

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

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

v.

MULTIMEDIA TECHNOLOGIES PTE. LTD.,
Patent Owner.

IPR2024-00353
Patent 9,055,254 B2

Before ST. JOHN COURTENAY III, MICHAEL R. ZECHER, and
SHARON FENICK, *Administrative Patent Judges*.

ZECHER, *Administrative Patent Judge*.

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

I. INTRODUCTION

Petitioner, LG Electronics, Inc. and LG Electronics U.S.A., Inc. (collectively, “LG”), filed a corrected Petition requesting an *inter partes* review (“IPR”) of claims 1–4, 6, 8–10, 12–17, and 19 of U.S. Patent No. 9,055,254 B2 (Ex. 1001, “the ’254 patent”). Paper 3 (“Pet.”). Patent Owner, Multimedia Technologies Pte. Ltd. (“Multimedia”), filed a Preliminary Response. Paper 7. Taking into account the arguments presented in Multimedia’s Preliminary Response, we determined that the information presented in the Petition established that there was a reasonable likelihood that LG would prevail with respect to challenging at least one of claims 1–4, 6, 8–10, 12–17, and 19 of the ’254 patent as unpatentable. Pursuant to 35 U.S.C. § 314, we instituted this IPR on June 11, 2024, as to all challenged claims and all grounds raised in the Petition. Paper 11 (“Dec. on Inst.”).

During trial, Multimedia filed a Patent Owner Response (Paper 18, “PO Resp.”), LG filed a Reply to the Patent Owner Response (Paper 20, “Pet. Reply”), and Multimedia filed a Sur-reply to the Reply (Paper 24, “PO Sur-reply”). In addition, an oral argument was held on March 10, 2025, and a transcript of the hearing is included in the record. Paper 27 (“Tr.”).

We have jurisdiction under 35 U.S.C. § 6. This decision is a Final Written Decision under 35 U.S.C. § 318(a) as to the patentability of claims 1–4, 6, 8–10, 12–17, and 19 of the ’254 patent. For the reasons we identify below, we hold that LG has demonstrated by a preponderance of the evidence that all challenged claims are unpatentable.

A. Real Parties in Interest (“RPIs”)

The Petition identifies LG Electronics, Inc. and LG Electronics U.S.A., Inc. as RPIs. Pet. 133. Multimedia identifies itself as an RPI. Paper 14 (Multimedia’s Second Amended Mandatory Notices), 1.

B. Related Matters

The parties indicate that the ’254 patent is the subject of the following two district court cases: (1) *Multimedia Techs. Pte. Ltd. v. LG Elecs. Inc.*, No. 2:22-cv-00494 (E.D. Tex. filed Dec. 23, 2022); and (2) *Multimedia Techs. Pte. Ltd. v. Vizio, Inc.*, No. 2:23-cv-00124 (E.D. Tex. Filed Mar. 24, 2023). Pet. 133; Paper 14, 1. In addition to this Petition, LG filed the following three other petitions challenging related patents owned by Multimedia: (1) *LG Elecs., Inc. v. Multimedia Techs. Pte. Ltd.*, IPR2024-00351, Paper 1 (PTAB Dec. 20, 2023) (Petition challenging claims 1–6, 11–16, 21, and 22 of U.S. Patent No. 9,510,040 B2); (2) *LG Elecs., Inc. v. Multimedia Techs. Pte. Ltd.*, IPR2024-00352, Paper 1 (PTAB Dec. 20, 2023) (Petition challenging claims 1–14 of U.S. Patent No. 9,247,174 B2); and (3) *LG Elecs., Inc. v. Multimedia Techs. Pte. Ltd.*, IPR2024-00354, Paper 1 (PTAB Dec. 22, 2023) (Petition challenging claims 1–18 of U.S. Patent No. 10,419,805 B2). Paper 14, 1. The Board instituted an IPR in all three related cases. *LG Elecs., Inc. v. Multimedia Techs. Pte. Ltd.*, IPR2024-00351, Paper 9 (PTAB May 21, 2024) (Decision Granting Institution); *LG Elecs., Inc. v. Multimedia Techs. Pte. Ltd.*, IPR2024-00352, Paper 9 (PTAB May 21, 2024) (Decision Granting Institution); *LG Elecs., Inc. v. Multimedia Techs. Pte. Ltd.*, IPR2024-00354, Paper 9 (PTAB May 21, 2024) (Decision Granting Institution). Final Written Decisions in all

three related cases are being entered at or around the same time as entry of this Final Written Decision.

C. The '254 Patent

The '254 patent, titled “On Screen Method and System for Changing Television Channels,” issued from U.S. Patent Application No. 13/968,884, filed on August 16, 2013. Ex. 1001, codes (54), (21), (22). The '254 patent has an extensive priority chain of provisional applications that includes a claim of priority to U.S. Provisional Patent Application No. 61/684,672 (“the '672 application”), filed on August 17, 2012. *Id.* at code (60).

The '254 patent generally relates to “[a] method, system, and executable instructions . . . that receive a request to change a programming channel.” Ex. 1001, code (57). This process begins with displaying “an on screen channel changer” on a television screen that includes an “electronic program guide (‘EPG’),” together with “a number input bar,” so that a user may change the channel by using a remote control to enter “a channel selection based on the digits using the on screen channel changer.” *Id.* According to the '254 patent, “[a] Smart [television (‘TV’)] is generally conceived as a device that integrates access to the Internet and Web 2.0 features into television sets.” *Id.* at 1:50–52. The '254 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 1:56–61.

The '254 patent ostensibly addresses these issues with smart TVs by providing “intuitive user interfaces . . . with seamless user interaction capability.” Ex. 1001, 1:65–66. Figure 27 of the '254 patent, reproduced

below, illustrates a series of partial screenshots of a TV screen according to one embodiment. *Id.* at 11:17–18.

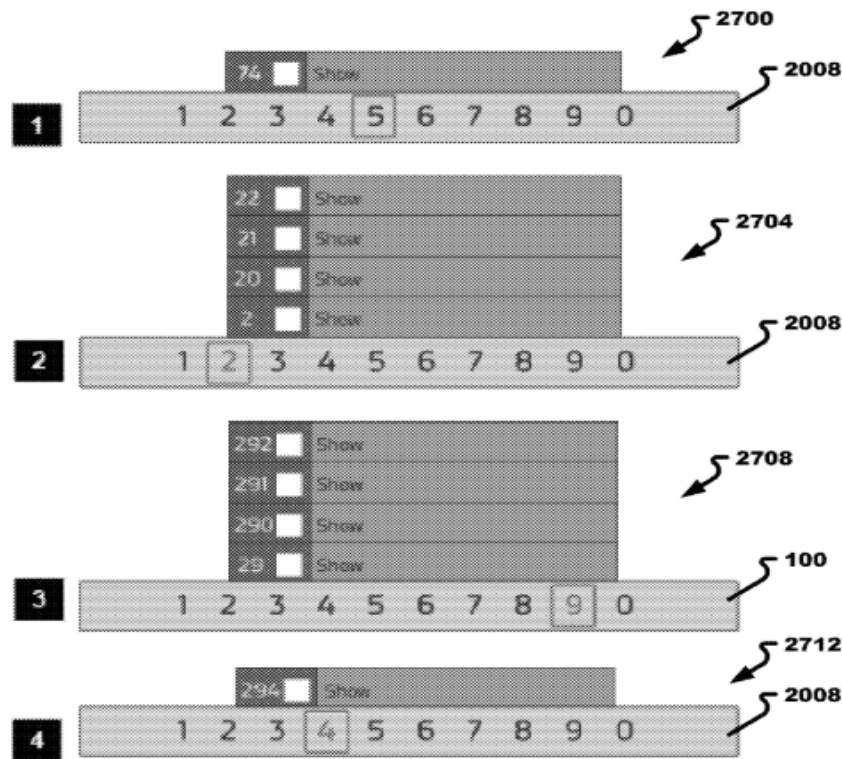


FIG. 27

Figure 27 illustrates a series of partial screenshots where the first partial screenshot (at top) depicts on screen channel changer 2700 with an in-focus indicator that defaults to the number “5” on input bar 2008. *Id.* at 36:27–29. If the user first selects the number “2” on number input bar 2008, the second partial screenshot (second from the top) depicts updating on screen channel changer 2704 to reflect the next three available channels that begin with the number “2.” *Id.* at 36:38–41. If the user proceeds to select the number “9” on number input bar 2008, the third partial screenshot (second from the bottom) depicts updating on screen channel changer 2708 to reflect the next

three available channels that begins with the number “29.” *Id.* at 36:49–52. Finally, if the user proceeds to select the number “4” on number input bar 2008, the fourth partial screenshot (at bottom) depicts updating on screen channel changer 2712 to reflect the only available channel (i.e., channel “294”). *See id.* at 36:55–61. At any point, selecting an available channel in the on screen channel changer will automatically change the channel and dismiss the on screen channel changer. *Id.* at 36:41–43, 36:52–54, 36:61–64.

Figure 7 of the '254 patent, reproduced below, illustrates an exemplary handheld remote control that interacts with TV 100. Ex. 1001, 10:39–40, 22:58–59.

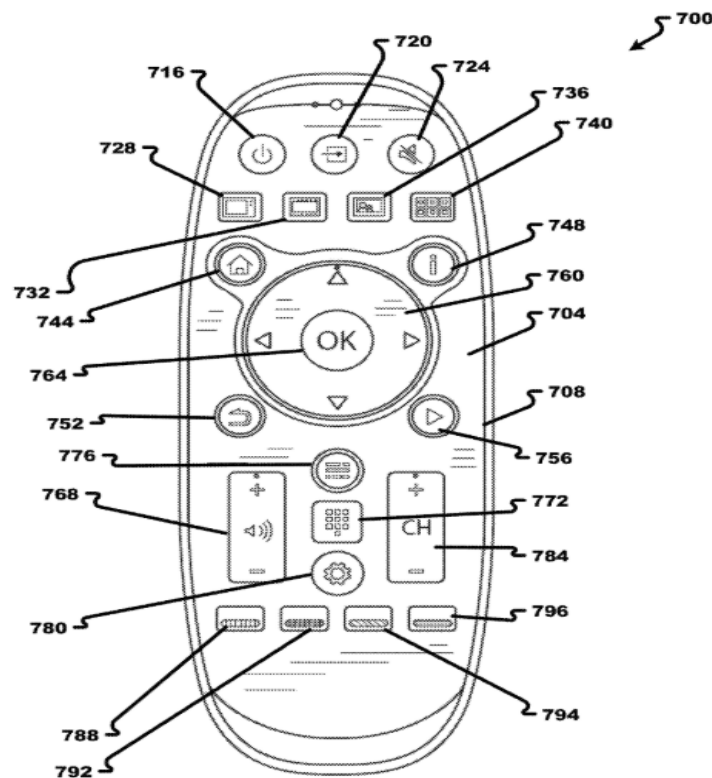


Fig. 7

Figure 7 illustrates remote control 700 that includes, among other things, media center button 736, application center button 740, global panel button 744, and application panel button 748 that, when selected, provide the user with different information and/or display panels. *Id.* at 24:1–25:10.

D. Challenged Claims

Of the challenged claims, claims 1, 8, and 14 are independent. Independent claim 1 is directed to “[a] method,” independent claim 8 is directed to “[a] television,” and independent claim 14 is directed to “[a] tangible and non-transient computer readable medium, comprising microprocessor executable instructions that, when executed, are configured to perform [certain] operations.” Ex. 1001, 39:28–40:2, 41:4–47, 42:32–67. Claims 2–4 and 6 directly depend from independent claim 1, claims 9, 10, 12, and 13 directly depend from independent claim 8, and claims 15–17 and 19 directly depend from independent claim 14. *Id.* at 40:3–18, 40:39–45, 41:48–61, 42:14–31, 43:1–22, 44:17–24. Independent claim 1 is illustrative of the challenged claims and is reproduced below.

1. [1.0] A method, comprising:

[1.1] receiving, wirelessly by at least one of an infrared and radio frequency module of a television and from a remote control, a request to change a programming channel;

[1.2] displaying, by a microprocessor executable application framework and on a television screen, an on screen channel changer, the displayed on screen channel changer comprising electronic program guide (“EPG”) information and a number input bar comprising digits, wherein the digits range from 0 to 9;

[1.3] receiving, by the application framework and from the remote control, a channel selection based on digits selected by a user using the remote control and the number input bar of the on

screen channel changer, wherein the user selects the digits using non-numeric keys of the remote control; and

[1.4] changing, by the application framework, to the selected channel, [1.5] wherein the remote control comprises:

[1.5.1] a media center button that, when selected, provides, by the television screen, displayed information regarding one or more of groupings of music, groupings of videos, groupings of photographs, and internal and external computational devices, the computational devices comprising one or more of personal computers, laptops, tablet computers, wireless phones, and removable computer readable media;

[1.5.2] an application center button that, when selected, provides, by the television screen, displayed information regarding pre-installed and downloaded software applications, [1.5.2.1] wherein the downloaded software applications comprise one or more of a web browser, settings control, and content search algorithms;

[1.5.3] an application panel button that, when selected, displays, by the television screen, an application panel, wherein the application panel comprises an information panel regarding a selected (pre-installed or previously downloaded) application icon; and

[1.5.4] a global panel button that, when selected, provides the user, via one or more panels or windows displayed by the television screen, with access to one or more of silos, notifications, a web browser system settings, and information associated therewith.

Id. at 39:28–40:2 (with bracketed annotations provided by LG in the Petition).

E. Asserted Prior Art References

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

Name¹	Reference	Dates	Exhibit Nos.
Kim	US 2012/0054794 A1	published Mar. 1, 2012; filed Mar. 9, 2011	1005
Bae	KR 10-2010-0134423	published Dec. 23, 2010; filed June 15, 2009	1007, 1008 (English translation)
Coburn	US 2010/0079681 A1	published Apr. 1, 2010; filed Sept. 30, 2008	1009

Printed Publication	Exhibit No.
“ <i>WD TV[®] Live Hub[™] Media Center User Manual</i> ” (Dec. 2010) (“WD-Manual”).	1006 (Parts 1–3)

F. Asserted Grounds of Unpatentability

LG challenges claims 1–4, 6, 8–10, 12–17, and 19 of the ’254 patent based on the asserted grounds of unpatentability set forth in the table below. Pet. 13–131.

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1–4, 8–10, 13–17	103(a) ²	Kim, WD-Manual, Bae
6, 12, 19	103(a)	Kim, WD-Manual, Bae, Coburn

LG submits a Declaration of Andrew Lippman, Ph.D. to support its arguments presented and developed in the Petition. Ex. 1003 (Declaration of

¹ For clarity and ease of reference, we only list the first named inventor.

² 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 ’254 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).

Dr. Lippman in support of Petition). LG also submits an Affidavit of Mr. Nathaniel E. Frank-White (i.e., the Internet Archive Affidavit). Ex. 1012. Multimedia submits a Declaration of Rajeev Surati, Ph.D. to support its arguments presented and developed in the Patent Owner Response. Ex. 2008 (Declaration of Dr. Surati in support of Patent Owner's Response).

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). 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 the Petition, LG contends that, “for purposes of the grounds presented herein, no [claim] term requires express construction.” Pet. 11. Despite this contention, LG proposes that we construe the following two claim terms based on what it argues are “explicit definition[s]” provided in the specification of the '254 patent: (1) “one or more,” as recited in each of claims 1, 3, 8, 9, 13, 14, and 16; and (2) “silos,” as recited in each of

independent claims 1, 8, and 14.³ *Id.* at 11–12. Beginning with the claim term “one or more,” LG contends that “each of the expressions ‘at least one of A, B, and C,’ ‘at least one of A, B, or C,’ ‘one or more of A, B, and C,’ ‘one or more of A, B, or C’ and ‘A, B, and/or C’ means ‘A alone, B alone, C alone, A and B together, A and C together, B and C together, or A, B, and C together.’” *Id.* (citing Ex. 1001, 3:27–34; Ex. 1003 ¶¶ 39–41). Turning to the claim term “silos,” LG contends that the ’254 patent defines a silo as “a logical representation of an input, source, or application.” *Id.* at 12 (quoting Ex. 1001, 5:56–6:3) (citing Ex. 1003 ¶¶ 42, 43).

In the Patent Owner Response, Multimedia does not address LG’s proposed constructions of these two claims terms. *See* PO Resp. 9–10. Multimedia, however, identifies the claim term “pre-installed software applications,” as recited in each of claims 1, 8, 9, and 14, as requiring construction. *Id.* at 9. According to Multimedia, the ’254 patent defines the claim term “pre-installed [software] applications” as “applications that ‘cannot be removed by the user or manually updated.’” *Id.* at 9–10 (quoting Ex. 1001, 24:18–21). Multimedia argues that the ’254 patent distinguishes between “pre-installed [software] applications” and “downloaded [software] applications.” *Id.* at 10. Multimedia also argues that its proposed construction for the claim term “pre-installed software applications” is consistent with the determination in the related district court case that this same claim term refers to “pre-installed software applications (that cannot be

³ LG proposes a construction for the claim term “silo,” but we take this opportunity to note that each of independent claims 1, 8, and 14 actually recite the claim term “silos.” Ex. 1001, 39:65–40:2 (claim 1), 41:43–47 (claim 8), 42:63–67 (claim 14).

removed by the user or manually updated).” *Id.* (quoting Ex. 2020 (Claim Construction Order in *Multimedia Techs. Pte. Ltd. v. LG Elecs. Inc.*, No. 2:22-cv-00494 (E.D. Tx.)), 43) (citing Ex. 2008 ¶ 79).

In the Reply, LG acknowledges that, in the aforementioned Claim Construction Order, the district court construed the claim term “pre-installed software applications” as “applications (that cannot be removed by the user or manually updated).” Pet. Reply 7 (quoting Ex. 2020, 43). According to LG, the application of the asserted prior in the Petition to the claim term “pre-installed software applications” is consistent with this construction. *See id.* During the oral argument, counsel for LG confirmed that it does not dispute Multimedia’s/the district court’s construction of the claim term “pre-installed software applications.” Tr. 22:2–12 (stating that “Kim specifically teaches [Multimedia’s/the district court’s] construction with pre-installed software applications that cannot be removed or manually updated”).

Based on the fully developed record, there is no readily discernible controversy between the parties regarding the constructions of the following three claims terms: (1) “one or more”; (2) “silos”; and (3) “pre-installed software applications.” To the extent necessary, we apply the parties’ undisputed constructions of these three claim terms in our obviousness evaluations below.

B. Whether the WD-Manual is a Prior Art Printed Publication

As a threshold matter, we must determine whether LG has met its burden of demonstrating that the WD-Manual qualifies as a prior art “printed publication” under 35 U.S.C. § 311(b). Section 311(b) of Title 35 of the United States Code states that “[a] petitioner in an [IPR] may request to cancel as unpatentable 1 or more claims of a patent only on a ground that

could be raised under section 102 or 103 and only on the basis of prior art consisting of patents or *printed publications*.” *Id.* (emphasis added).

The determination of whether a document is a “printed publication” under 35 U.S.C. §§ 102 or 103 “involves a case-by-case inquiry into the facts and circumstances surrounding the reference’s disclosure to members of the public.” *In re Klopfenstein*, 380 F.3d 1345, 1350 (Fed. Cir. 2004). “Because there are many ways in which a reference may be disseminated to the interested public, ‘public accessibility’ has been called the touchstone in determining whether a reference constitutes a ‘printed publication.’” *Jazz Pharm., Inc. v. Amneal Pharm., LLC*, 895 F.3d 1347, 1355 (Fed. Cir. 2018) (quoting *In re Hall*, 781 F.2d 897, 898–99 (Fed. Cir. 1986)). A reference is considered publicly accessible if it was “disseminated or otherwise made available to the extent that persons interested and ordinarily skilled in the subject matter or art, exercising reasonable diligence, can locate it.” *Id.* at 1355–56 (quoting *In re Wyer*, 655 F.2d 221, 226 (CCPA 1981)); *see also Medtronic, Inc. v. Barry*, 891 F.3d 1368, 1380 (Fed. Cir. 2018) (stating the same).

“When a reference is uploaded to a website or deposited in a library, the fact that the reference is indexed or cataloged in some way can indicate that it is publicly accessible.” *Samsung Elecs. Co. v. Infobridge Pte. Ltd.*, 929 F.3d 1363, 1369 (Fed. Cir. 2019). “But indexing is not ‘a necessary condition for a reference to be publicly accessible’; it is but one among many factors that may bear on public accessibility.” *Voter Verified, Inc. v. Premier Election Sols., Inc.*, 698 F.3d 1374, 1380 (Fed. Cir. 2012) (quoting *In re Lister*, 583 F.3d 1307, 1312 (Fed. Cir. 2009)). “[W]hile often relevant to public accessibility, evidence of indexing is not an absolute prerequisite to

establishing online references . . . as printed publications within the prior art.” *Id.*

1. Arguments

In the Petition, LG contends that the “WD-Manual is at least prior art under (pre-AIA) 35 U.S.C. § 102(a) and/or (b).” Pet. 14. To support its position that the WD-Manual qualifies as prior art to the ’254 patent, LG argues the following:

WD TV Live Hub User Manual (“WD-Manual”), Ex. 1006, was publicly available at least as of December 2010, as evidenced by the Internet Archive [A]ffidavit. Ex.1012, pg. 2 (Exhibit B). The WD TV Live Hub (including the WD-Manual) was available for purchase by the public at least as of October 2010. Ex.1020; Ex.1024. WD-Manual was available in over 22 languages at least as of December 2010. Ex.1022. The WD TV Live Hub (including the WD-Manual) was available to interested members of the public. *See, e.g.*, Ex.1023.

Id. at 13–14.

In the Patent Owner Response, Multimedia presents extensive arguments as to why the WD-Manual is not a prior art “printed publication” under 35 U.S.C. § 311(b). *See* PO Resp. 15–23. Multimedia notes that the WD-Manual “is plainly not a patent,” and contends that LG never uses the term “printed publication” to identify the WD-Manual in the Petition itself. *Id.* at 15–16 (citing Pet. 14). According to Multimedia, “[t]he failure of [the] Petition to assert the WD-Manual is a ‘printed publication’ is fatal to the [asserted] grounds.” *Id.* at 16. Multimedia also contends that LG’s arguments in the Petition that the WD-Manual is publicly accessible rely on documents incorporated by reference, without explaining how specific pages in those documents support its position that the WD-Manual qualifies as a prior art printed publication to the ’254 patent. *Id.* at 16–17. Multimedia

asserts that we should reject any arguments from LG that were not presented and developed in the Petition itself. *Id.* at 17–18.

In addition, Multimedia contends that LG does not “provide any evidence that the WD-Manual was disseminated (distributed) to interested persons.” PO Resp. 18. Multimedia argues that LG only establishes that the WD-Manual was technically accessible, but does not establish that the WD-Manual was located at a specific website associated with Western Digital (“wd” or “WD”) products such that interested persons of ordinary skill in the art in the field of user interfaces including EPGs could locate the WD-Manual exercising reasonable diligence. *Id.* at 19. To support this argument, Multimedia asserts that the Internet Archive Affidavit submitted by Mr. Frank-White is, at best, probative of authentication, but this Affidavit does not establish that the WD-Manual was publicly accessible. *Id.* (citing Ex. 1012, 1–2). Multimedia argues that LG submits no evidence demonstrating the www.wdc.com webpage from which the WD-Manual was retrieved (*see* Ex. 1012 ¶ 7) was meaningfully indexed, or otherwise searchable, such that interested persons of ordinary skill in the art would have been able to locate the WD-Manual using this webpage. *Id.* at 20. As one example, Multimedia argues that LG’s own declarant, Dr. Lippman, testified that he had never heard of the WD-Manual, or the WD TV Live Hub system it purportedly describes, prior to this IPR. *Id.* (citing Ex. 2010 (Deposition Transcript of Dr. Lippman), 71:10–72:10, 73:1–9, 159:5–11).

Lastly, Multimedia contends that the documents that are Exhibits 1020–1024 do not establish that the WD-Manual was publicly accessible. *See* PO Resp. 20–23. Multimedia argues that Exhibit 1020 is a press release from October 2010 introducing the WD TV Live Hub system, but this press

release does not reference the WD-Manual. *Id.* at 21. Multimedia argues that Exhibit 1024 is a webpage from the B&H Photo website, but this webpage also does not reference the WD-Manual, nor does it establish that the WD-Manual was disseminated or publicly accessible. *Id.* at 21–22. Multimedia argues that Exhibit 1022, which is a webpage indicating that the user manual associated with the WD TV Live Hub system is available in 22 different languages, does not amount to sufficient evidence that interested persons of ordinary skill in the art would have sought documents such as the WD-Manual on the www.wdc.com webpage. *Id.* at 22. Multimedia asserts that LG has presented no evidence that the www.wdc.com webpage where Exhibit 1022 was purportedly located was meaningfully indexed, or otherwise searchable, such that interested persons of ordinary skill in the art would be able to locate the WD-Manual exercising reasonable diligence. *Id.* Multimedia argues that Exhibit 1023 is a product review of the WD TV Live Hub system, but this product review complains “there’s no manual in the box.” *Id.* (quoting Ex. 1023, 3⁴). Multimedia asserts that LG does not present evidence that interested persons of ordinary skill in the art in the field of user interfaces with EPGs would have sought out the specific webpage that houses the product review that is Exhibit 1023. *Id.* at 23.

In the Reply, LG contends that, when it states in the Petition that the WD-Manual, which is a portable document format (“PDF”) copy of an instruction manual for the WD TV Live Hub system, “is at least prior art

⁴ All references to the pages numbers in the product review that is Exhibit 1023 are to the page numbers inserted by LG in the bottom, right-hand corner of each page.

under (pre-AIA) 35 U.S.C. § 102(a) and/or (b),” the only relevant prior art category to the WD-Manual is “printed publications.” Pet. Reply 8 (quoting Pet. 13–14). LG also presents several reasons as to why the WD-Manual was publicly accessible and, therefore, qualifies as a prior art printed publication to the ’254 patent. *See id.* at 8–11. LG contends that the Internet Archive Affidavit from Mr. Frank-Wright demonstrates that the uniform resource locator (“URL”) used to download the WD-Manual would have allowed an interested person to retrieve the WD-Manual as of December 3, 2010. *Id.* at 8–9 n.2 (citing Ex. 1012, Ex. A, 2).

LG also contends that Exhibit 1020 is a press release that indicates that the WD TV Live Hub system, for which the WD-Manual provides instructions, was available for purchase in October 2010. Pet. Reply 9 (citing Ex. 1020, 1, Ex. 1012, Ex. A, 16–18; Ex. 1024). According to LG, the press release, which by its nature is publicly “disseminated,” states that the WD TV Live Hub system would be “initially available exclusively at Best Buy online and at all 1,093 Best Buy stores nationwide.” *Id.* (quoting Ex. 1020, 1). LG also argues that press release includes a hyperlink to the WD TV Live Hub system’s product page and states that the “full set of features and list of file compatibility is available at WD’s website” (i.e., www.wdc.com). *Id.* (quoting Ex. 1020, 1–2). Based on these disclosures in the press release, LG asserts that the WD-Manual was accessible via the www.wdc.com webpage, that any person interested in learning more about the WD TV Live Hub system would be able to browse that webpage and find the WD-Manual, and that, upon finding the WD-Manual on the webpage, an interested person would have discovered that it was available in over 22 languages at least as of December 2010. *Id.* at 10 (citing Ex. 1022).

LG further contends that Exhibit 1023 is a product review of the WD TV Live Hub system that demonstrates the WD-Manual was publicly accessible because, even though the product review complains that “there’s no manual in the box,” the product review indicates that the reviewer: “(i) found the PDF manual, (ii) accessed the PDF manual, and (iii) provided a URL link to the PDF manual to enable other interested persons to find the manual.” Pet. Reply 10 (quoting Ex. 1023, 3). In addition, LG argues that the product review includes the following tags that would have allowed interested persons to find the product review: “Tagged as: file storage, hdslr, Photos, storage, video, WD photos, WD TV Live Hub, Western Digital.” *Id.* (quoting Ex. 1023, 4).

In the Sur-reply, Multimedia contends that LG, at best, demonstrates that (1) the WD-Manual was technically accessible; and (2) the WD TV Live Hub system was on-sale. PO Sur-reply 2. Multimedia, however, asserts that both of these propositions, even if true, do not establish that the WD-Manual was publicly accessible. *Id.* More specifically, Multimedia argues that the specific URL where the WD-Manual was purportedly posted on the www.wdc.com webpage is a fifth-level subdirectory. *Id.* at 3. Multimedia argues that, although this may demonstrate the WD-Manual is technically accessible, more is required to demonstrate that the WD-Manual is publicly accessible. *Id.* According to Multimedia, LG must establish (1) evidence showing that persons of ordinary skill in the art would have known of the www.wdc.com webpage or could have reasonably found it; and (2) evidence showing that this webpage was indexed, catalogued, or otherwise organized in a manner such that persons interested in the field of user interfaces with EPGs could have found the WD-Manual exercising

reasonable diligence. *Id.* at 4. Multimedia asserts that LG “has failed to establish this critical evidence.” *Id.*; *see also id.* at 5–8 (further arguing that the testimony from Mr. Frank-White and LG’s declarant, Mr. Lippman, do not suffice to establish public accessibility).

Multimedia also reiterates its contention that the documents that are Exhibits 1020–1024 do not establish that the WD-Manual is publicly accessible. *See* PO Sur-reply 8–13. Multimedia argues that LG has not demonstrated that the October 2010 press release that is Exhibit 1020 actually references the WD-Manual or provides a roadmap to the WD-Manual. *Id.* at 8–10. Multimedia argues that the webpage from the B&H Photo website that is Exhibit 1024 merely demonstrates the on-sale status of the WD TV Live Hub system, but it does not establish the public accessibility of the WD-Manual. *Id.* at 10. Multimedia argues that LG has not demonstrated that interested persons of ordinary skill in the art would have known of the WD TV Live Hub webpage that is Exhibit 1022, much less that it was used to access the WD-Manual. *Id.* Finally, Multimedia argues that the product review of the WD TV Live Hub system that is Exhibit 1023, at best, demonstrates an interested person came into possession of the WD-Manual, but Multimedia asserts that a single person obtaining a PDF copy of the WD-Manual from an “obscure” URL referenced in this product review is not sufficient evidence that the WD-Manual was publicly accessible. *Id.* at 12.

2. Prior Art Printed Publication Analysis

Based on the fully developed trial record, LG has met its burden of demonstrating that the WD-Manual qualifies as a prior art “printed publication” under 35 U.S.C. § 311(b). Mr. Frank-White, who is a Records

Request Processor at the Internet Archive, provides testimony regarding the archive process used for URLs (i.e., a website address) that includes an archive date for each URL. Ex. 1012 ¶¶ 1–5. He testifies that the specific format of the Internet Archive URL for Exhibit B in his Affidavit (i.e., the WD-Manual) indicates the following two things: (1) the WD-Manual was archived on December 3, 2010; and (2) a URL link for downloading the WD-Manual was located on the www.wdc.com website. *Id.* ¶¶ 5, 7. Based on the uncontested testimony of Mr. Frank-White, we find that the WD-Manual was archived at the www.wdc.com webpage on December 3, 2010.

Turning to the WD TV Live Hub webpage that is Exhibit 1022, Mr. Frank-White testifies that the specific format of the Internet Archive URL for this webpage tells us that it was archived on the same date at the WD-Manual—namely, December 3, 2010. Ex. 1012 ¶ 5, Exhibit A, pg. 19–21. The WD TV Live Hub webpage contains a URL that appears to offer a “User Manual (PDF)” for “WD TV Live Hub” in “English.” Ex. 1022.

Next, Mr. Frank-White testifies that the specific format for the Internet Archive URL for the press release that is Exhibit 1020 indicates that this press release was archived on March 3, 2011. Ex. 1012 ¶ 5, Ex. A, 16–18. On its face, the press release indicates a publication date of October 26, 2010, which would be consistent with the archiving date of March 3, 2011. Ex. 1020, 1. The press release introduces the WD TV Live Hub system and states that it was “initially available exclusively at Best Buy online and at all 1,093 Best Buy stores nationwide.” *Id.* The press release also states that “[t]he full set of features and list of file compatibility is available on WD’s website.” *Id.* at 2.

Finally, the product review of the WD TV Live Hub system that is Exhibit 1023 establishes that the WD-Manual was accessible to the interested public. Mr. Frank-White testifies that the specific format of the Internet Archive URL for the product review tells us that this product review was archived on May 28, 2011. Ex. 1012 ¶ 5, Ex. A, 4–9. On its face, the product review indicates a publication date of May 24, 2011, which is consistent with the archiving date of May 28, 2011. Ex. 1023, 1. The product reviewer focuses on the WD TV Live Hub system and states “there’s no manual in the box,” but the reviewer notes that he was able to locate the WD-Manual, and writes “[i]f you are looking for the manual – here’s a link to it” – with the underlining indicating a hyperlink was provided. *Id.* at 3. This product review demonstrates that at least one person who was interested in the subject matter of the WD-Manual was able to locate and access it online, and then shared that location with others.

Based on the complete record, we find that a preponderance of the evidence supports the following findings: (1) the WD TV Live Hub system was offered for sale with specific reference to “[t]he full set of features and list of file compatibility . . . available on WD’s website” no later than March 3, 2011; (2) that the www.wdc.com webpage was organized in such a manner that the interested public was capable of accessing the WD-Manual via a URL; (3) that the interested public was provided with the ability to download the WD-Manual from the www.wdc.com webpage as a PDF in “English” no later than December 3, 2010; and (4) that at least one user did, indeed, download the WD-Manual and then provided others with a hyperlink to download WD-Manual no later than May 28, 2011. *See* Pet. 13–14; Ex. 1012; Ex. 1020; Ex. 1022; Ex. 1023. As a result, because the earliest

possible filing date of the '254 patent is August 17, 2012 (Ex. 1001, code (60)), we find that the WD-Manual qualifies as a prior art printed publication to the '254 patent because it was disseminated to the interested public and, therefore, publicly accessible no later than May 2011.

Given LG's uncontested showings that we identify above, we do not agree with Multimedia's arguments that LG has not carried its burden of demonstrating that the WD-Manual qualifies as a prior art printed publication to the '254 patent. Although LG never explicitly states in the Petition that the WD-Manual is a "printed publication" (*see* PO Resp. 15–16), Multimedia acknowledges in the Patent Owner Response that "[t]he WD-Manual is plainly not a patent" (*id.* at 15). With this in mind, LG's assertion in the Petition that the WD-Manual "is at least prior art under (pre-AIA) 35 U.S.C. § 102(a) and/or (b)" at the very least implies that Multimedia understood that the only relevant prior art category is "printed publications" under 35 U.S.C. § 311(b). *See* Pet. 14; Pet. Reply 8.

We also do not agree with Multimedia's assertion that we should reject any arguments from LG that the WD-Manual qualifies as a prior art printed publication to the '254 patent that were not presented and developed in the Petition. *See* PO Resp. 16–18. As we outline above, Multimedia raised extensive arguments in the Patent Owner Response as to why the WD-Manual was not a prior art "printed publication" under 35 U.S.C. § 311(b). *See id.* at 15–23. In response, LG filed a Reply that included arguments clarifying its initial position that the WD-Manual qualifies as a prior art printed publication to the '254 patent. *See* Pet. Reply 8–11. At no point in the Reply did LG change its initial position as to why the WD-Manual qualifies as a prior art printed publication to the '254 patent, nor did

LG submit any new evidence with the Reply that would lead us to believe it was deviating from its initial position. Instead, LG merely used the Reply as a vehicle to respond to the arguments raised by Multimedia in the Patent Owner Response, which, according to the rules governing an IPR, is permissible. *See* 37 C.F.R. § 42.23(b) (“A reply may only respond to arguments raised in the corresponding opposition, patent owner preliminary response, patent owner response, or decision on institution.”); *see also Hulu, LLC v. Sound View Innovations, LLC*, IPR2018-01039, Paper 29, 14–16 (PTAB Dec. 20, 2019) (Decision Granting Petitioner’s Request for Rehearing) (precedential) (explaining that it is permissible for a petitioner to submit additional arguments and evidence regarding public accessibility after institution so long as no “new direction” is taken in its position). In addition, there is no apparent due process violation under these particular circumstances because Multimedia was afforded the opportunity to file a Sur-reply responding to LG’s arguments presented and developed in the Reply. *See* PO Sur-reply 1–13.

Multimedia argues that the WD website, also referred to as the www.wdc.com webpage, was not meaningfully indexed, or otherwise searchable, such that interested persons of ordinary skill in the art would be able to locate the WD-Manual on this webpage by exercising reasonable diligence. *See* PO Resp. 18, 20; PO Sur-reply 1–2, 4–6. We do not agree with this argument for two reasons. First, as we note above, “while often relevant to public accessibility, evidence of indexing is not an absolute prerequisite to establishing online references . . . as printed publications within the prior art.” *Voter Verified*, 698 F.3d at 1380. Second, and perhaps more important, “a printed publication need not be easily searchable after

publication if it was sufficiently disseminated at the time of its publication.” *Suffolk Techs., LLC v. AOL Inc.*, 752 F.3d 1358, 1365 (Fed. Cir. 2014). Therefore, contrary to Multimedia’s argument, LG need not establish that the WD-Manual was publicly accessible by demonstrating that the www.wdc.com webpage was meaningfully indexed, or otherwise searchable, such that interested persons of ordinary skill in the art would be able to locate the WD-Manual on this webpage by exercising reasonable diligence. Rather, as we explain above, it was sufficient for LG to establish that the WD-Manual was publicly accessible by demonstrating its dissemination to the interested public no later than May 2011.

Lastly, Multimedia argues that LG only establishes that the WD-Manual was technically accessible, but this is not sufficient to establish that the WD-Manual was publicly accessible. *See* PO Resp. 19; PO Sur-reply 2–4. We do not agree. LG’s evidence sufficiently demonstrates the actual dissemination of the WD-Manual to the interested public via the commercial sale of the WD TV Live Hub system, along with specific reference to the www.wdc.com webpage and, therefore, the WD-Manual was publicly accessible no later than May 2011. *See Jazz Pharms.*, 895 F.3d at 1356 (“If accessibility is proved, there is no requirement to show that particular members of the public actually received the information.” (quoting *Constant v. Advanced Micro-Devices, Inc.*, 848 F.2d 1560, 1569 (Fed. Cir. 1988))); *see also SRI Int’l v. Internet Sec. Sys., Inc.*, 511 F.3d 1186, 1197 (Fed. Cir. 2008) (“[A]ctual retrieval of a publication is not a requirement for public accessibility.”). LG also provides sufficient evidentiary support demonstrating that the WD-Manual was accessible online at the www.wdc.com webpage via a URL that allowed the interested public to

download it as a PDF in “English.” *See* Ex. 1012 ¶ 7; Ex. 1022. LG goes a step further by also providing sufficient evidentiary support demonstrating that the WD-Manual was actually found online by an interested person who shared that location with others. *See* Ex. 1023, 3. Stated differently, the evidence accompanying the Petition establishes more than the mere technical accessibility of the WD-Manual; it establishes public accessibility of the WD-Manual because it demonstrates (1) where the interested public could access the WD-Manual at the www.wdc.com webpage; and (2) that an interested person actually found the WD-Manual online and then shared that location with others.

3. *Summary*

Based on the fully developed trial record, LG has met its burden of demonstrating that the WD-Manual qualifies as a prior art “printed publication” under 35 U.S.C. § 311(b). As a result, we determine that the WD-Manual qualifies as prior art to the ’254 patent.

C. Obviousness over the Combined Teachings of Kim, WD-Manual, and Bae

LG contends that claims 1–4, 8–10, and 13–17 of the ’254 patent are unpatentable under 35 U.S.C. § 103(a) as obvious over the combined teachings of Kim, WD-Manual, and Bae. Pet. 14–119. LG contends that the combined teachings of Kim, WD-Manual, and Bae 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 submits the Declaration of Dr. Lippman to support its positions. *See* Ex. 1003.

Multimedia contends that the combined teachings of Kim, WD-Manual, and Bae fail to account for certain features required by the following limitations of independent claim 1: (1) limitation [1.2]; (2) limitation [1.5.2]; and (3) limitation [1.5.3]. PO Resp. 23–42, 49–70; PO Sur-reply 13–18, 20–25. Multimedia also argues that a person of ordinary skill in the art would not have been able to combine the teachings Kim and Bae in the manner proposed by LG to account for limitation [1.2], and there would have been no reasonable expectation of success in doing so. PO Resp. 43–48; PO Sur-reply 18–19. Multimedia submits the Declaration of Dr. Surati to support its positions. *See* Ex. 2008.

Based on the fully developed trial record, we determine that LG has shown by a preponderance of the evidence that claims 1–4, 8–10, and 13–17 of the '254 patent are unpatentable as obvious over the combined teachings of Kim, WD-Manual, and Bae. We begin our analysis with the principles of law that generally apply to an asserted ground based on obviousness, we then assess the level of skill in the art, next we provide brief overviews of Kim, Bae, and WD-Manual, and then we address the parties' contentions with respect to the challenged claims.

1. Principles of Law

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.).⁵ *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).

Factors pertinent to a determination of the level of ordinary skill in the art include “(1) the educational level of the inventor; (2) type of problems encountered in the art; (3) prior art solutions to those problems; (4) rapidity with which innovations are made; (5) sophistication of the technology; and (6) educational level of active workers in the field.” *Envtl. Designs, Ltd. v. Union Oil Co. of Cal.*, 713 F.2d 693, 696 (Fed. Cir. 1983) (citing *Orthopedic Equip. Co. v. All Orthopedic Appliances, Inc.*, 707 F.2d 1376, 1381–82 (Fed.

⁵ During trial, Multimedia does not present arguments or evidence of secondary considerations. See PO. Resp.

Cir. 1983)). “Not all such factors may be present in every case, and one or more of these or other factors may predominate in a particular case.” *Id.* at 696–97.

Based on the fully developed trial record, we are able to 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 the field of the '254 patent, as of its earliest possible filing date of August 17, 2012, would have been someone knowledgeable and familiar with the television display technology that is pertinent to the '254 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. 10–11 (citing Ex. 1003 ¶ 19). In the Patent Owner Response, Multimedia and its declarant, Dr. Surati, accept LG's proposed assessment of the level of skill in the art as “reasonable.” PO Resp. 8–9 (citing Ex. 2008 ¶¶ 40–44).

Accordingly, we maintain our preliminary determination regarding the level of ordinary skill in the art. Dec. on Inst. 16–17. That is, we adopt LG's proposed assessment of the level of ordinary skill in the art because (1) it is supported by both Dr. Lippman's and Dr. Surati's testimony; and (2) it is consistent with the '254 patent and the asserted prior art. We apply this assessment of the level of ordinary skill in the art in our obviousness evaluations below.

3. Overview of Kim

Kim generally relates to “[a] multifunctional display device and method of controlling the same.” Ex. 1005, code (57). Kim discloses image display apparatus 100 (e.g. a smart TV) that includes, among other things, user input interface 150, controller 170, display 180, and remote controller 200. *Id.* ¶¶ 38, 65, Figs. 2, 6. Controller 170 controls display 180 by using remote controller 200 to provide input or control signals to user input interface 150. *Id.* ¶¶ 87, 94, Fig. 6; *see also id.* ¶ 167, Fig. 13 (illustrating controlling display 180 by using pointer 205 representing movement of remote controller 200). For example, “user input interface 150 may receive various user input signals such as power-on/off signal, a channel selection signal, and a screen setting signal from . . . remote controller 200.” *Id.* ¶ 86, Fig. 6.

Figure 19 of Kim, reproduced below, illustrates an exemplary home screen display according to one embodiment. Ex. 1005 ¶¶ 21, 192.

FIG. 19

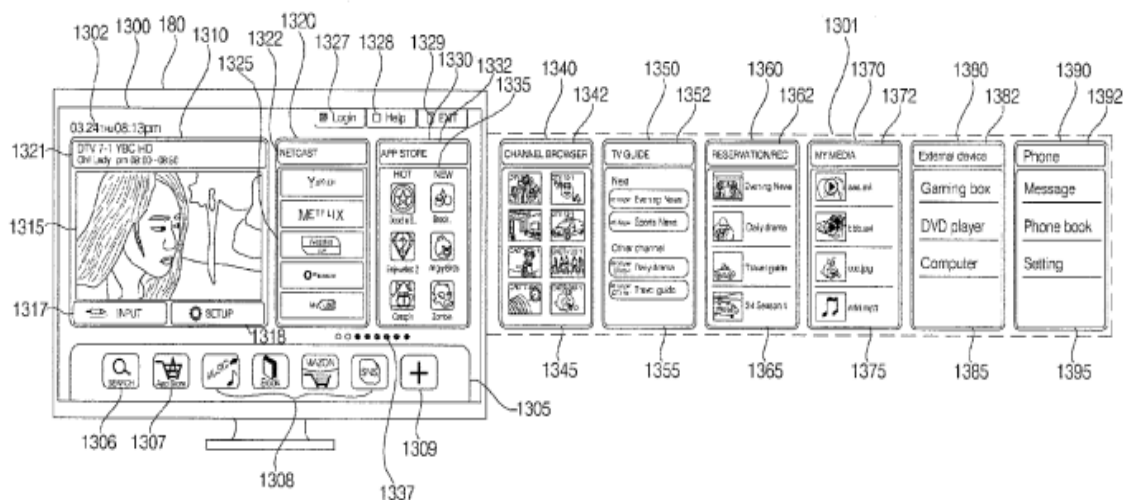


Figure 19 illustrates display 180 that includes home screen 1300 displaying the following three card objects in a card object area: (1) card object 1310 named BROADCAST, (2) card object 1320 named NETCAST, and (3) card object 1330 named APP STORE. *Id.* ¶¶ 192, 193, 195. Hidden area 1301 includes additional card objects, such as CHANNEL BROWSER card object 1340 and TV GUIDE card object 1350, which a user may shift or scroll to on display 180 to replace card objects 1310, 1320, or 1330. *Id.* ¶ 196.

4. Overview of Bae

Bae generally relates to “a device and method that allows users to easily search for and select a plurality of broadcasting channels.” Ex. 1008 ¶ 6. Figure 3 of Bae, reproduced below, illustrates an exemplary channel search screen. *Id.* ¶ 22.

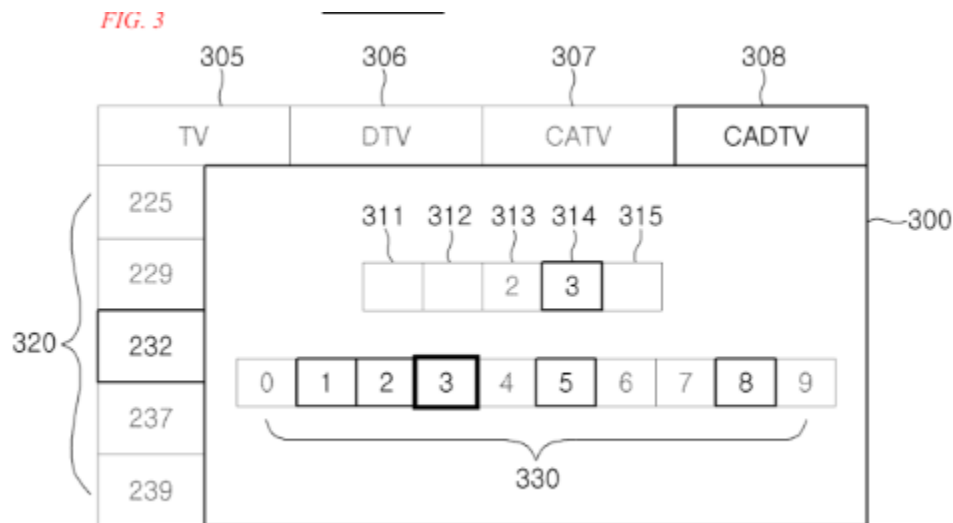


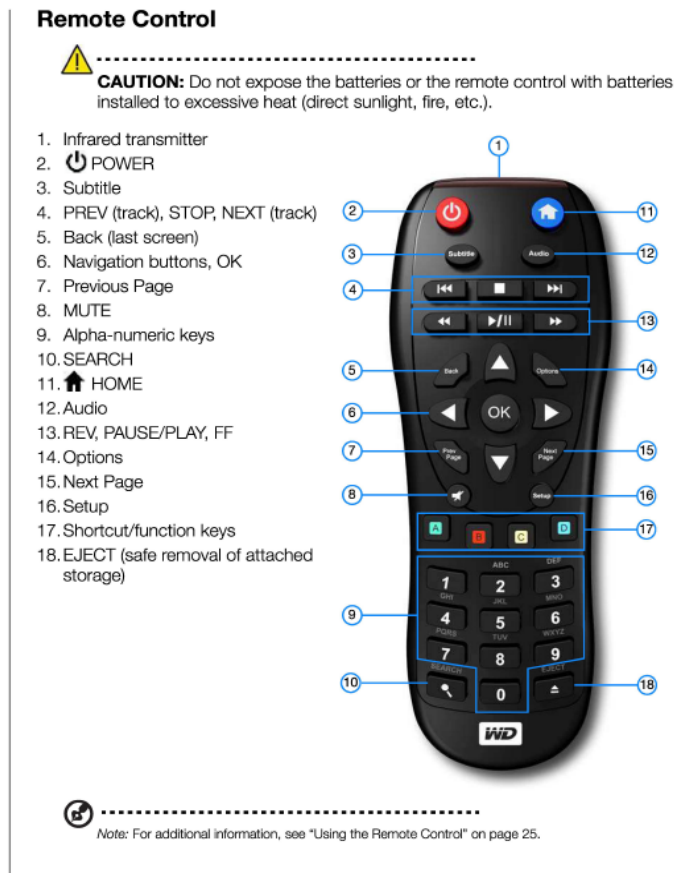
Figure 3 illustrates channel search screen 300 that includes, among other things, channel number selection window 330 that allows a user to change the channel by selecting “numbers 0 to 9 . . . using left and right keys or number keys” located on user input unit 130. *Id.* ¶ 23; *see also id.* ¶ 17 (“user input unit 130 is a means for receiving request commands from the

user, and receives channel search commands, channel change commands, volume up/down commands, etc. input from the user”).

5. Overview of WD-Manual

WD-Manual discloses a “user manual [that] provides step-by-step instructions for installing and using [a] new media center” called WD TV Live Hub Media Center. Ex. 1006, 5.⁶ WD-Manual further discloses using a remote control to “navigate the Home screen, browse for media files, enable playback options, and customize the system settings.” *Id.* at 25. The figure, reproduced below, illustrates a remote control used to operate WD TV Live Hub Media Center.

⁶ Each page in WD-Manual includes two different page numbers both located in the bottom, right-hand corner of each page in Exhibit 1006. All references to the WD-Manual refer to the native page numbers—not the page numbers inserted by LG.



Id. at 11. This figure illustrates a remote control that includes, among other things, “[u]ser assignable shortcut/function keys” A, B, C, and D that have certain default settings, but the settings are customizable. *Id.* at 26; *see also id.* at 138 (disclosing “Remote Settings,” including how “[t]o change functions” of shortcut/function keys A, B, C, and D).

6. Claims 1, 8, and 14

For purposes of consistency and added clarity, we address each limitation of independent claims 1, 8, and 14 in turn by relying on the bracketed annotations provided by LG in the Petition. *See* Pet. 25–104, 111–118. The preamble of independent claim 1 recites [1.0]— “[a] method, comprising[.]” Ex. 1001, 39:28. To the extent the preamble should be treated as limiting, LG contends that Kim, Bae, and WD-Manual, either

individually or collectively, teach a “method” because Kim discloses a “display device and a method of controlling the same,” Bae discloses a “method in a video display device,” and WD-Manual “provides step-by-step instructions” for using a “media center” with a “remote control.” Pet. 25–26 (first quoting Ex. 1005, code (57) (emphasis omitted), then quoting Ex. 1008⁷ ¶ 9 (emphasis omitted), then quoting Ex. 1006, 4, 25–26 (emphasis omitted)) (citing Ex. 1003 ¶¶ 84–89).

The first step of independent claim 1 recites limitation [1.1]—“receiving, wirelessly by at least one of an infrared and radio frequency module of a television and from a remote control, a request to change a programming channel.” Ex. 1001, 39:29–31. LG contends that Kim teaches this limitation because it discloses TV 100 that receives signals from remote controller 200 using “RF [radio frequency] communication and IR [infrared] communication.” Pet. 26–27 (quoting Ex. 1005 ¶ 86) (citing Ex. 1005 ¶¶ 12, 38, 87, 172, 173, Figs. 6, 14) (alterations in original). LG further argues that Kim teaches that its TV 100 receives “a channel switch command” from remote controller 200. *Id.* at 28 (quoting Ex. 1005 ¶ 174). Similarly, LG argues that Bae teaches a television that receives “channel change commands . . . from the user.” *Id.* (quoting Ex. 1008 ¶ 17) (citing Ex. 1008 ¶ 11).

The second method step of independent claim 1 recites limitation [1.2]—“displaying, by a microprocessor executable application framework

⁷ Throughout the Petition, LG cites to both the Korean publication of Bae (Ex. 1007) and the certified English translation of Bae (Ex. 1008). For simplicity and ease of reference, we changed LG’s citations to Bae to reference only the certified English translation (Ex. 1008).

and on a television screen, an on screen channel changer, the displayed on screen channel changer comprising electronic program guide (‘EPG’) information and a number input bar comprising digits, wherein the digits range from 0 to 9.” Ex. 1001, 39:32–37. LG contends that Kim in combination with Bae teaches this limitation. *See* Pet. 29–39. LG argues that Kim teaches the claimed “displaying . . . an on screen channel changer” because Kim discloses an on screen display (“OSD”) controlled by OSD generator 340 of controller 170 that generates and displays a card object area on Kim’s home screen, which may include, among other things, CHANNEL BROWSER card object 1340 and TV GUIDE card object 1350. *Id.* at 29–31 (citing Ex. 1005 ¶¶ 60, 90, 94, 95, 104, 105, 133, 137, 193, 196, 205–207, 213, Figs. 5, 6; Ex. 1003 ¶¶ 99–104).

LG further argues that Kim teaches the claimed “microprocessor executable application framework and on a television screen” because it discloses controlling how images are displayed on display 180 by using controller 170 that implements a software “platform architecture.” Pet. 31–37 (quoting Ex. 1005 ¶ 144) (citing Ex. 1005 ¶¶ 89, 90, 92, 133, 143 156, 160, 162, 166, Figs. 2, 6, 10–12; Ex. 1001, 18:7–13, 18:58–65, Fig. 4; Ex. 1003 ¶¶ 105–115). Lastly, LG argues that Kim teaches the claimed “EPG information” because Kim discloses CHANNEL BROWSER card object 1340 having “a thumbnail list of broadcast channels 1345” and TV GUIDE card object 1350 having a “program list.” *Id.* at 37 (quoting Ex. 1005 ¶ 207) (citing Ex. 1005 ¶¶ 133, 137, 193). LG turns to Bae as teaching the claimed “number input bar comprising digits, wherein the digits range from 0 to 9,” because Bae discloses channel number selection window

330 that contains numbers 0 to 9. *Id.* at 37–38 (citing Ex. 1008 ¶¶ 18, 23, Fig. 3; Ex. 1003 ¶¶ 121, 122).

Turning to rationale to combine, LG argues that a person of ordinary skill in the art would have been motivated to combine Bae’s number input bar (i.e., channel number selection window 330 that contains numbers 0 to 9) with Kim’s card object area (e.g., either CHANNEL BROWSER card object 1340 or TV GUIDE card object 1350) for the following reasons: (1) using Bae’s technique would “enable[] a user to identify a specific channel number without searching or scrolling through an EPG”; and (2) Bae’s technique enables certain functionality already contemplated by Kim because Kim discloses remote controller 200 having input tools “other than” a keypad. Pet. 24 (quoting Ex. 1005 ¶ 175) (citing Ex. 1008 ¶ 23; Ex. 1003 ¶ 81). According to LG, “applying Bae’s known input bar technique to Kim’s known television and remote control system . . . would have yielded the predictable result of having an on screen channel changer that . . . includes a number input bar so that a user can switch channels on Kim’s television [100] by identifying a specific channel number and without regard to the remote control inputs, including one without a keypad.” *Id.* at 24–25 (citing Ex. 1003 ¶ 82); *see also id.* at 38 (arguing the same). LG asserts that there would have been a reasonable expectation of success in making this proposed combination because “it predictably uses Bae’s number input bar for its intended purpose of allowing a user to easily change channels on a television via a user interface, which is the desired functionality in Kim.” *Id.* at 25 (citing Ex. 1003 ¶ 83).

The third method step of independent claim 1 recites limitation [1.3]—“receiving, by the application framework and from the remote

control, a channel selection based on digits selected by a user using the remote control and the number input bar of the on screen channel changer, wherein the user selects the digits using non-numeric keys of the remote control.” Ex. 1001, 39:38–43. Relying on its arguments and evidence for limitations [1.1] and [1.2], LG contends that Kim in combination with Bae teaches limitation [1.3] because Kim discloses receiving user inputs from remote controller 200, Kim discloses a microprocessor executable application framework that controls content displayed on display 180 based on user inputs from remote controller 200, and Kim and Baer collectively teach displaying an on screen channel changer that contains a number input bar with digits 0–9. Pet. 39. LG argues that Kim in combination with Bae teaches the claimed “user selects the digits using non-numeric keys of the remote control” because Kim discloses that remote controller 200 includes “arrow keys and an OK key” (i.e. non-numeric keys). *Id.* (quoting Ex. 1005 ¶ 187). Similarly, Bae disclose “using left and right keys” (i.e., non-numeric keys) to select digits from the number input bar. *Id.* (quoting Ex. 1008 ¶ 23) (emphasis omitted).

The fourth method step of independent claim 1 recites limitation [1.4]—“changing, by the application framework, to the selected channel.” Ex. 1001, 39:44–45. Relying on its arguments and evidence for limitations [1.1] and [1.2], LG contends that Kim in combination with Bae teaches limitation [1.4] because Kim discloses receiving channel switch commands from remote controller 200, and Kim discloses a microprocessor executable application framework that controls content displayed on display 180 based on user inputs from remote controller 200. Pet. 40. LG argues that Bae teaches the claimed “changing . . . to the selected channel” because Bae

discloses that, after the user inputs digits via the number input bar, performing “the switch to the corresponding channel.” *Id.* (quoting Ex. 1008 ¶ 26) (citing Ex. 1008, Fig. 2).

The first wherein clause of independent claim 1 recites limitation [1.5]—“wherein the remote control comprises[.]” Ex. 1001, 39:45. Relying on its arguments and evidence for limitations [1.1]–[1.4], LG contends that Kim in combination with Bae teaches limitation [1.5] because they each disclose controlling content displayed on a television based on user inputs from a remote controller. Pet. 40. LG also contends that the WD-Manual teaches this limitation because it discloses a remote control that includes buttons that, when selected, display specific types of content or information on a television. *Id.* at 40–42 (citing Ex. 1006, 5, 11, 25–26, 138). Notably, LG argues that the WD-Manual’s remote control may assign specific functionality to certain keys by programming shortcut/function keys A, B, C, or D to display certain content, such as Music, Video, or Services. *Id.* at 42–43 (citing Ex. 1006, 26, 138 Ex. 1003 ¶ 137). In addition, LG argues that the WD-Manual discloses other remote control features, such as an “Options” button and a “HOME” button. *Id.* at 43–44 (citing Ex. 1006, 25; Ex. 1003 ¶ 138).

Turning to rationale to combine, LG contends that a person of ordinary skill in the art would have been motivated to combine the teachings of Kim and WD-Manual because they “disclose using a remote control to access and display media content via a television and because they are intended to work together.” Pet. 18 (citing Ex. 1003 ¶ 63). As one example, LG argues that Kim’s remote controller 200 may “include various input tools other than those set forth herein, such as a scroll key, a jog wheel, or

another appropriate user input device.” *Id.* at 20 (quoting Ex. 1005 ¶ 175). According to LG, the WD-Manual provides additional “input tool features, including different dedicated and customizable remote control buttons, for controlling a television’s multimedia functionality.” *Id.* (citing Ex. 1006, 11, 25–26, 138–139). LG asserts that the combined teachings of Kim and WD-Manual amounts to incorporating the known functionality provided by the WD-Manual’s “remote control features” with Kim’s TV 100 “according to known methods to yield the predictable result of [a television] that incorporates functionality that could otherwise be separately implemented.” *Id.* at 21 (citing Ex. 1003 ¶¶ 69–73). In addition, LG asserts that the proposed combination would have been the application of a known technique (i.e., the WD-Manual’s “remote control features”) to a known device (i.e., Kim’s “television” 100) “to yield the predictable result of a television that incorporates multimedia functionality that could otherwise be separately implemented.” *Id.* (citing Ex. 1003 ¶ 74).

The remote control of limitation [1.5] comprises four buttons as recited in limitations [1.5.1] through [1.5.4]. Independent claim 1 recites limitation [1.5.1]—

a media center button that, when selected, provides, by the television screen, displayed information regarding one or more of groupings of music, groupings of videos, groupings of photographs, and internal and external computational devices, the computational devices comprising one or more of personal computers, laptops, tablet computers, wireless phones, and removable computer readable media.

Ex. 1001, 39:46–53. LG contends that, based on its proposed construction of the claim term “one or more,” the asserted prior art satisfies this limitation if it teaches any item in the list. Pet. 45. With this in mind, LG contends

that Kim in combination with WD-Manual teaches limitation [1.5.1] because the WD-Manual discloses assigning or programming any one of shortcut/function keys A, B, C, or D to display specific types of (1) media content, such as music, videos, photos, services, etc.; or (2) device information, such as local drives that represent internal computational devices and universal serial bus drives that represent external computational devices (e.g., laptop computers, portable phones, etc.). *Id.* at 44–68 (citing Ex. 1006, 9, 11, 24, 28, 32, 36–37, 48, 55–56, 62, 70, 138; Ex. 1005 ¶¶ 76–80, 85, 123, 196, 205, 209–212, Fig. 19; Ex. 1011, 672, 879, 1121; Ex. 1013 ¶ 83; Ex. 1003 ¶¶ 140–184).

Independent claim 1 recites limitation [1.5.2]—“an application center button that, when selected, provides, by the television screen, displayed information regarding pre-installed and downloaded software applications.” Ex. 1001, 39:54–56. Relying on its arguments and evidence for limitations [1.5], LG contends that Kim, Bae, and WD-Manual each teach displaying content on a television based on user inputs from a remote controller, and the WD-Manual teaches remote control buttons that, when selected, display specific types of media content or device information on the television. Pet. 69. LG further argues that the WD-Manual teaches the claimed “application center button” because it discloses assigning or programming any one of shortcut/function keys A, B, C, or D to display specific types of services, which may include software applications such as Netflix, Facebook, Flickr, Pandora, etc. *Id.* at 69–71 (citing Ex. 1006, 28, 76–77, 138; Ex. 1003 ¶¶ 186–188). LG also argues that Kim discloses the following two examples of using remote controller 200 to display an application panel that provides access to user-undeletable and user-deletable

applications that are pre-installed and downloaded: (1) “controller 170 may control display of applications or a list of applications that are available in the image display apparatus”; and (2) “a list of applications 660 in the image display apparatus may be displayed.” *Id.* at 72–74 (first quoting Ex. 1005 ¶ 99, then quoting Ex. 1005 ¶ 184) (citing Ex. 1005 ¶¶ 100, 158, 163, 185, Figs. 16, 34; Ex. 1001, 24:17–22; Ex. 1003 ¶¶ 189–194).

The second wherein clause of independent claim 1 recites limitation [1.5.2.1]—“wherein the downloaded software applications comprise one or more of a web browser, settings control, and content search algorithms.” Ex. 1001, 39:57–59. LG reiterates that, based on its proposed construction of the claim term “one or more,” the asserted prior art satisfies this limitation if it teaches any item in the list. Pet. 74. Relying on its arguments and evidence for limitations [1.5.2], LG contends that Kim teaches the claimed “downloaded software applications” because it discloses various software applications that come pre-installed on TV 100. *Id.* LG then argues that Kim teaches the web browser and setting control applications, as well as “content search algorithms” such as Metflix or MyTube (according to Dr. Lippman, a person of ordinary skill in the art would have understood these two applications to reference Netflix and YouTube, respectively) that allow the user to search for media content. *Id.* at 74–76 (citing Ex. 1005 ¶¶ 82, 157, 159, Fig. 44; Ex. 1010, 2:22–25; Ex. 1003 ¶¶ 199–207, 209). LG also argues that the WD-Manual teaches downloading applications that allow the user to search for content, such as iTunes. *Id.* at 76–77 (citing Ex. 1006, 150; Ex. 1014; Ex. 1003 ¶¶ 210, 211).

Independent claim 1 recites limitation [1.5.3]—“an application panel button that, when selected, displays, by the television screen, an application

panel, wherein the application panel comprises an information panel regarding a selected (pre-installed or previously downloaded) application icon.” Ex. 1001, 39:60–64. Relying on its arguments and evidence for limitations [1.5], LG reiterates that Kim, Bae, and WD-Manual each teach displaying content on a television based on user inputs from a remote controller, and the WD-Manual teaches remote control buttons that, when selected, display specific types of media content or device information on the television. Pet. 77–78. Relying on its arguments and evidence for limitations [1.2], [1.5.2], and [1.5.2.1], LG contends that Kim and the WD-Manual each teach accessing pre-installed and previously downloaded software applications. *Id.* at 78. LG then argues that Kim and the WD-Manual each teach the claimed “application panel button” because: (1) Kim’s “OK” button, when selected, displays an application panel with an information window that includes information about pre-installed and previously downloaded applications; and (2) WD-Manual’s “Options” button, when selected, displays an application panel that identifies various applications or services. *Id.* at 78–90 (first quoting Ex. 1006, 11, then quoting Ex. 1005 ¶ 187) (citing Ex. 1006, 11, 25, 29, 57, 66, 68, 77, 91, 150; Ex. 1005 ¶ 247, Fig. 25; Ex. 1001, 22:56–23:67, 24:56–25:4; Ex. 1003 ¶¶ 216–239).

Independent claim 1 recites limitation [1.5.4]—“a global panel button that, when selected, provides the user, via one or more panels or windows displayed by the television screen, with access to one or more of silos, notifications, a web browser system settings, and information associated therewith.” Ex. 1001, 39:65–40:2. LG contends that Kim and the WD-Manual each teach the claimed “global panel button.” *See* Pet. 90–103.

According to LG, (1) Kim teaches this button because it discloses a home key that, when selected, displays a home screen with multiple panels and windows containing different information or content, such as (a) silos representative of an input (e.g., an externally connected device), live TV, or content providers, (b) notifications in the form of incoming phone call-related information, and (c) a setup object panel that provides access to web browser system settings; and (2) the WD-Manual teaches this button because it discloses a “HOME” button that, when selected, displays a home screen with panels that provide access to silos representative of an input (e.g., an externally connected device), file system, and a video on demand service (e.g. Netflix). *Id.* (quoting Ex. 1006, 11) (citing Ex. 1005 ¶¶ 63, 85, 94, 192, 200, 210–212, 282, Fig. 19; Ex. 1006, 11, 25, 62, 70, 76, 77, 79; Ex. 1001, 5:57–67, 29:58–59, 30:60–65; Ex. 1003 ¶¶ 241–245, 250, 251, 253, 254, 256–262).

Independent claim 8 includes essentially the same limitations as independent claim 1, except the preamble of independent claim 8 recites “[a] television, comprising[],” and the body of independent claim 8 recites “a television screen.” *Compare* Ex. 1001, 41:4–47 (claim 8), *with id.* at 39:28–40:2 (claim 1). For the most part, LG contends that the same arguments and evidence it provides to explain how the combined teachings of Kim, Bae, and WD-Manual account for all the limitations of independent claim 1 equally apply to the limitations of independent claim 8. *Pet.* 111–115. Turning to the unique recitation of the preamble of independent claim 8, LG argues that, to the extent the preamble should be treated as limiting, the combined teachings of Kim, Bae, and WD-Manual account for a television. *Id.* at 111–112 (citing Ex. 1005, Fig. 6; Ex. 1003 ¶¶ 303–305).

LG then argues that Kim teaches the claimed “television screen” because it discloses TV 100 that includes display 180 for displaying “still image or moving picture.” *Id.* at 112–113 (quoting Ex. 1005 ¶ 92) (citing Ex. 1005, Fig. 6; Ex. 1003 ¶¶ 306, 307).

Independent claim 14 includes the same limitations as independent claim 1, except the preamble of independent claim 14 recites “[a] tangible and non-transient computer readable medium, comprising microprocessor executable instructions that, when executed are configured to perform [certain] operations comprising[.]” *Compare* Ex. 1001, 42:32–67 (claim 14), *with id.* at 39:28–40:2 (claim 1). LG contends that the same arguments and evidence it provides to explain how the combined teachings of Kim, Bae, and WD-Manual account for all the limitations of independent claim 1 equally apply to the limitations of independent claim 14. Pet. 116–118. Notably, LG argues that, to the extent the unique recitation of the preamble of independent claim 14 should be treated as limiting, Kim in combination with Bae teaches the features recited therein for the same reasons LG identifies above with respect to limitation [1.2]. *Id.* at 116.

During trial, Multimedia contends that the combined teachings of Kim, WD-Manual, and Bae fail to account for certain features required by the following limitations of independent claim 1: (1) limitation [1.2]; (2) limitation [1.5.2]; and (3) limitation [1.5.3]. PO Resp. 23–42, 49–70; PO Sur-reply 13–18, 20–25. Multimedia also argues that a person of ordinary skill in the art would not have been able to combine the teachings Kim and Bae in the manner proposed by LG to account for limitation [1.2], and there would have been no reasonable expectation of success in doing so.

PO Resp. 43–48; PO Sur-reply 18–19. We address Multimedia’s arguments in turn.

- a. Limitation [1.2]—“displaying . . . an on screen channel changer . . . comprising electronic program guide (“EPG”) information and a number input bar comprising digits, wherein the digits range from 0 to 9”*

In the Patent Owner Response, Multimedia contends that LG’s proposed combination of modifying Kim’s CHANNEL BROWSER card object 1340 and/or TV GUIDE card object 1350 to include Bae’s channel number selection window 330 that contains numbers 0 to 9 does not teach limitation [1.2] because this combination is “*in the abstract*,” and LG fails to explain adequately what results from this combination. PO Resp. 32; *see also id.* at 42 (arguing “[t]he proposed combination is no more than an abstraction”). According to Multimedia, LG “fails to explain what combination results from the application of Bae’s teaching of a channel number display window (330) to Kim’s on screen channel changer (1340, 1350).” *Id.* at 32 (citing Pet. 38; Ex. 2008 ¶¶ 153, 157); *see also id.* at 36–37 (arguing the same). Multimedia argues that, consistent with controlling case law, LG’s obviousness theory “must provide a reasoned analysis explaining how the references are combined and how the proposed combination works.” *Id.* at 34 (emphasis omitted) (citing Ex. 2008 ¶ 162). Multimedia asserts that the Board also has repeatedly held a petitioner in an IPR to this standard. *Id.* at 35–36.

Multimedia further contends that Bae’s channel number selection window 330 cannot be combined with, or integrated into, Kim’s CHANNEL BROWSER card object 1340 and/or TV GUIDE card object 1350.

PO Resp. 38. According to Multimedia, this proposed combination “would

result in an inoperative user interface that would be contrary to the principle[s] of Kim,” which purportedly requires directly changing channels by using the channel browser and TV guide functions to present thumbnails of broadcast channels and program listings, respectively. *See id.* at 38–39 (citing Ex. 1006, Fig. 19; Ex. 1008, Fig. 3; Ex. 2008 ¶¶ 161, 162). Multimedia also argues that, despite being questioned repeatedly during his deposition, LG’s declarant, Dr. Lippman, declined to explain the configuration and workings of this proposed combination of Kim and Bae that purportedly teaches limitation [1.2]. *Id.* at 40–41 (citing Ex. 2010, 130:21–131:25, 132:2–12; Ex. 2008 ¶ 165). At best, Multimedia argues that Dr. Lippman testified that LG’s proposed combination of Kim and Bae was an “admixture of the two technologies.” *Id.* at 42 (quoting Ex. 2010, 155:9–12; Ex. 2008 ¶ 167). Multimedia, however, asserts that Dr. Lippman’s testimony that LG’s proposed combination is an “admixture” of technologies does not explain “what is being combined and how the combination works.” *Id.*

In the Reply, LG contends that Multimedia’s arguments focusing on modifying Kim’s CHANNEL BROWSER card object 1340 and/or TV GUIDE card object 1350 to include Bae’s channel number selection window 330 are misplaced because it “does not seek to modify either card object.” Pet. Reply 11; *see also id.* at 15–16 (arguing that “Multimedia incorrectly argues that the Petition identifies [CHANNEL BROWSER card object 1340 and/or TV GUIDE card object 1350] as the ‘on-screen channer changer’”). Instead, LG argues that it proposes modifying Kim’s card object area to include Bae’s channel number selection window 330 that contains numbers 0 to 9. *Id.* (citing Pet. 29–31). More specifically, LG argues that it explains

in the Petition itself how Kim’s card object area teaches the claimed “‘*on screen channel changer*’ because it displays one or more card objects on the television screen that can be used to change the channel.” *Id.* at 11–12 (citing Pet. 29–31; Ex. 1005 ¶¶ 193, 196, 205, 206, 221, 224). LG then argues that, taking into account Kim’s card object area may include card objects that allow a user to select channel thumbnails or program listings, adding Bae’s channel number selection window 330 to Kim’s card object area “would have had the predictable result of displaying a number input bar that allows the user to directly enter a specific channel number to change channels.” *Id.* at 12–13 (citing Pet. 24–25; Ex. 1005 ¶¶ 206, 269; Ex. 1008 ¶ 23; Ex. 1003 ¶¶ 82, 123).

According to LG, adding Bae’s channel number selection window 330 to Kim’s card object area “complements Kim” because Kim discloses using a remote control that has input tools “other than” a keypad, and this proposed addition would “provide[] the benefit of adding a technique of directly changing to a specific channel.” Pet. Reply 13 (quoting Ex. 1005 ¶ 175) (citing Ex. 1005 ¶ 174, Fig. 34; Ex. 1003 ¶¶ 79–82). LG asserts that even Multimedia’s declarant, Dr. Surati, agreed during his deposition that modifying Kim’s card object area to include Bae’s channel number selection window 330 “could be helpful.” *Id.* at 13–14 (quoting Ex. 1026, 63:6–13). Lastly, LG argues that Multimedia’s arguments mischaracterize Dr. Lippman’s testimony. *Id.* at 16 (citing PO Resp. 40–42). LG asserts that Dr. Lippman confirmed during his deposition that LG is not seeking to modify Kim’s individual card objects. *Id.* (citing Ex. 2010, 131:10–132:12, 135:15–136:11). LG also asserts that Dr. Lippman explains both in his

Declaration and at his deposition how the proposed combination of Kim and Bae works. *Id.* at 16–17 (citing Ex. 1003 ¶ 82; Ex. 2010, 150:13–17).

In the Sur-reply, Multimedia reiterates that LG’s proposed combination of Kim and Bae is “abstract,” and that LG fails “to provide an explanation of how the elements from Kim and Bae are combined and how that combination works to meet” limitation [1.2]. PO Sur-reply 13–14. Multimedia further contends that it does not matter whether LG argues that (1) Kim’s CHANNEL BROWSER card object 1340 and/or TV GUIDE card object 1350, or (2) Kim’s card object area that may include these two card objects, teaches the claimed “*on screen channel changer*.” *Id.* at 15 (citing Pet. Reply 11–12, 15–16). According to Multimedia, what matters is LG’s reliance on the channel changer functionality provided by Kim’s CHANNEL BROWSER card object 1340 and TV GUIDE card object 1350 “because they provide thumbnails and program listings that can be selected to change the channel.” *Id.* (citing Pet. 30–31; Ex. 1003 ¶ 104).

Multimedia also contends that Kim’s “modified user interface does not work” because Bae’s on screen channel changer “requires a channel number display window (310) in addition to the number input bar.” PO Sur-reply 16 (citing Ex. 1008 ¶¶ 25, 26; Ex. 2008 ¶¶ 119–122). Multimedia, however, argues that LG only proposes “adding Bae’s number input bar to Kim’s home screen/card object area,” but LG’s proposal does not include “Bae’s channel number display window.” *Id.* Multimedia then asserts that, because Kim does not have a channel number display window, “adding Bae’s number input bar to Kim’s home screen does not provide an operable embodiment to meet limitation [1.2].” *Id.* at 16–17 (citing Ex. 2008 ¶¶ 161, 162). Lastly, Multimedia argues that LG’s declarant, Dr. Lippman, offers

conclusory testimony on this particular issue and, apart from providing deposition testimony that the combination of Kim and Bae was an “admixture,” he never explains what this proposed combination is and how it works. *Id.* at 17–18 (quoting Ex. 2010, 152:21–154:2, 155:9–12) (citing Ex. 2010, 130:21–131:35, 132:2–12, 152:21–154:2).

Based on the fully developed trial record, we agree with LG arguments, and we find, that modifying Kim’s card object area to include Bae’s channel number selection window 330 that contains numbers 0 to 9 teaches limitation [1.2]. Pet. 29–38; Pet. Reply 11–13, 15–17. With reference to display 180 of Figure 19, Kim states that “a card object area may be defined in a home screen 1300 [located within display 180]. The card object area may include a plurality of card objects 1310, 1320, and 1330.” Ex. 1005 ¶ 193; *see also id.* ¶ 192 (“FIG. 19 shows an exemplary home screen displayed on the display 180.”). Kim further states that other “card objects in the hidden area 1301 may be hidden from view of the display 180,” but “[t]hese hidden card objects may be shifted or scrolled onto display 180 to replace the displayed card objects.” *Id.* ¶ 196. The hidden card objects that may be included within the card object area by shifting or scrolling them onto display 180 include, among other things, CHANNEL BROWSER card object 1340 that displays a thumbnail list of broadcast channels 1345 and TV GUIDE card object 1350 that displays program list 1355. *Id.* ¶¶ 205, 207. Based on these disclosures in Kim, we find that Kim teaches displaying the claimed “on screen channel changer” that includes “electronic program guide information” because display 180 contains a card object area that allows for the selection of broadcast channels

and program listings contained within CHANNEL BROWSER card object 1340 and TV GUIDE card object 1350, respectively.

Kim further discloses that a user navigates (e.g., shifts or scrolls) display 180 by using remote controller 200 that contains, among other things, user input device 235 that “may include a keypad, a plurality of buttons, a touchpad and/or a touch screen.” Ex. 1005 ¶ 175. Kim, however, discloses that user input device 235 is not limited to including a keypad, but instead it “may . . . include various input tools other than those set forth herein, such as a scroll key, a jog wheel, or *another appropriate user input device*.” *Id.* (emphasis added). Bae provides a channel selection technique that aligns with Kim’s suggestion to use *another appropriate user input device* because it discloses using “the numbers 0 to 9. . . in the channel number selection window 330” to change channels. Ex. 1008 ¶ 23, Fig. 3. According to Bae, a user can select a specific number ranging from 0 to 9 contained within channel number selection window 330 by “using the left and right keys” on user input unit 130. *Id.* Based on these disclosures in Bae, we find that Bae teaches displaying the claimed “number input bar” because it displays channel number selection window 330 that allows a user to select a specific channel using numbers 0 to 9 contained within this window.

Stated differently, the combination of Kim and Bae that LG relies on above teach limitation [1.2] because Kim, by itself, provides sufficient evidentiary support to modify its card object area, which may display broadcast channels and program listings contained within CHANNEL BROWSER card object 1340 and TV GUIDE card object 1350, to include Bae’s channel number selection window 330. As we explain above, Kim

does not limit its disclosure of a remote control to one that requires a keypad, but instead it contemplates employing input tools other than a keypad, such as another appropriate user input device. As a result, we agree with LG that Bae serves a logical extension of Kim's teachings in this regard because Bae provides one example of another appropriate user input device in the form of channel number selection window 330 that contains numbers 0 to 9. *See* Pet. 38; Pet. Reply 12–13; Ex. 1003 ¶¶ 82, 123.

We do not agree with Multimedia's arguments that LG's proposed combination of Kim and Bae is no more than an abstraction. *See* PO Resp. 32, 42; PO Sur-reply 13–14. Nor do we agree with Multimedia's arguments that LG fails to explain how it proposes to combine the teachings of Kim and Bae to account for limitation [1.2] and how the proposed combination works. *See* PO Resp. 32–37; PO Sur-reply 13–14. Multimedia's arguments in these regards mischaracterize LG's proposed combination of Kim and Bae. LG does not seek to modify individual card objects, such as CHANNEL BROWSER card object 1340 or TV GUIDE card object 1350, to include Bae's channel number selection window 330 that contains numbers 0 to 9. Instead, LG seeks to modify Kim's card object area to include Bae's channel number selection window 330 that contains numbers 0 to 9. *See, e.g.,* Pet. 31 (arguing "Kim's card object area that displays either or both of a CHANNEL BROWSER card object [1340] and TV GUIDE card object [1350] teaches an on screen channel changer"); Pet. Reply 11 (arguing "the Petition does not seek to modify either card object. Instead, the Petition contemplates modifying Kim's 'card object area'" (emphasis omitted)). Although a subtle distinction, we find Multimedia's arguments inapposite because they are not responsive to LG's contentions.

We also do not agree with Multimedia's arguments that LG's proposed modification of Kim would result in an inoperable user interface. *See* PO Resp. 38–40; PO Sur-reply 16–17. As we explain above, Kim's display 180 contains a card object area that allows for the selection of broadcast channels and program listings contained within CHANNEL BROWSER card object 1340 and TV GUIDE card object 1350. Ex. 1005, Fig. 19. We fail to see how including Bae's channel number selection window 330 that contains numbers 0 to 9 within Kim's card object area would result in an inoperable user interface. Given that Kim contemplates using a remote control that employs input tools other than a keypad, such as another appropriate user input device, we find, as LG argues and supports with Dr. Lippman's declaration testimony (Pet. 24–25), that using Bae's channel number selection window 330 that contains numbers 0 to 9 to select broadcast channels and program listings contained within Kim's CHANNEL BROWSER card object 1340 and TV GUIDE card object 1350 would not have been uniquely challenging, or otherwise beyond the level of a person of ordinary skill in the art. *See Leapfrog Enters., Inc. v. Fisher-Price, Inc.*, 485 F.3d 1157, 1162 (Fed. Cir. 2007) (“Leapfrog presents no evidence that the inclusion of a reader in [electronic children's toys] was uniquely challenging or difficult to one of ordinary skill in the art.” (citing *KSR*, 550 U.S. at 419–420)). Neither Multimedia nor its declarant, Dr. Surati, present credible evidence to the contrary because they rely on conclusory assertions that lack evidentiary support. *See* PO Resp. 38–40; PO Sur-reply 16–17; Ex. 2008 ¶¶ 161–163.

b. Rationale to Combine and Reasonable Expectation of Success

In the Patent Owner Response, Multimedia contends that a person of ordinary skill in the art would not have combined the teachings of Kim with those of Bae to account for limitation [1.2]. PO Resp. 43. Multimedia argues that a person of ordinary skill in the art would have no reason to look to Bae because Kim already enables direct selection of broadcast channels or program listings that identify specific channels contained within Kim's CHANNEL BROWSER card object 1340 or TV GUIDE card object 1350. *Id.* at 47 (citing Ex. 2008 ¶ 180). Multimedia further argues that LG's rationale for combining the teachings of Kim with those of Bae that implicates "a remote control without a keypad" is without merit. *Id.* (citing Pet. 24; Ex. 1003 ¶ 82). According to Multimedia, because "Kim [already] discloses a remote control without a keypad," "there would be no reason to apply Bae." *Id.* (citing Ex. 1005 ¶¶ 167–181; Fig. 13; Ex. 2008 ¶ 181). In addition, Multimedia argues that LG's rationale to combine that "allows the user to switch channels on Kim's television [100] with different types of remote controls, including those without numeric keys," fares no better because a person of ordinary skill in the art would have readily understood that Kim's remote control could be operated with or without numeric keys. *Id.* at 47 (quoting Ex. 1003 ¶ 82) (citing Pet. 24; Ex. 1005 ¶¶ 113, 122, 150, 172–181, Figs. 13, 14; Ex. 2008 ¶ 182). Lastly, Multimedia contends that there would have been no reasonable expectation of success in combining the teachings of Kim with those of Bae "because [LG] and its [declarant] are incapable of explaining how the references are combined and how the combination works." *Id.* at 48.

In the Reply, LG contends that Multimedia's arguments presented in the Patent Owner Response support why a person of ordinary skill in the art would have combined the teachings of Kim with those of Bae to account for limitation [1.2]. Pet. Reply 18 (PO. Resp. 44–45). LG argues that Kim encourages a person of ordinary skill in the art “to consider a remote control with inputs other than numeric keys.” *Id.* (citing Ex. 1005 ¶ 175). LG argues that even Multimedia's declarant, Dr. Surati, recognized that “[i]t could be helpful” and “more efficient” to enter a channel number directly using a graphical number keypad as opposed to entering a channel number using a remote control with a numeric keypad. *Id.* at 18–19 (first quoting Ex. 1026, 63:2–5, then quoting Ex. 1026, 61:25–62:6). Relying on the testimony of its declarant, Dr. Lippman, LG assert that a person of ordinary skill in the art would have been motivated “to combine different channel selection techniques,” including using Bae's number input bar, “to input a specific channel number using Kim's remote control without numeric keys.” *Id.* at 19 (citing Ex. 1003 ¶ 81).

In the Sur-reply, Multimedia reiterates that Kim's “remote control without a keypad does not provide a motivation to refer to Bae's number input bar.” PO Sur-reply 18 (citing PO Resp. 47–48; Ex. 2008 ¶¶ 181, 182). According to Multimedia, Kim's design concept (or principle of operation) “provide[s] a user interface allowing the user to select graphical objects ***without having to select channel numbers*** using the remote control or the user interface on the television.” *Id.* (citing Ex. 1005 ¶¶ 167–171, 187, 192–212, 229, Figs. 13, 19, 22). Multimedia argues that a person of ordinary skill in the art “would not modify Kim's home screen [1300] to incorporate the . . . number input bar of Bae” because this modification would run

counter to Kim’s principle of operation. *Id.* at 18–19 (citing Ex. 2008 ¶¶ 161, 162). In addition, Multimedia argues that there is no reason for a person of ordinary skill in the art “to refer to Bae to allow a user to directly input channel numbers” because “Kim’s device is a set-top box and it was well understood that set-top boxes allowed a user to directly input a channel number.” *Id.* at 19 (citing PO Resp. 46–47; Pet. Reply 18; Ex. 2008 ¶¶ 175–180). Lastly, Multimedia asserts that there would not have been a reasonable expectation of success in combining the teachings of Kim with those of Bae because LG’s declarant, Dr. Lippman, only provides a “one-sentence conclusory assertion” regarding this topic, whereas Multimedia’s declarant, Dr. Surati, provides a detailed explanation as to why the proposed combination would not work for its intended purpose. *Id.* (citing Ex. 1003 ¶ 83; Ex. 2008 ¶¶ 160–164).

Based on the fully developed trial record, we find that LG presents sufficient rationales to combine the teachings of Kim with those of Bae to account for limitation [1.2] with a reasonable expectation of success in doing so. *See* Pet. 21–25; Pet. Reply 18–19. More specifically, as we explain above in our analysis of limitation [1.2], Bae discloses a channel selection technique that displays “the numbers 0 to 9 . . . in the channel number selection window 330” so “the user can input the corresponding number using the left and right keys” on user input unit 130. *See* Pet. 24 (quoting Ex. 1008 ¶ 23) (citing Ex. 1003 ¶ 80) (alteration in original). LG argues—and we agree—that a person of ordinary skill in the art would have been motivated to implement Bae’s channel number selection window 330 that contains number 0 to 9 (i.e., number input bar) in Kim’s card object area (i.e., on screen channel changer). *See id.* (citing Ex. 1003 ¶ 81). Notably,

Bae's channel selection technique enables certain functionality contemplated by Kim because Kim leaves open the possibility of using a remote control that employs input tools other than a keypad, such as "another appropriate user input device." Ex. 1005 ¶ 175. With this in mind, we agree with LG's assertion that, if a user in Kim employs "a remote control without a keypad, applying Bae's channel selection technique [would have] allow[ed] the user to identify a specific channel." Pet. 24 (citing Ex. 1003 ¶ 81).

In addition, LG's declarant, Dr. Lippman, provides testimony supporting LG's assertion that modifying Kim in this way would have been nothing more than combining familiar elements according to a known method to yield a predictable result. *See* Pet. 24–25; *KSR*, 550 U.S. at 416 ("The combination of familiar elements according to known methods is likely to be obvious when it does not more than yield predictable results.") Dr. Lippman testifies as follows:

[A]pplying Bae's known technique (e.g., a channel number selection window [330] or number input bar) to Kim's known system (e.g., television and remote control system), which was ready for improvement, would have yielded the predictable result of having an on screen channel changer that . . . includes a number input bar, so that the user can switch channels on Kim's television [100] by identifying a specific channel number without regard to the remote control inputs, including one without a keypad. Thus, this [proposed] combination allows the user to switch channels on Kim's television with different types of remote controls, including those without numeric keys.

Ex. 1003 ¶ 82. We credit Dr. Lippman's testimony on this particular issue because it is consistent with the disclosures of Kim and Bae that we identify above. *See* Ex. 1005 ¶ 175; Ex. 1008 ¶ 23.

Moreover, we agree with LG’s arguments, and we find that, there would have been a reasonable expectation of success in modifying Kim’s card object area to include Bae’s channel number selection window 330 that contains numbers 0 to 9. *See* Pet. 25. We credit Dr. Lippman’s testimony that modifying Kim in this way predictably uses Bae’s channel number selection window 330 that contains numbers 0 to 9 for its intended purpose of allowing a user to change channels on Kim’s TV 100. *See* Ex. 1003 ¶ 83. Stated differently, LG’s proposed combination merely uses the known channel selection technique from Bae and applies it in a manner actually contemplated by Kim—namely, by using a remote control that employs input tools other than a keypad, such as “another appropriate user input device.” Ex. 1005 ¶ 175.

We do not agree with Multimedia’s arguments that LG’s proposed combination of Kim and Bae would change’s Kim’s principle of operation, or otherwise render Kim inoperable for its intended purpose. *See* PO Resp. 46–48; PO Sur-reply 18–19. Multimedia arguments in this regard are predicated on the notion that Kim’s principle of operation only allows direct selection of the graphical objects identifying the broadcast channels or program listings within Kim’s CHANNEL BROWSER card object 1340 or TV GUIDE card object 1350. PO Resp. 47 (citing Ex. 2008 ¶ 180); *see also* PO Sur-reply 18 (arguing Kim’s design concept is to “provide a user interface allowing the user to select graphical objects ***without having to select channel numbers*** using the remote control or the user interface on the television” (citing Ex. 1005 ¶¶ 167–171, 187, 192–212, 229, Figs. 13, 19, 22)).

Kim, however, is not limited to direct selection of the graphical objects identifying the broadcast channels and program listings contained within card objects, without having to select channel numbers. LG specifically identifies the exemplary remote controller 200 illustrated in Kim's Figure 14 and explains how this remote controller may employ input tools "other than" a keypad. Pet. 24 (quoting Ex. 1005 ¶ 175, Fig. 14). As we explain above in our analysis of limitation [1.2], because Kim contemplates employing this remote control with input tools other than a keypad, such as another appropriate user input device, Bae serves a logical extension of Kim's teachings in this regard because Bae provides one example of yet another appropriate user input device in the form of channel number selection window 330 that contains numbers 0 to 9. *See supra* Section II.C.6.a.

c. Limitation [1.5.2]—"an application center button that . . . display[s] information regarding pre-installed and downloaded software applications"

In the Patent Owner Response, Multimedia maintains that the claim term "pre-installed software applications" should be construed as applications that "cannot be removed by the user or manually updated." PO Resp. 49 (quoting Ex. 1001, 24:18–21) (citing Ex. 2020, 42; Ex. 2008 ¶ 186). Based on this proposed construction, which, as we explain above in our claim construction analysis, LG does not dispute, Multimedia contends that LG's "shotgun approach" that identifies certain disclosures in Kim and the WD-Manual does not account for the "pre-installed software applications" required by limitation [1.5.2]. *Id.* at 49–50. More specifically, Multimedia directs us to LG's reliance on the software applications present

in application software layer 550 of the platform architecture illustrated in Kim's Figure 12 that includes both user-undeletable applications 565 and user-deletable applications 575. *Id.* at 55–56 (citing Ex. 1005 ¶ 163, Fig. 12; Ex. 2008 ¶¶ 204–206). According to Multimedia, a person of ordinary skill in the art would not have understood Kim's user-deletable and user-undeletable applications to teach or suggest the claimed “pre-installed and downloaded software applications,” nor does Kim teach or suggest that these applications are actually displayed on a television screen. *Id.* at 57 (citing Ex. 2008 ¶ 206). Multimedia also argues that Kim does not link application layer 550 of Figure 12 to the application list view of Figure 16 and, therefore, Kim does not teach or suggest that user-undeletable applications and user-deletable applications located in application layer 550 of Figure 12 are presented for display in the application list of Figure 16. *Id.* (citing Ex. 1005 ¶¶ 160–166, Fig. 12).

Multimedia also contends that LG's proposed combination of Kim and the WD-Manual does not teach the claimed “application center button” required by limitation [1.5.2]. PO Resp. 57–58. Multimedia argues that the WD-Manual's shortcut/function key D is programmed to “activate[] the dashboard menu”—not to activate the “Services” menu. *Id.* at 59 (quoting Ex. 1006, 26) (alteration in original). Multimedia recognizes that the WD-Manual discloses that its shortcut-function keys A, B, C, or D may be reprogrammed to perform other functions, but argues that LG and its declarant, Dr. Lippman, do not present an argument based on reprogramming shortcut/function key D to activate the “Services” menu. *Id.* at 60 (citing Pet. 69–74; Ex. 1003 ¶¶ 185–196; Ex. 2008 ¶ 212). To the extent LG makes such an argument, Multimedia asserts that LG's reasons

for modifying the WD-Manual to reprogram shortcut/function key D to activate the “Services” menu are both “generic and not tied to the proposed combination of embodiments alleged to meet . . . limitation [1.5.2].” *Id.*

In the Reply, LG contends that the combined teachings of Kim and the WD-Manual account for limitation [1.5.2] because the “WD-Manual teaches selecting a specific button on a remote control to cause the display of an application screen that includes information about software applications,” and “Kim teaches that it was known to use a remote control to display a screen showing information regarding pre-installed and downloaded software applications.” Pet. Reply 21; *see also id.* at 27 (arguing the same). More specifically, LG argues that the WD-Manual discloses that any one of shortcut/function keys A, B, C, or D may “be assigned to cause the display of the ‘Services’ menu,” which may include available services such as Netflix, YouTube, etc. *Id.* at 21–22 (citing Ex. 1006, 76–77, 138; Pet. 69–71); *see also id.* at 29–30 (arguing the same) (citing Ex. 1006, 138; Ex. 1026, 97:4–13). LG argues that Kim discloses that, when selecting a remote control button, a screen appears displaying a list of applications that includes user-deletable applications and user-undeletable applications stored in application layer 455 of Figure 11. *Id.* at 22–23 (citing Ex. 1005 ¶¶ 99, 157, 158; Ex. 1026, 57:7–15). LG asserts that Kim’s user-undeletable applications are “(i) not installed by the user, (ii) undeletable, and (iii) not modifiable” and, therefore, they teach the claimed “pre-installed software applications” that cannot be removed by the user or manually updated. *Id.* at 23 (citing Ex. 1005 ¶¶ 158, 163; Ex. 1026, 78:20–25, 86:13–87:23; Ex. 1003 ¶ 94).

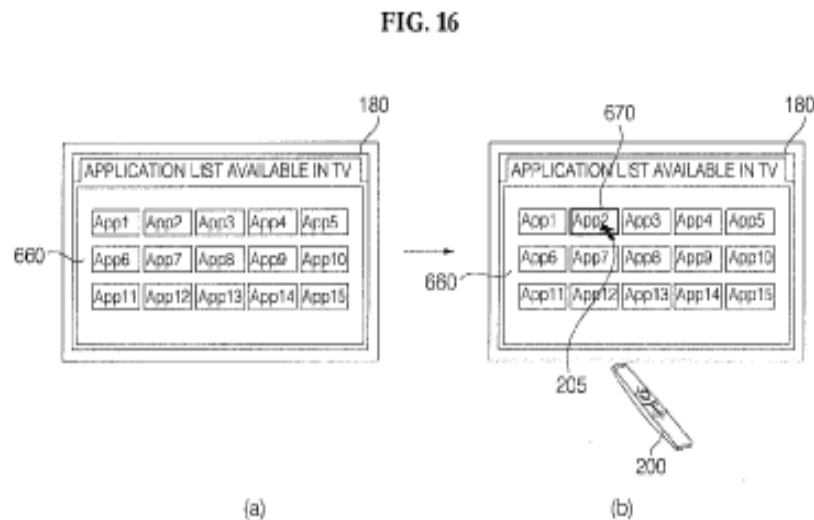
LG further contends that Multimedia's arguments directed to limitation [1.5.2] are misplaced for two reasons. First, contrary to Multimedia's arguments, LG asserts that it does not rely on the WD-Manual to teach the claimed "pre-installed or downloaded software applications," it turns to Kim for this teaching. Pet. Reply 24 (citing Pet. 71–74). Second, LG argues that Multimedia contradicts the evidence of record because the WD-Manual's "Services" are software applications running on a device, and, as evidenced by Multimedia's declarant, Dr. Surati, the "typical user case" includes obtaining these software applications from a service provider (e.g., obtaining YouTube from a YouTube service provider). *Id.* at 25–27 (quoting Ex. 1026, 49:5–13) (citing Ex. 1006, 76, 120–121, 124–126; Ex. 1026, 101:12–19, 106:16–20).

In the Sur-reply, Multimedia contends that, although Kim discloses user-undeletable applications stored in either application layer 450 or 550, Kim does "not teach the *display* of user-undeletable applications to the user." PO Sur-reply 20 (citing Ex. 1005 ¶ 158, Figs. 11, 12). Multimedia argues that LG never takes the position that the list of applications displayed in the image display apparatus of Kim's Figure 6 includes the user-undeletable applications stored in either application layer 455 of Kim's Figure 11 or application layer 550 of Kim's Figure 12. *Id.* (citing Ex. 1005 ¶¶ 99, 157, 158, Figs. 6, 11, 12; Pet. Reply 22–23). Next, Multimedia argues that, even if LG proposed combining these teachings of Kim, "the result still fails to teach a **pre-installed application**, meaning one that was installed before the user obtained the device" and "that cannot be manually updated." *Id.* at 21 (citing PO Resp. 53, 55–57; Ex. 2008 ¶¶ 194, 204–208). Lastly, Multimedia argues that LG's reliance in the Reply on the WD-

Manual's "Services" as software applications running on a device is an improper new theory of obviousness that was never presented in the Petition. *Id.* at 22. Nevertheless, Multimedia asserts that LG's argument in this regard still "fails on the merits" because the WD-Manual discloses that its "Services" are nothing more than available services accessed by a browser connected to a website, and LG has presented no evidence demonstrating how the WD-Manual actually downloads or updates these "Services." *Id.* at 22–23 (Ex. 1006, 76, 77, 160–164; Ex. 2008 ¶¶ 188–194, 196).

Based on the fully developed trial record, we agree with LG that the WD-Manual's disclosure of assigning any one of shortcut/function keys A, B, C, or D to the display the "Services" menu (e.g., assigning shortcut/function key D to display the "Services" menu), together with Kim's disclosure of displaying an applications list that includes user-deletable applications and user-undeletable applications, teaches limitation [1.5.2]. *See* Pet. 69–74; Pet. Reply 21–23, 25–30. Beginning with the WD-Manual, that document discloses that each of shortcut/function keys A, B, C, and D is customizable, thereby allowing a user to assign any one of these shortcut/function keys to display a specific type of content. Ex. 1006, 26, 138. As one example, the functions capable of being assigned to any one of these shortcut/function keys include "functions such as display mode, filter menu, Music, Video, *Services*, Setup, etc." *Id.* at 138 (emphasis added). The WD-Manual discloses that its "Services" menu may include software applications such as Netflix, YouTube, etc. *Id.* at 76–77. Based on these disclosures in the WD-Manual, we find that shortcut/function key D may be assigned to display a "Services" menu, which may include software applications such as Netflix, YouTube, etc.

Kim discloses several examples of displaying an applications list on display 180 where the applications are stored in the image display apparatus. Ex. 1005 ¶ 12, Fig. 6. As one example, Figures 16(a) and (b) of Kim, reproduce below, “illustrate[] an application[s] list displayed on the display 180 according to [one] embodiment. *Id.* ¶ 184.



Kim’s Figure 16(a) illustrates using remote controller 200 to select applications list 660, and Kim’s Figure 16(b) further illustrates using pointer 205 associated with remote controller 200 to select one application icon 670 from applications list 660. *Id.* Kim discloses that applications list 660 “may display icons representing both applications available over the network as well as applications available locally.” *Id.* ¶ 185.

Figures 11 and 12 of Kim (not shown here) each illustrate a platform architecture implemented in the image display apparatus. Ex. 1005 ¶ 144, Figs. 11, 12. The platform architecture in Kim’s Figure 11 includes, among other things, application layer 445 that includes “a variety of programs that are executed and displayed in the image display apparatus.” *Id.* ¶ 157. Kim discloses categorizing the applications stored in application layer 445 into

“user-undeletable applications 465 . . . that cannot be modified” and “user-deletable applications 475 [that] . . . may be downloaded from an external device or a network.” *Id.* ¶ 158. Similarly, the platform architecture in Kim’s Figure 12 includes, among other things, application layer 550 that includes a variety of legacy and other applications. *Id.* ¶ 162. Again, Kim discloses categorizing the applications stored in application layer 550 as “user-undeletable applications 565” and “user-deletable applications 575 that are downloaded from an external device or a network.” *Id.* ¶ 163. Based on these disclosures in Kim, we find persuasive LG’s showing (Pet. 69–74) that Kim teaches an image display apparatus where display 180 (1) displays an applications list that includes user-undeletable applications and user-deletable applications; and (2) allows a user to select an application icon from the applications list. We also agree that Kim teaches that its user-undeletable applications cannot be removed by a user or manually updated because they cannot be deleted nor modified.

That is, we find that LG’s proposed combination of Kim and WD-Manual teaches limitation [1.5.2]. More specifically, we find that the WD-Manual teaches the claimed “application center button that . . . displays information regarding” certain software applications because it teaches that shortcut/function key D may be assigned to display a “Services” menu, which may include software applications such as Netflix, YouTube, etc. We find that Kim teaches the claimed “pre-installed and downloaded software applications” capable of being displayed by the WD-Manual’s shortcut/function key D because Kim teaches displaying an applications list that includes user-undeletable applications and user-deletable applications. Consistent with the parties’ agreed upon construction of the claim term “pre-

installed software applications,” we find that Kim’s user-undeletable applications teaches this claim term because these types of applications cannot be deleted nor modified and, therefore, they cannot be removed by a user or manually updated.

We do not agree with Multimedia’s arguments that LG does not explain adequately how Kim’s user-undeletable applications and user-deletable applications are presented for display to the user. *See* PO Resp. 57; PO Sur-reply 20. As we explain above, LG relies on Kim’s Figures 16(a) and 16(b) to illustrate how applications list 660 is presented to the user via display 180 of the image display apparatus. *See* Pet. 72–73. Application layer 455 of Figure 11 or application layer 550 of Figure 12, both of which store the user-undeletable applications and user-deletable applications, are part of the platform architecture implemented in the image display apparatus. Ex. 1005 ¶ 144, Figs. 11, 12. Given that Kim’s corresponding descriptions of Figures 11, 12, 16(a), and 16(b) all implicate what is stored in, and displayed on, image display apparatus, it is our view that these disclosures at least suggest that Kim’s image display apparatus formulates and presents applications list 660 to user as shown in Kim’s Figures 16(a) and 16(b) by drawing from the user-undeletable applications and user-deletable applications stored in application layer 455 of Figure 11 or application layer 550 of Figure 12. *See, e.g.*, Ex. 1005 ¶¶ 164 (“Based on the afore-described platforms illustrated in FIGS. 11 and 12, a variety of Application Programming Interfaces (APIs) and Software Development Kits (SDKs) necessary to develop applications may be opened.”), 184 (“Referring to FIG 16(a), . . . a list of applications 660 stored in the image display apparatus may be displayed on the display 180.”).

We also do not agree with Multimedia's arguments that LG and its declarant, Dr. Lippman, failed to present an argument based on reprogramming the WD-Manual's shortcut/function key D to activate the "Services" menu that includes software applications running on a device, such as Netflix, YouTube, etc. *See* PO Resp. 60; PO Sur-reply 22–23. This is precisely the argument presented by LG in the Petition and the Reply. Indeed, LG specifically annotates a figure illustrating the WD-Manual's remote control to highlight that shortcut/function key D teaches the claimed "application center button." Pet. 71. LG also explains how the function associated with each of shortcut/function keys A, B, C, or D may be changed to display information about the "Services" menu. *Id.* at 69–70 (citing Ex. 1006, 28, 76–77, 138). Finally, relying on the testimony of its declarant, Dr. Lippman, LG explains how the WD-Manual's "Service" menu displays available software applications, such as Netflix, YouTube, etc. *Id.* at 70–71 (citing Ex. 1006, 76–77; Ex. 1003 ¶¶ 187, 188). LG reiterates essentially the same arguments and evidence in the Reply. *See* Pet. Reply 25–26. Therefore, contrary to Multimedia's arguments, at no point does LG present an improper new theory of obviousness, but rather LG relies on the same arguments and evidence throughout the Petition and the Reply.

d. Limitation [1.5.3]—“an application panel button that . . . displays . . . an application panel . . . compris[ing] an information panel regarding a selected (pre-installed or previously-downloaded) application icon”

In the Patent Owner Response, Multimedia contends that, for the same reasons it identifies with respect to limitation [1.5.2], LG's proposed combination of Kim and WD-Manual does not teach “the display of information regarding the pre-installed and downloaded software

applications,” as required by limitation [1.5.3]. PO Resp. 61–62 (citing Ex. 2008 ¶ 218). In addition, Multimedia argues that Kim’s “Options” button does not teach the claimed “application panel button” because the “Options button does not invoke the Services” menu in the WD system,” but rather pressing the “Options” button results in “provid[ing] ‘playback options’ and ‘more service options.’” *Id.* at 63–64 (quoting Ex. 1006, 25). According to Multimedia, the WD-Manual’s “Services” menu serves as the basis of LG’s obviousness theory and this menu is accessible only by using the “OK” button—not by using the “Options” button. *Id.* (citing Ex. 1006, 25, 76–77). As a result, Multimedia asserts that LG’s position that the WD-Manual’s “Options” button teaches the claimed “application panel button” “is contradicted by the [WD-Manual].” *Id.* at 64–65. Multimedia also disagrees with LG’s reliance on the WD-Manual’s “Options” button to demonstrate adding an Internet service, such as Facebook, to a favorite list because this does “**not . . . provide information about the selected software application icon,**” as required by limitation [1.5.3]. *Id.* at 65 (citing Pet. 80–81, Ex. 1003 ¶ 218; Ex. 1006, 28, 77).

In the Reply, LG contends that, for the same reasons it identifies above with respect to limitation [1.5.2], “Kim teaches a user interface that displays pre-installed and downloaded applications.” Pet. Reply 31 (citing Pet. 86–88; Ex. 1003 ¶¶ 233–236). LG then argues that Kim’s “OK” button teaches the claimed “application panel button” because, when using this button to select an application icon, it results in displaying an application panel with an information window that contains information about the selected application icon. *Id.* at 32–33 (citing Pet. 86, 89; Ex. 1005 ¶¶ 187, 247). Alternatively, LG argues that the WD-Manual’s “Options” button also

teaches the claimed “application panel button” because, when pressed, it results in the displaying an application panel with an information window regarding a selected service, such as Flickr home. *Id.* at 33–34 (citing Ex. 1006, 91; Ex. 1003 ¶ 229). LG also argues that the WD-Manual contemplates using the “Option” button to highlight an icon representative of a service it would like to add to its favorites menu and then using the “Ok” button to make the selected service a favorite. *Id.* at 34–36 (citing Ex. 1006, 57, 77; Ex. 1003 ¶¶ 218, 219).

In the Sur-reply, Multimedia disagrees with LG that selecting the WD-Manual’s “Options” button when in the Flickr menu results in rendering a display that “identifies the selected application.” PO Sur-reply 24–25 (quoting Pet. 33–34). In this particular example, Multimedia argues that selecting the WD-Manual’s “Options” button causes the device to display “Flickr home page options,” which include “‘Last 7 Days Interesting,’ ‘Most recent uploads,’ ‘Hot Tags,’ ‘My Contacts,’ and ‘My Tags.’” *Id.* (first quoting Ex. 1006, 86, then quoting Ex. 1006, 91). According to Multimedia these options “refer to photo files, not software ‘*application[s]*’” as required by limitation [1.5.3]. *Id.* at 25 (emphasis omitted) (citing Ex. 2008 ¶¶ 192–196, 222). Lastly, Multimedia disagrees with LG’s argument direct to using the WD-Manual’s “Options” button “to designate a service or a file as a favorite” because it does not result in “display[ing] information about a selected application icon.” *Id.* (emphasis omitted).

Based on the fully developed trial record, we agree with LG, and we find, that the WD-Manual’s disclosure of navigating to the “Service” menu using the shortcut/function key D, highlighting an available service, and then

using the “Options” button to select a specific service, together with Kim’s disclosure of a user selecting a specific application from an applications list that includes user-deletable applications and user-undeletable applications, teaches limitation [1.5.3.]. *See* Pet. 77–90; Pet. Reply 31–37. As we explain above in our analysis of limitation [1.5.2], the WD-Manual discloses using any one of shortcut/function keys A, B, C, or D to navigate to a “Services” menu that includes software applications, such as Netflix, YouTube, etc. Ex. 1006, 26, 76–77, 138. Within the “Services” screen itself, the WD-Manual discloses highlighting a service and then pressing the “Options” button to select that service. *Id.* at 77. The WD-Manual explains that, by using the “Options” button in this way, it presents more services options regarding the selected service. *See, e.g., id.* at 25 (stating that, “[f]rom an online media content screen, press [the ‘Options’ button] to display more service options”), 57 (disclosing an example where, “[i]n the main photo screen, press[ing] Options [button]” results in “[t]he Photos menus options display” (emphasis omitted)). Based on these disclosures in the WD-Manual, we find that using the “Options” button to select a specific service results in displaying an application panel that includes a separate information panel regarding the selected service.

As we explain above in our analysis of limitation [1.5.2], we find that Kim and, in particular, Figures 16(a) and 16(b) illustrate an image display apparatus where display 180 (1) displays an applications list that includes user-undeletable applications and user-deletable applications; and (2) allows a user to select an application icon from the applications list. We also find that Kim teaches that its user-undeletable applications cannot be removed by

a user or manually updated because they cannot be deleted nor modified.

See Supra Section II.C.6.c.

With all this in mind, we find that LG’s proposed combination of Kim and WD-Manual teaches limitation [1.5.3]. More specifically, we find that the WD-Manual teaches the claimed “application panel button that . . . displays . . . an application panel . . . compris[ing] an information panel” regarding a selected application icon because the WD-Manual teaches that pressing the “Options” button results in displaying an application panel that includes a separate information panel regarding a selected service. We find that Kim teaches the claimed “pre-installed and downloaded software applications” capable of being selected using the WD-Manual’s “Options” button because Kim allows for the selection of an application icon from an applications list that include user-undeletable applications and user-deletable applications. Once again, consistent with the parties’ agreed upon construction of the claim term “pre-installed software applications,” we find that Kim’s user-undeletable applications teaches this claim term because

these types of applications cannot be deleted nor modified and, therefore, they cannot be removed by a user or manually updated.⁸

We do not agree with Multimedia's arguments that selecting the WD-Manual's "Options" button when in the Flickr menu would not result in displaying "an information panel regarding a selected . . . application icon," as required by limitation [1.5.3]. *See* PO Sur-reply 24–25. Multimedia readily acknowledges that selecting the WD-Manual's "Options" button causes the device to display "Flickr home page" options, which includes options such as "Last 7 Days Interesting," "Most recent uploads," "Hot Tags," "My contacts," and "My Tags." Ex. 1006, 91. Although these options all refer to photo files associated with Flickr, this is all that is required to teach displaying "an information panel regarding a selected . . . application icon," as required by limitation [1.5.3]. Stated differently, with respect to Kim's example of the Flickr menu, selecting the WD-Manual's "Options" button results in displaying an information panel that provides additional information regarding Flickr. In our view, we find this is

⁸ LG presents an alternative argument that Kim's Figure 25 displays numerous applications that are available in an app store, and the selection of the "My App" menu item within this display would result in displaying a list of the user's applications stored on the image display apparatus. Pet. 87–88 (citing Ex. 1005, Fig. 25; Ex. 1003 ¶¶ 233–235); *see also* Pet. Reply 31–32 (arguing the same). We need not address LG's alternative argument because, as we explain above in our analysis of limitation [1.5.3], we find that Kim's Figures 16(a) and 16(b) illustrate an image display apparatus where display 180 (1) displays an applications list that includes user-undeletable applications and user-deletable applications; and (2) allows a user to select an application icon from the applications list.

sufficient to teach the relevant aspects of limitation [1.5.3] and nothing more is required.

e. Summary

In summary, LG has demonstrated by a preponderance of the evidence that the subject matter of independent claims 1, 8, and 14 would have been obvious over the combined teachings of Kim, WD-Manual, and Bae.

7. Claims 2–4, 9, 10, 13, and 15–17

As one example, claim 2 depends from independent claim 1, and further recites “wherein the EPG information corresponds to multiple programs and/or channels, wherein the EPG information comprises, for each program, airtime, program name, program channel, and program description.” Ex. 1001, 40:3–6. Claim 15 recites the same limitation, but it depends from independent claim 14. *Id.* at 43:1–5.

LG contends that Kim teaches this additional limitation of dependent claim 2 because its EPG information corresponds to multiple programs and channels. Pet. 104–105 (citing Ex. 1005, Fig. 22; Ex. 1003 ¶ 265). LG argues that a “user may readily obtain information regarding the displayed broadcast image 1315 through the information object 1321,” and “information object 1321 . . . may include a channel number (DTV7-1), a channel name (YBC HD), the title of a broadcast program (‘Oh! Lady’), and an airtime (8:00-8:50 PM) for the broadcast program.” *Id.* at 105 (quoting Ex. 1005 ¶ 199). Relying on the testimony of Dr. Lippman, LG asserts that a person of ordinary skill in the art would have found it obvious that the aforementioned information could be readily obtained “for the channels and programs presented in [Kim’s CHANNEL BROWSER card object 1340 and

TV GUIDE card object 1350] to better inform the user when selecting a channel or program for viewing.” *Id.* at 105–106 (citing Ex. 1003 ¶ 267). LG contends that the same arguments and evidence it provides to explain how the combined teachings of Kim, WD-Manual, and Bae account for the limitation of dependent claim 2 equally applies to the limitation of dependent claim 15. *Id.* at 118.

As another example, claim 3 depends from independent claim 1, and further recites:

[3.1] wherein each of the digits are selected using one or more arrow keys and a select button and [3.2] wherein the information panel comprises one or more of identify the selected application, provide a description of the functionality of the selected application, user ratings and/or degree of other user downloading of the selected application, an option to launch, remove, update, and add to favorites the selected application, and provide a listing of selectable links of other (not yet downloaded) recommended applications that provide similar functionality to the selected application.

Ex. 1001, 40:7–16 (with bracketed annotations provided by LG in the Petition). With one exception, claims 9 recites the same limitations, but it depends from independent claim 8. *Id.* at 41:48–59. The unique limitation of dependent claim 9 recites “selected is associated with a pre-installed or previously downloaded application icon.” *Id.* at 41:50–51. To account for this unique limitation required by dependent claim 9, LG relies on the same arguments and evidence it presents with respect to limitations [1.5.2] and [1.5.3]. Pet. 115.

Beginning with limitation [3.1], LG contends that, for the same reasons it identifies above with respect to limitation [1.3], the combined teachings of Kim and Bae account for “selecting digits using one or more

‘arrow keys’ or ‘left and right keys.’” Pet. 106. LG also argues that Kim’s “OK key” amounts to the claimed “select button” because this is consistent with the disclosure in the specification of the ’254 patent that an “OK” button is a “select” button. *Id.* (citing Ex. 1005 ¶ 87; Ex. 1001, 22:56–23:67). Relying on the testimony of Dr. Lippman, LG asserts that a person of ordinary skill in the art would have found it obvious to use Kim’s remote controller that includes both arrow keys and an OK button to navigate and select the digits displayed on Bae’s channel number selection window 330 that contains numbers 0 to 9 (i.e., number input bar). *Id.* (citing Ex. 1003 ¶ 275). Alternatively, LG contends that the combined teachings of Kim, WD-Manual, and Bae account for limitation [3.1] because, similar to Kim, the WD-Manual discloses a remote control with arrow keys and an “OK” button to navigate the user interface of a television. *Id.* at 107–108 (citing Ex. 1006, 11; Ex. 1003 ¶ 277). LG, therefore, asserts that the proposed combination of Kim, WD-Manual, and Bae teaches limitation [3.1] because Kim discloses controlling a television using a remote controller with arrow keys and an OK button, Bae discloses a channel selection technique where a user selects digits 0–9 from channel number selection window 330 using left and right arrows, and, similar to Kim, the WD-Manual discloses using a remote control with arrow keys and an OK button. *Id.* at 108 (citing Ex. 1003 ¶¶ 270–279).

Turning to limitation [3.2], LG contends that, because this limitation recites “one or more,” this limitation is met by teaching at least one item in the list. Pet. 109. More specifically, LG contends that the combined teachings of Kim and WD-Manual account for both the claimed “identify the selected application” and the claimed “provide a description of the

functionality of the selected application.” *Id.* LG then argues that, for the same reasons it identifies above with respect to limitation [1.5.3], Kim discloses an information panel that displays an image that identifies an application and “information about the application corresponding to the selected icon.” *Id.* (quoting Ex. 1005 ¶ 247). LG further argues that the WD-Manual discloses that, when pressing the “Options” button, the information panel displays information about the selected application or service. LG asserts that these disclosures of Kim and the WD-Manual collectively teach limitation [3.2]. *Id.* (citing Ex. 1003 ¶¶ 280–289).

During trial, Multimedia does not address separately LG’s arguments and supporting evidence as to how the combined teachings of Kim, WD-Manual, and Bae account for the additional limitation of dependents claims 2–4, 9, 10, 13, and 15–17. *See* PO Resp. 70. We have reviewed LG’s arguments and supporting evidence explaining how the combined teachings of Kim, WD-Manual, and Bae account for the additional limitation of these dependent claims, and we agree with and adopt LG’s analysis. *See* Pet. 104–111, 115–116, 118–119. Accordingly, LG has demonstrated by a preponderance of the evidence that the subject matter of dependent claims 2–4, 9, 10, 13, and 15–17 would have been obvious over the combined teachings of Kim, WD-Manual, and Bae.

*D. Obviousness Over the Combined Teachings
Kim, WD-Manual, Bae, and Coburn*

LG contends that claims 6, 12, and 19 of the ’254 patent are unpatentable under 35 U.S.C. § 103(a) as obvious over the combined teachings of Kim, WD-Manual, Bae, and Coburn. Pet. 119–131. LG contends that the combined teachings of Kim, WD-Manual, Bae, and

Coburn 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 submits the Declaration of Dr. Lippman to support its positions. *See* Ex. 1003.

During trial, Multimedia contends that the combined teachings of Kim, WD-Manual, Bae, and Coburn fail to account for certain features required by limitation [6.1], and a person of ordinary skill in the art would not have been able to combine the teachings Kim, WD-Manual, Bae, and Coburn in the manner proposed by LG. PO Resp. 70–72; PO Sur-Reply 25–26. Multimedia submits the Declaration of Dr. Surati to support its positions. *See* Ex. 2008.

Based on the fully developed trial record, we determine that LG has shown by a preponderance of the evidence that claims 6, 12, and 19 of the ’254 patent are unpatentable as obvious over the combined teachings of Kim, WD-Manual, Bae, and Coburn. We begin our analysis with an overview of Coburn, and then we address the parties’ contentions with respect to the challenged claims.

1. Overview of Coburn

Coburn generally relates to “user interfaces in television receiver devices” and, in particular, to “providing graphical adjustment and control of numeric, alphanumeric and/or other symbol-based features provided by a television receiver device.” Ex. 1009 ¶ 1. More specifically, Coburn discloses that, “[a]s the viewer enters the first few digits of the channel number,” the television display “may be updated as appropriate to present channels (or other objects) that correspond to the initially-entered data.” *Id.* ¶ 46. Coburn also discloses a user controlling and moving a “cursor” using

“input devices,” such as “joysticks,” to select “numeric, alpha-numeric or other symbol[s]” on the television display. *Id.* ¶¶ 16, 17, 25.

2. Claims 6, 12, and 19

Claim 6 depends from independent claim 1, and further recites “[6.1] wherein, as the user selects each digit, the application framework updates the EPG information to include only those programs and/or channels selectable from the selected digits and [6.2] wherein the remote control further comprises a moveable joystick that, when manipulated by the user, causes a displayed image on the screen to be displaced a proportional amount.” Ex. 1001, 40:39–45 (with bracketed annotations provided by LG in the Petition). Claims 12 and 19 recite essentially the same limitations, but they depend from independent claims 8 and 14, respectively. *Id.* at 42:14–20, 44:17–24.

LG contends that the combined teachings of Kim, Bae, and Coburn account for limitation [6.1] because Kim’s controller 170 employs an application framework that updates EPG information based on user interaction, Bae discloses updating selectable channel information as the user selects each sequential digit, and Coburn discloses a technique that predictably narrows the channel identifiers displayed based on the user selecting numbers sequentially. Pet. 123–127 (citing Ex. 1005 ¶¶ 267, 269; Ex. 1008, code (57), ¶ 7, Fig. 3; Ex. 1009 ¶ 46, Fig. 4; Ex. 1003 ¶¶ 362–370). LG then contends that the combined teachings of Kim and Coburn account for limitation [6.2] because Kim’s remote controller 200 may include any “appropriate user input device,” and Coburn discloses moving a cursor on a television display relative to the movement of a two-dimensional input device, such as a joystick. *Id.* at 127–130 (quoting Ex. 1005 ¶ 175)

(citing Ex. 1009 ¶¶ 16, 20 25, 55, Fig. 3; Ex. 1017 ¶¶ 28, 33, 47, 48, Fig. 5; Ex. 1018, 1083; Ex. 1001, 25:63–26:24; Ex. 1003 ¶¶ 371–383).

Turning to rationale to combine, LG contends that a person of ordinary skill in the art would have been motivated to apply Coburn’s technique that predictably narrows the channel identifiers displayed based on the user selecting numbers sequentially to the combination of Kim, WD-Manual, and Bae. Pet. 120–121 (citing Ex. 1003 ¶ 353). LG argues that applying Coburn to the combination of Kim, WD-Manual, and Bae in this way “would improve the Kim-Bae on screen channel changer (e.g., which includes virtual numeric characters displayed on the screen) because Coburn enables the user input to ‘be processed in a predictive manner.’” *Id.* at 121 (quoting Ex. 1009 ¶ 46) (citing Ex. 1003 ¶ 356). According to LG, combining Coburn’s relevant teachings with those of Kim and Bae “would yield the predictable result of providing an easy and intuitive interface that allows a user to drill down to the media content (e.g., [EPG] content) that is available and selectable as the user enters each digit of the channel number.” *Id.* at 121–122 (citing Ex. 1003 ¶ 356). LG asserts that there would have been a reasonable expectation of success in making this proposed combination “because it would have been simply combining a known technique for filtering displayed content based on user input, where each of Kim and Bae already describes updating the displayed content in response to user input.” *Id.* at 122 (citing Ex. 1003 ¶ 357).

In addition, LG contends that, because Kim already discloses various ways of generating user input, including by “manipulation of . . . pointer 205,” it would have been obvious to implement Coburn’s joystick in the combination of Kim, WD-Manual, and Bae. Pet. 122 (quoting Ex. 1005

¶ 223) (citing Ex. 1005 ¶ 187). LG argues that using Coburn’s joystick to control Kim’s pointer or cursor 205 on TV 100 would result in the following:

(i) [it would] have yielded the predictable result of allowing Kim’s pointer [205] to be controlled via joystick; (ii) [it would] have the added benefit of improving the usability of a remote control without a numeric keypad; and (iii) [there would have been] a reasonable expectation of success because it would have been simply combining a known technique (e.g., moving a joystick to displace a cursor) with a known system that already accounts for different input device types for moving a cursor.

Id. (citing Ex. 1003 ¶¶ 350–360).

During trial, Multimedia contends that the combined teachings of Kim, WD-Manual, Bae, and Coburn fail to account for certain features of limitation [6.1], and a person of ordinary skill in the art would not have been able to combine the teachings Kim, WD-Manual, Bae, and Coburn in the manner proposed by LG. PO Resp. 70–72; PO Sur-reply 25–26.

We address Multimedia’s arguments in turn.

a. Limitation [6.1]—“updat[ing] the EPG information”

In the Patent Owner Response, Multimedia contends that LG relies on Kim’s broadcast channels and program listings contained within CHANNEL BROWSER card object 1340 and TV GUIDE card object 1350 to teach the “electronic program guide (EPG) information” required by limitation [1.2]. PO Resp. 70–71 (citing Ex. 2008 ¶ 239). Multimedia argues that, because this feature of limitation [6.1] requires “*updat[ing] the EPG information*,” Kim’s broadcast channels and program listings contained within CHANNEL BROWSER card object 1340 and TV GUIDE card object 1350 must be updated to meet this limitation. *Id.* at 71 (alteration in original).

Multimedia, however, argues that neither LG nor its declarant, Dr. Lippman, explain how Kim’s broadcast channels and program listings contained within CHANNEL BROWSER card object 1340 and TV GUIDE card object 1350 would be updated in the proposed combination of Kim, WD-Manual, Bae, and Coburn. *Id.*; *see also id.* (arguing “these card objects are not filtered or searched using user-input digits” (citing Ex. 2008 ¶¶ 240, 241)). Instead, LG improperly relies on Coburn’s updating of channel indicator window 126, as reflected by HBO-1, HBO-2, CNBC, and FOX, to teach “updat[ing] the EPG information” required by limitation [6.1]. *Id.* (citing Pet. 124–125; Ex. 2008 ¶ 239) (alteration in original).

In the Reply, LG contends that Multimedia’s arguments that the combined teachings of Kim, WD-Manual, Bae, and Coburn do not account for “updat[ing] the EPG information” required by limitation [6.1] are based on “an improper bodily incorporation analysis.” Pet. Reply 41. According to LG, Kim’s image display apparatus “display[s] television content and includes a card object area with card objects to facilitate channel changing,” “Bae improves Kim by displaying a number input bar that, as the user sequentially enters each digit for a channel, updates the displayed list of channels to correspond to the currently entered digits,” and Coburn enhances the aforementioned features of Kim and Bae “by further teaching dynamically changing channel imagery to match channel digits entered by the user.” *Id.* (citing Ex. 1005 ¶¶ 92, 93, 95; Ex. 1008, code (57), ¶ 7; Ex. 1009 ¶ 46).

In the Sur-reply, Multimedia reiterates its argument that LG does not explain how Kim’s broadcast channels and program listings contained within CHANNEL BROWSER card object 1340 and TV GUIDE card

object 1350 “would be updated based on a user entering digits.” PO Sur-reply 26 (citing PO Resp. 70). Instead, Multimedia argues that LG improperly relies on Coburn’s updating of channel indicator window 126 to teach “updat[ing] the EPG information” required by limitation [6.1]. *Id.* (citing Pet. Reply 14; PO Resp. 71; Ex. 2008 ¶ 241). Multimedia also argues that LG’s bodily incorporation argument is “misplaced” because it was LG who relies on Kim’s broadcast channels and program listings contained within CHANNEL BROWSER card object 1340 and TV GUIDE card object 1350 to teach the “EPG information” of limitation [1.2], and LG has not explained how Kim’s broadcast channels and program listings would be updated to meet this feature of limitation [6.1]. *Id.*

Based on the fully developed trial record, we agree with LG that Kim’s broadcast channels and program listings contained within CHANNEL BROWSER card object 1340 and TV GUIDE card object 1350 teach the claimed “EPG information” required by limitation [6.1]. Pet. 123, 126–127. As we explain above with respect to limitation [1.2], Kim teaches displaying the claimed “on screen channel changer” that includes this “EPG information” because display 180 contains a card object area that allows for the selection of broadcast channels and program listings contained within CHANNEL BROWSER card object 1340 and TV GUIDE card object 1350. *See supra* Section II.C.6.a. With this in mind, by using Bae’s channel number selection window 330 that contains numbers 0 to 9 (Ex. 1008 ¶ 23, Fig. 3), together with Coburn’s technique that predictably narrows the channel identifiers displayed based on the user selecting numbers sequentially (Ex. 1009 ¶ 46), a user of the combined Kim, Bae, and Coburn system would be able to update Kim’s broadcast channels and programming

listing contained within CHANNEL BROWSER card object 1340 and TV GUIDE card object 1350. Put simply, a user of the combined Kim, Bae, and Coburn system would be able to “update[] electronic program guide information based on [these] user interactions” and, therefore, teaches updat[ing] the EPG information” required by limitation [6.1]. Pet. 123–127, Pet. Reply 41.

We do not agree with Multimedia’s argument that neither LG nor its declarant, Dr. Lippman, explain how Kim’s broadcast channels and program listings contained within CHANNEL BROWSER card object 1340 and TV GUIDE card object 1350 would be updated in the proposed combination of Kim, WD-Manual, Bae, and Coburn. *See* PO Resp. 71. Multimedia’s argument in this regard takes a myopic view of the Petition. At no point throughout the Petition does LG deviate from its position that Kim’s broadcast channels and program listings contained within CHANNEL BROWSER card object 1340 and TV GUIDE card object 1350 teach the claimed “EPG information.” *See* Pet. 37. Although LG does not repeat this position in its arguments and evidence for limitation [6.1], it nevertheless cross references its discussion of limitation [1.2], which includes LG’s assertion that that Kim’s broadcast channels and program listings contained within CHANNEL BROWSER card object 1340 and TV GUIDE card object 1350 teach the claimed “EPG information.” *See id.* at 123 (arguing that “[a]s discussed in [1.2]”).

We also do not agree with Multimedia’s argument that Kim’s broadcast channels and program listings contained within CHANNEL BROWSER card object 1340 and TV GUIDE card object 1350 are incapable of being filtered or searched using input digits. *See* PO Resp. 71. Kim

discloses that the broadcast channels contained within CHANNEL BROWSER card object 1340 “may be readily identified” (Ex. 1005 ¶ 205) and they are capable of selection (*id.* ¶ 206). Similarly, Kim discloses that the program listings contained within TV GUIDE card object 1350 are capable of selection. *Id.* ¶ 207. Kim, however, does not limit how a user selects these broadcast channels and programming listings. Instead, as we explain above, Kim contemplates using a remote control that employs input tools other than a keypad, such as “another appropriate user input device.” Ex. 1005 ¶ 175. In our view, this undermines Multimedia’s assertion that Kim’s broadcast channels and programming listings are incapable of being filtered or searched using input digits.

b. Rationale to Combine

In the Patent Owner Response, Multimedia contends that LG and its declarant, Dr. Lippman, “provide[] no reasoning as to how [Kim, WD-Manual, Bae, and Coburn] would be combined and how that combination would work to meet limitation [6.1].” PO Resp. 71 (citing Ex. 1003 ¶ 370). Multimedia argues that LG’s reliance on the Search Window illustrated in Figure 38 of Kim is “misplaced” because “[t]his Search Window is not an on screen channel changer,” “Kim does not disclose that [the Search Window] can change channels,” and “this Search Window is a different embodiment” than the embodiment that implicates Kim’s broadcast channels and program listings contained within CHANNEL BROWSER card object 1340 and TV GUIDE card object 1350 that was relied upon LG and Dr. Lippman to teach the “EPG information” required by limitation [1.2]. *Id.* at 72 (citing Ex. 1005 ¶¶ 265–275, Figs. 36–41; Ex. 2008 ¶ 237).

In the Reply, LG contends that a person of ordinary skill in the art would have found it obvious “to use Coburn’s technique of displaying channels that match the digits input by the user in the Kim-Bae combination.” Pet. Reply 40. According to LG, “Coburn’s technique marries the known methodologies described in Kim (updating the EPG when the user performs a search) and Bae (updating the list of channels as the user enters each digit of a desired channel).” *Id.* (citing Ex. 1003 ¶¶ 354, 355). LG asserts that the proposed combination of Kim, Bae, and Coburn results in “provid[ing] an application framework that displays an on screen channel changer with a number input bar that receives individual digits entered by a user and processes those user-entered digits ‘in a predictive manner’ to update the displayed imagery that presents ‘channels (or other objects) that correspond to the initially-entered data.’” *Id.* (quoting Ex. 1009 ¶ 46) (citing Pet. 121–122; Ex. 1003 ¶ 356).

In the Sur-reply, Multimedia reiterates that LG relies on the Search Window illustrated in Kim’s Figure 38 in its arguments and evidence for dependent claim 6. PO Sur-reply 25. Multimedia, however, argues that LG’s arguments and evidence for independent claim 1 are based on Kim’s broadcast channels and program listings contained within CHANNEL BROWSER card object 1340 and TV GUIDE card object 1350, as illustrated in Kim’s Figures 19 and 22. *Id.* (citing Pet. 23, 91–92). According to Multimedia, “[LG’s] shifting theory of obviousness fails to establish” that dependent claim 6 is unpatentable. *Id.* (citing PO Resp. 72; Ex. 2008 ¶ 237).

Based on the fully developed trial record, we find LG presents a sufficient rationale to combine the teachings of Kim with those of Bae and

Coburn to account for limitation [6.1]. *See* Pet. 120–122; Pet. Reply 38–41. More specifically, LG argues—and we agree—that applying Coburn to the relevant teachings of Kim and Bae “would improve the Kim-Bae on screen channel changer (e.g., which includes virtual numeric characters displayed on the screen) because Coburn enables the user input to ‘be processed in a predictive manner.’” Pet. 121 (quoting Ex. 1009 ¶ 46). We also agree with LG’s assertion that combining Coburn’s technique that predictably narrows the channel identifiers displayed based on the user selecting numbers sequentially, with Kim’s modified card object area that includes Bae’s channel number selection window 330 that contains numbers 0 to 9, “would yield the predictable result of providing an easy and intuitive interface that allows a user to drill down to the media content (e.g., [EPG] content) that is available and selectable as the user enters each digit of the channel number.” *Id.* at 121–122; *see also* Pet. Reply 40 (arguing the same). Because LG’s declarant, Dr. Lippman, provides testimony in support of LG’s rationale to combine that is consistent with the relevant teachings of Kim, Bae, and Coburn, we credit his testimony. *See* Ex. 1003 ¶¶ 354–356.

We do not agree with Multimedia that LG’s reliance on the Search Window illustrated in Kim’s Figure 38 amounts to an improper new theory of obviousness. *See* PO Resp. 72; PO Sur-reply 25. Contrary to Multimedia’s assertions, LG does not rely on the Search Window illustrated in Kim’s Figure 38 to teach the claimed “on screen channel changer,” nor does LG rely on this Search Window as a means to change channels in its proposed combination of Kim, Bae, and Coburn. Instead, we understand LG to rely on the Search Window illustrated in Kim’s Figure 38 as one way by which Kim updates the EPG information when the user performs a search.

See Pet. 123 (citing Ex. 1005 ¶¶ 267, 269). LG argues—and we agree—that, because Kim already provides functionality that updates the EPG information when the user performs a search, it would not require a leap of logic to incorporate Bae’s channel number selection window 330 that contains numbers 0 to 9, together with Coburn’s technique that predictably narrows the channel identifiers displayed based on the user selecting numbers sequentially, into Kim. *See id.* at 123–126. LG merely reiterates this position in the Reply and, therefore, does not shift its obviousness theory with respect to dependent claim 6. *See* Pet. Reply 38–41.

c. Summary

In summary, LG has demonstrated by a preponderance of the evidence that the subject matter of dependent claims 6, 12, and 19 would have been obvious over the combined teachings of Kim, WD-Manual, Bae, and Coburn.

III. CONCLUSIONS⁹

Based on the fully developed trial record, LG has demonstrated by a preponderance of the evidence that claims 1–4, 6, 8–10, 12–17, and 19 of the

⁹ Should Multimedia wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this decision, we draw Multimedia’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. 16,654 (Apr. 22, 2019). If Multimedia chooses to file a reissue application or a request for reexamination of the challenged patent, we take this opportunity to remind Multimedia 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).

'254 patent are unpatentable. A summary of our conclusions is set forth in the table below.

Claims	35 U.S.C. §	Reference(s)/ Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
1–4, 8–10, 13–17	103(a)	Kim, WD- Manual, Bae	1–4, 8–10, 13–17	
6, 12, 19	103(a)	Kim, WD- Manual, Bae, Coburn	6, 12, 19	
Overall Outcome			1–4, 6, 8–10, 12–17, 19	

IV. ORDER

In consideration of the foregoing, it is

ORDERED that claims 1–4, 6, 8–10, 12–17, and 19 of the '254 patent have been shown to be unpatentable; and

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

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Patent 9,055,254 B2

For PETITIONER

David L. McCombs
Gregory P. Huh
Andrew Ehmke
HAYNES AND BOONE, LLP
david.mccombs.ipr@haynesboone.com
gregory.huh.ipr@haynesboone.com
andy.ehmke.ipr@haynesboone.com

For PATENT OWNER

James T. Carmichael
Stephen Schreiner
Stephen McBride
Minghui Yang
CARMICHAEL IP, PLLC
jim@carmichaelip.com
schreiner@carmichaelip.com
stevenmcbride@carmichaelip.com
mitch@carmichaelip.com