. 87–88 (arguing the same), 90 (arguing the same), 91 (arguing the same).

b. Patent Owner’s Contentions

Multimedia contends that Kim, Lee-1, Choi, and Lee-2 fail to render claim 6 unpatentable and also claims 16 and 22, which have substantially similar limitations. PO Resp. 68.

According to Multimedia, the asserted prior art fails to teach limitation [6.1]—“identifying at least one of a content source and content information currently being displayed via a television.” *Id.* Multimedia challenges LG’s interpretation of Figure 32B of Lee, arguing that there is no disclosure of highlighting a thumbnail in the Favorite Channel object 2060 because it corresponds to the current program in image 3210. *Id.* at 69. Instead, Multimedia contends that “Lee-2 does not disclose that a thumbnail is highlighted.” *Id.* at 69–70. Multimedia contends “Favorite Channel card object 2060 includes the favorite channel thumbnails because they were set by the user, not because they correspond to a currently-viewed program.” *Id.* at 71 (emphasis omitted) (citing Ex. 1010, 41:61–67).

Next, Multimedia argues that the asserted prior art fails to teach limitation [6.2]—“selecting a panel type based on the identified at least one of content source and content information currently being displayed via the television.” PO Resp. 71. Multimedia contends that “Favorite Channel object 2060 (alleged ‘panel type’) is selected based on the user selecting a

favorite channel key or similar button,” and thus “Lee-2 does not teach or suggest that the Favorite Channel object is selected based on identifying a content source or content information for a currently-displayed program. *Id.* at 72 (citing Ex. 1010, 37:62–67). Multimedia argues that “identification of the content source (e.g., channel) or content information (e.g., program name)” must “cause the Favorite Channels object 2060 (alleged ‘panel type’) to be selected,” and it does not with Lee-2 because “[t]he user’s selection of the favorite channel button causes it to be selected.” *Id.* (citing Ex. 2011 ¶¶ 235–37).

We address each of Multimedia’s contentions in turn below.

c. Analysis

Limitation [6.1] requires “identifying” but does not have a requirement to highlight either the content source or content information currently being displayed. LG relies on Lee-2’s teaching of a displayed channel that a user is watching along with the “FAVORTIE CH card object,” which is displayed as part of this identifying step. *See* Pet. 85; Pet. Reply 29; Ex. 1003 ¶ 306.

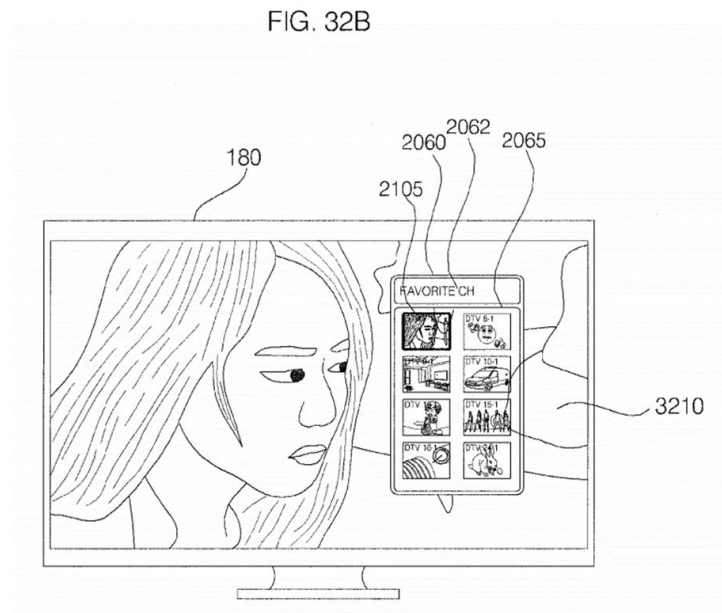


Figure 32B of Lee-2 showing FAVORITE CH card object 2060 and currently watched channel DTV 7-1 also displayed. Pet. 85; Ex. 1010, Fig. 32B. Further, as Dr. Lippman testifies, the “FAVORITE CH card object 2060 includes the currently watched channel,” which is displayed as a highlighted thumbnail. Ex. 1003 ¶¶ 307, 308 (citing Ex. 1010, 33:63–67, 37:61–38:2, Figs. 32A, 32B). Based on these teachings, LG argues persuasively that it would have been obvious that the currently watched channel is identified so that it may be included in the FAVORITE CH card object 2060 as a corresponding highlighted thumbnail. Pet. 85.

We also agree with LG that whether Lee-2 states that thumbnails are highlighted is not controlling because “the Petition relies on the obviousness of ‘identifying’ the currently watched channel to meet limitation [6.1].” Pet. Reply 29–30 (emphasis omitted). Regardless, Lee-2 is clear that “channel 7-1 that the user is watching may be indicated by a cursor 2105 or highlighted.” Ex. 1010, 31:14–20. Multimedia’s expert further confirmed

“that highlighting is represented by item 2105 (which is also included in Figure 32B).” Pet. Reply 30 (citing Ex. 1015, 138:22–139:8).

Multimedia’s position is based on Lee-2’s Favorite Channel card object 2060 including the favorite channel thumbnails because they were set by the user, not because they correspond to a currently-viewed program. *See* PO Resp. 71. As LG points out, however, “Lee-2 plainly teaches that ‘the cursor 2105 of the remote controller 2100 may **automatically** be positioned on the thumbnail image of channel 7-1 that the user is watching.’” Pet. Reply 30 (quoting Ex. 1010, 37:6–8). Lee-2 teaches that its system “may automatically point at the thumbnail image of channel 7-1 that the user is watching.” Ex. 1010, 36:41–43. Accordingly, we find unpersuasive Multimedia’s argument that “Lee-2 does not teach or suggest that the currently-viewed channel is detected or identified so that it can be highlighted in the Favorite Channels object 2060.” PO Resp. 71.

Based on the final record before us, we find persuasive LG’s contention that “the channel that the user is watching (when receiving an input) would be identified so that it may be included as a thumbnail and highlighted within the FAVORITE CH card object, so that ‘the user can easily identify the channel that he or she is watching.’” Pet. 86 (quoting Ex. 1010, 31:14–21); Ex. 1003 ¶ 310.

Limitation [6.2] requires “selecting a panel type based on the” prior identification being displayed on the TV as set forth in limitation [6.1]. LG alleges, and we agree, that the panel created in Figure 32B of Lee-2 set forth above depicts “selecting a FAVORITE CH card object 2060 that includes a thumbnail image corresponding to the identified currently watched channel,” which teaches selecting a panel type. Pet. 86.

Multimedia argues that “the alleged identification of the content source (e.g., channel) or content information (e.g., program name) does not cause the Favorite Channels object 2060 (alleged ‘panel type’) to be selected.” PO Resp. 72 (emphasis omitted). Even presuming the plain language of limitation [6.2] requires such a causal relationship, the “panel type” is not alleged to have any distinct format and the panel type need only be selected based on the content source currently being displayed.

Considering the final record before us, LG has established that Lee-2’s teaching of FAVORITE CH card object 2060 being selected to automatically include a highlighted thumbnail of the currently watched channel (e.g., DTV 7-1) teaches “selecting a panel type” as required by limitation [6.2]. *See* Pet. Reply 31. Lee-2 teaches that other card objects do not have highlighting when their thumbnails do not correspond to content currently displayed. *Id.* (citing Ex. 1010, Fig. 33B). LG has established that this distinction, and selecting FAVORITE CH card object 2060 with highlighting based on the content source being displayed on the TV, teaches “selecting a panel type.” *Id.* As Dr. Lippman persuasively testifies, “because the FAVORITE CH card object is selected so that it includes a thumbnail image corresponding to the currently watched channel (e.g., DTV 7-1), Lee-2 discloses ‘*selecting a panel type*’ that is ‘*based on*’ the content source.” Ex. 1003 ¶ 316.

Based on the final record before us, LG has shown by a preponderance of the evidence that claims 6, 16 and 22 would have been obvious over Kim, Lee-1, Choi, and Lee-2.

III. CONCLUSION

In summary:⁶

Claims	35 U.S.C. §	Reference(s)/ Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
1–5, 11– 15, 21	103	Kim, Lee-1, Choi	1, 4, 5, 11, 14, 15, 21	2, 3, 12, 13
2, 3, 6, 12, 13, 16, 22	103	Kim, Lee-1, Choi, Lee-2	6, 16, 22	2, 3, 12, 13
Overall Outcome			1, 4–6, 11, 14–16, 21, 22	2, 3, 12, 13

IV. ORDER

Upon consideration of the record before us, it is:

ORDERED that claims 1, 4–6, 11, 14–16, 21, and 22 of the '040 patent have been shown to be unpatentable;

ORDERED that claims 2, 3, 12, and 13 of the '040 patent have not been shown to be unpatentable; and,

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

⁶ Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this decision, we draw Patent Owner's attention to the April 2019 *Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding*. See 84 Fed. Reg. 16654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. See 37 C.F.R. § 42.8(a)(3), (b)(2).

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