

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

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

v.

MULTIMEDIA TECHNOLOGIES PTE. LTD.,
Patent Owner.

IPR2024-00354¹
Patent 10,419,805 B2

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

COURTENAY, *Administrative Patent Judge*.

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

¹ VIZIO, Inc. filed a petition in IPR2024-00699 and was joined as a petitioner in this proceeding.

I. INTRODUCTION

In this *inter partes* review, instituted pursuant to 35 U.S.C. § 314, LG Electronics, Inc. and LG Electronics U.S.A., Inc. (collectively, “Petitioner”) challenge the patentability of claims 1–18 (“the challenged claims”) of U.S. Patent No. 10,419,805 B2 (Ex. 1001, “the ’805 patent”), owned by Multimedia Technologies Pte. Ltd. We have jurisdiction under 35 U.S.C. § 6. This Final Written Decision is entered pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. For the reasons discussed below, Petitioner has shown by a preponderance of the evidence that claims 1, 2, 6–11, and 14–18 of the ’805 patent are unpatentable, but has not shown the unpatentability of claims 3–5, 12, and 13.

A. *Real Parties in Interest (“RPIs”)*

Petitioner identifies LG Electronics, Inc. and LG Electronics, U.S.A., Inc. as RPIs. Pet. 92. Joined petitioner VIZIO, Inc. identifies itself and Walmart Inc. as RPIs. IPR2024-00699, Paper 15 (Petitioner’s Updated Mandatory Notices), 2. Patent Owner identifies itself, Multimedia Technologies Pte. Ltd., as the only RPI. Paper 16 (Patent Owner’s Mandatory Notices), 1.

B. *Related Matters*

The parties indicate that the ’805 patent is the subject of the following two district court cases: (1) *Multimedia Technologies Pte. Ltd. v. LG Electronics Inc.*, No. 2:22-cv-00494 (E.D. Tex., filed Dec. 23, 2022); and (2) *Multimedia Technologies Pte. Ltd. v. Vizio, Inc.*, No. 2:23-cv-00124 (E.D. Tex., filed Mar. 24, 2023). Pet. 92; Paper 16, 1.

Patent Owner notes that, in addition to this Petition, Petitioner filed the following three other petitions challenging related patents owned by Patent Owner: (1) *LG Electronics, Inc. v. Multimedia Technologies Pte. Ltd.*, IPR2024-00351, Paper 1 (PTAB Dec. 20, 2023) (challenging claims 1–6, 11–16, 21, and 22 of U.S. Patent No. 9,510,040 B2); (2) *LG Electronics, Inc. v. Multimedia Technologies Pte. Ltd.*, IPR2024-00352, Paper 1 (PTAB Dec. 20, 2023) (challenging claims 1–14 of U.S. Patent No. 9,247,174 B2); and (3) *LG Electronics, Inc. v. Multimedia Technologies Pte. Ltd.*, IPR2024-00353, Paper 3 (PTAB Dec. 22, 2023) (LG Corrected Petition) (challenging claims 1–4, 6, 8–10, 12–17, and 19 of U.S. Patent No. 9,055,254 B2). Paper 16, 1–2 (Patent Owner’s Mandatory Notices).

C. Procedural History

Petitioner LG Electronics, Inc. and LG Electronics U.S.A., Inc. filed a petition for *inter partes* review of claims 1–18 of the ’805 patent. Paper 1 (“Pet.”). Petitioner also filed supporting first and second Declarations of Andrew Lippman, Ph.D. Ex. 1003; Ex 1020.

Patent Owner filed a Preliminary Response. Paper 7 (“Prelim. Resp.”). On May 21, 2024, we instituted an *inter partes* review of claims 1–18 of the ’805 patent, on the grounds shown below under section I(D). Paper 9 (“Dec.”), 41.

Subsequent to institution, Patent Owner filed a Patent Owner Response (Paper 19, “PO Resp.”), Petitioner filed a Reply (Paper 24, “Pet. Reply”), and Patent Owner filed a Sur-reply (Paper 28, “Sur-reply”). Patent Owner relies upon the declaration of Rajeev Surati, Ph.D in support of its Response and Sur-reply. Ex. 2010. We held an oral argument on February

20, 2025. A copy of the transcript of that argument was entered into the record. Paper 33 (“Tr.”).

D. The Asserted Grounds of Unpatentability

Petitioner challenges claims 1–18 of the ’805 patent based upon the following grounds:

Grounds	Claim(s) Challenged	35 U.S.C. §	Reference(s)
1	1, 10, 17	103(a) ²	Melnychenko, Chen
2	1–3, 9–12, 16–18 ³	103(a)	Melnychenko, Chen, Kim, Lee-1
3	4, 13	103(a)	Melnychenko, Chen, Kim, Lee-1, Lee-2
4	5	103(a)	Melnychenko, Chen, Kim, Lee-1, Lee-2, Ferren
5	6–8, 14, 15	103(a)	Melnychenko, Chen, Kim, Lee-1, Choi

² The Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (“AIA”), amended 35 U.S.C. §§ 102, 103, and was effective on March 16, 2013. The ’805 patent claims the benefit of filing dates prior to the effective date of the applicable AIA amendments. *See* Ex. 1001, (codes 60, 63). Further, we understand Petitioner to contend that pre-AIA § 103 applies because Petitioner contends that each of the asserted references qualifies as prior art to the ’805 patent under pre-AIA § 102 and makes arguments regarding the knowledge of a person of ordinary skill in the art as of August 17, 2012. Pet. 9, 11. Patent Owner argues that the priority date of the ’805 patent is August 17, 2012. PO Resp. 23. Therefore, we refer to the pre-AIA versions of 35 U.S.C. §§ 102, 103.

³ Dependent claim 9 is not listed in Petitioner’s chart on page 11 of the Petition but *is included* in its substantive analysis under Ground 2 on page 72 of the Petition. *See* Pet. 72–74. Dependent claim 6 is listed in Petitioner’s chart under Ground 2 on page 11 of the Petition but is *not included* in its substantive analysis under Ground 2 in the Petition. Pet. 52–74. We have corrected the listing of claims challenged under Ground 2 in this table.

Pet. 11. Patent Owner disputes Petitioner’s asserted grounds of unpatentability. *See generally* PO Resp.

E. The Asserted Prior Art References

Petitioner submits the following asserted references as evidence:

Prior Art	Exhibit No.
Melnychenko, US 2013/0263184 A1 (published Oct. 3, 2013)	1005
Chen, US 2007/0226268 A1 (published Sept. 27, 2007)	1007
Kim, US 2012/0054794 A1 (published Mar. 1, 2012)	1006
Lee (Lee-1), US 9,008,190 B2 (issued Apr. 14, 2015)	1008
Lee (Lee-2), US 9,398,339 B2 (issued July 19, 2016)	1009
Ferren, US 8,893,184 B2 (issued Nov. 18, 2014)	1010
Choi, US 2013/0057764 A1 (published Mar. 7, 2013)	1011

Pet. 11.

F. Whether Melnychenko and Choi Are Printed Publications under 35 U.S.C. § 311(b)

At the outset, we address Patent Owner’s contention that “neither Melnychenko nor Choi are available as prior art under 35 U.S.C. §311(b)” because “IPRs may challenge claims ‘only on the basis of prior art consisting of patents or printed publications.’” PO Resp. 22–23 (quoting 35 U.S.C. § 311(b)). *See also* PO Sur-reply 14–15.

Patent Owner asserts that because Melnychenko and Choi are both “published patent applications — not issued patents,” they “do not qualify under § 311(b) as ‘patents.’” PO Resp.at 23.

Patent Owner further asserts that Melnychenko and Choi do not qualify as “printed publications” under 35 U.S.C. § 311(b) because their respective “dates of publication (October 13, 2013 for Melnychenko and

March 7, 2013 for Choi)” are after the priority date of Exhibit 1001 (the ’805 patent) —August 17, 2012 (code 60). *Id.* at 23.

Patent Owner’s arguments are not persuasive because on January 14, 2025, the Federal Circuit in *Lynk Labs Inc. v. Samsung Electronics Co. Ltd.*, (125 F.4th 1120, 1132 (Fed. Cir. 2025)) held that Title 35 U.S.C. sections “311(b) and 102(e)(1) permit IPR challenges based upon published patent applications, and *such published patent applications can be deemed prior art in IPRs as of their filing date.*” (emphasis added).

Accordingly, we conclude both Melnychenko and Choi are prior art for the purpose of this IPR pursuant to 35 U.S.C. § 311(b) under the holding of *Lynk Labs*.

G. The ’805 patent

The ’805 patent is titled “Data Service” and pertains to a data service system in an intelligent television. Ex. 1001, codes (54), (57). The ’805 patent describes how technology companies at the time of the writing were integrating features from different devices into one or two multi-functional devices and consolidating home devices, including integrating features and functionality into televisions. *Id.* at 1:45–67. The ’805 patent further describes that such “Smart TVs” represent a trend of technological convergence between computers and television sets but there are still issues with the consolidation of features and the presentation of these features in Smart TVs. *Id.* at 2:1–12.

Figure 14, reproduced below, is a block diagram of a data service according to one embodiment: *Id.* at 10:62–63, 28:22–23.

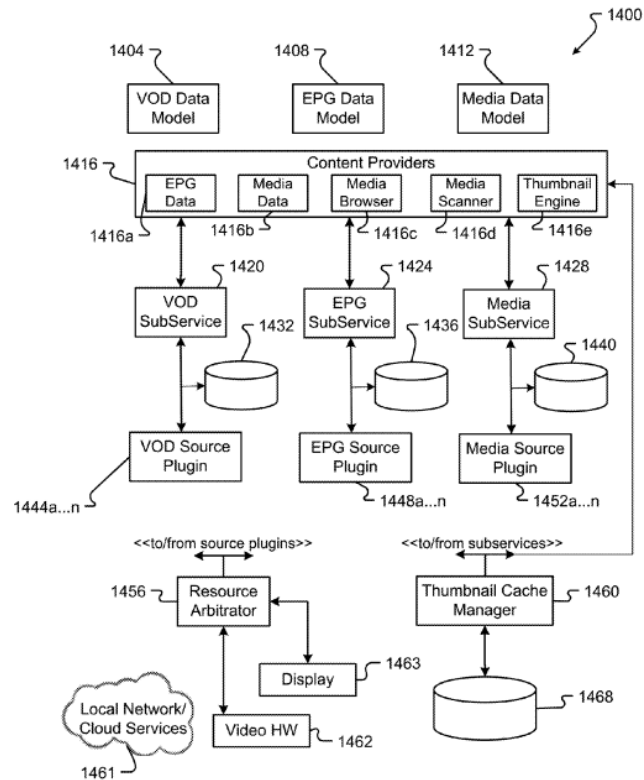


Fig. 14

Figure 14 illustrates models for different types of data, including video on demand (VOD) data model 1404, electronic program guide (EPG) data model 1408, and media data model 1412. *Id.* at 28:27–38. Received content from source plugins 1444a-n, 1448a-n, 1452a-n is converted to the specific format handled by the respective data model and the data models provide uniform formats for respective subservices 1420, 1424, and 1428. *Id.* at 33:17–33.

Figure 16, reproduced below, is a flow diagram for providing media or data to an internal content provider: *Id.* at 10:66–67, 34:10–12.

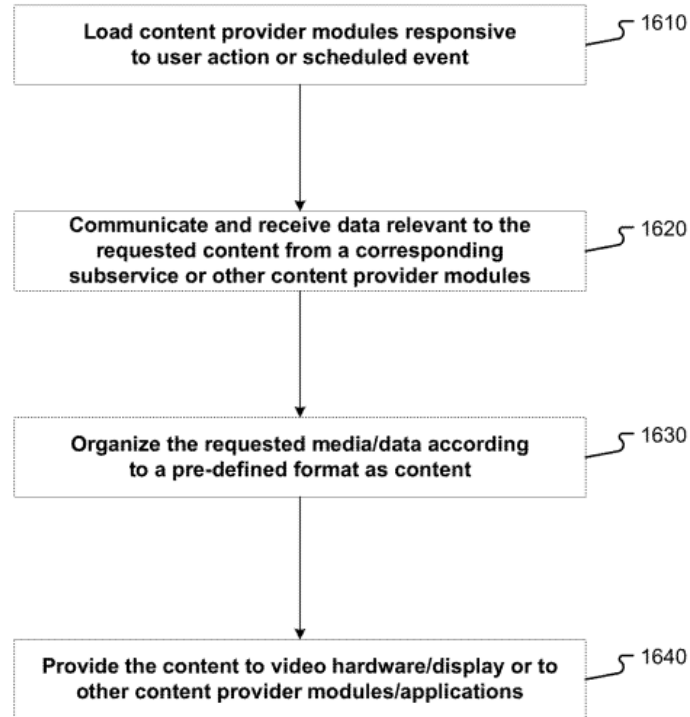


FIG. 16

In Figure 16, at step 1620, media and/or data relevant to requested content is received from a corresponding subservice or other content provider module. *Id.* at 34:38–41. At step 1630, content provider modules 1416 process the received media and/or data and organize such media and/or data into a pre-defined format for use by the relevant applications. *Id.* at 34:49–60. At step 1640, content provider 1416 provides content to video hardware 1462 and/or display 1463. *Id.* at 35:9–23.

H. Illustrative Claim

Petitioner challenges claims 1–18 of the '805 patent. Pet. 7. Of the challenged claims, claims 1, 10, and 17 are independent.

Claim 1, reproduced below, is illustrative of the challenged claims, and recites the following (bracketing and identifiers added):

[1.0] A method of providing content for a television (TV), the method comprising:

[1.1.1] receiving, by a processor, data relevant to one or more scheduled events from one of a corresponding subservice of a plurality of subservices,

[1.1.2] wherein the plurality of subservices comprises a video-on-demand (VOD) subservice, electronic programming guide (EPG) subservice, and a media subservice

[1.2.1] organizing, by the processor, the data according to a pre-defined format corresponding to each of the plurality of subservices,

[1.2.2] wherein the pre-defined format comprises one of a VOD data model, an EPG data model and a media data model,

[1.2.3] wherein organizing the data according to the pre-defined format comprises converting the data received from the subservice into the pre-defined format of the corresponding data model and

[1.2.4] wherein each of the VOD data model, EPG data model, and media data model provide a uniform format for the plurality of subservices; and

[1.3] providing, by the processor, the organized data to one or more of a plurality of content provider modules of the TV.

Ex. 1001, 37:56–38:10; Pet. 94 (Claim Appendix).

II. ANALYSIS

A. *Level Of Ordinary Skill in the Art*

We consider the asserted grounds of unpatentability in view of the understanding of a person of ordinary skill in the art (POSITA). In assessing the level of ordinary skill in the art, various factors may be considered, including the “type of problems encountered in the art; prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology; and educational level of active workers in the field.” *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995) (quoting *Custom Accessories, Inc. v. Jeffrey-Allan Indus., Inc.*, 807 F.2d 955, 962 (Fed. Cir. 1986)). “[O]ne or more factors may predominate.” *Id.*

Relying upon the declaration testimony of Dr. Lippman, Petitioner contends that an ordinarily skilled artisan for the ’805 patent “would have been someone knowledgeable about and familiar with the television display technology that is pertinent to the ’805 patent. A POSITA 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 work experience can be remedied by additional education, and vice versa.” Pet. 9 (citing Ex. 1003 ¶¶ 18–20).

In its Preliminary Response Patent Owner indicated it “adopts Petitioner’s definition of a person of ordinary skill in the art (‘POSITA’) for the purposes of [its] Preliminary Response.” Prelim. Resp. 28. We note Patent Owner does not dispute or otherwise disavow Petitioner’s definition of a POSITA in its Response or Sur-reply. *See generally* PO Resp.; PO Sur-reply.

For purposes of this Decision, we adopt Petitioner’s definition of the level of ordinary skill in the art. On the present record, we are satisfied that this definition comports with the level of skill necessary to understand and implement the teachings of the ’805 patent and the asserted prior art. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001) (explaining that the prior art itself can reflect appropriate level of ordinary skill in art).

B. Claim Construction

In interpreting the claims of the ’805 patent, we “us[e] the same claim construction standard that would be used to construe the claim[s] in a civil action under 35 U.S.C. [§] 282(b).” *See* 37 C.F.R. § 42.100(b) (2023). Accordingly, our claim construction standard is the same as that of a district court. *See id.* Under the standard applied by district courts, claim terms are generally given their plain and ordinary meaning, as would have been understood by a person of ordinary skill in the art at the time of the invention and in the context of the entire patent disclosure. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005) (en banc). “There are only two exceptions to this general rule: (1) when a patentee sets out a definition and acts as his own lexicographer, or (2) when the patentee disavows the full scope of a claim term either in the specification or during prosecution.” *Thorner v. Sony Comput. Entm’t Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012).

At the outset, regarding claims 1–9, we note that a method claim is generally not limited to the performance of the steps in a particular order,

unless the claim explicitly or implicitly requires a specific order.⁴

However, we do not consider herein any alternative order of the steps of method claim 1, because Petitioner, who has the burden of showing unpatentability, does not argue any alternative order.

1. The Claim Terms in Dispute Between the Parties

“In determining the meaning of the disputed claim limitation, we look principally to the intrinsic evidence of record, examining the claim language itself, the written description, and the prosecution history, if in evidence.” *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1014 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312–17); *see also David Netzer Consulting Eng’r LLC v. Shell Oil Co.*, 824 F.3d 989, 993-94 (Fed. Cir. 2016); *Tempo Lighting, Inc. v. Tivoli, LLC*, 742 F.3d 973, 977 (Fed. Cir. 2014). We apply this guidance to the claim construction dispute between the parties, *infra*.

In our Decision on Institution, we preliminarily noted: “it appears Petitioner may be conflating the claim terms ‘pre-defined format’ and ‘uniform format,’ as recited in limitations [1.2.1] and [1.2.4], respectively.”

⁴ “[A]lthough a method claim necessarily recites the steps of the method in a particular order, as a general rule the claim is not limited to performance of the steps in the order recited, unless the claim explicitly or implicitly requires a specific order.” *Baldwin Graphic Sys., Inc. v. Siebert, Inc.*, 512 F.3d 1338, 1345 (Fed. Cir. 2008); *accord Altiris, Inc. v. Symantec Corp.*, 318 F.3d 1363, 1369–71 (Fed. Cir. 2003); *Interactive Gift Express, Inc. v. Compuserve Inc.*, 256 F.3d 1323, 1342–43 (Fed. Cir. 2001) (reciting a two-part test for determining if the steps of a method claim that do not otherwise recite an order, must nonetheless be performed in the order written).

Dec. 26. As also noted in our Decision, “to the extent that we may be required to construe claims terms in the absence of any explicit claim construction by the parties . . . [we are] required to construe ‘only those terms . . . that are in controversy, and only to the extent necessary to resolve the controversy.’” Dec. 27 (quoting *Vivid Techs. Inc. v. American Science and Engineering*, 200 F.3d 795, 803 (Fed. Circ. 1999)).

Petitioner initially states that “no claim term requires express construction,” but further qualifies that “some claim terms are provided with explicit definitions in the [’805 patent] specification.” Pet. 9. However, Petitioner focuses solely on the term “one or more” in this section of the Petition. Pet. 10 (referring to “one or more” as recited in claim 1, steps 1.1.1 and 1.3).

But Patent Owner contends the Board need not expressly construe the claim 1 term “one or more” because “none of Patent Owner’s arguments turn on the construction of this term.” PO Resp. 13. Patent Owner instead contends that “construction of the terms ‘*media metadata personalized for a user*’ [claims 4 and 13] and ‘*media sources of the TV*’ [claims 6 and 14] are relevant to Patent Owner’s arguments and require express construction.” *Id.* (emphases added). Patent Owner additionally addresses its proposed construction of the claim terms “*pre-defined format*” and “*uniform format.*” *Id.* (emphases added)

On the complete record, we find there exists a substantive disagreement between the parties regarding the proper construction of the claim 1 terms “*pre-defined format*” and “*uniform format*” (emphases added). Therefore, we focus our claim construction analysis *infra* on the disputed claim 1 terms “*pre-defined format*” and “*uniform format*” (emphases added). We also address *infra* the claim construction of the disputed terms “*media*

metadata personalized for a user” (claims 4 and 13) and “*media sources of the TV*” (claims 6 and 14) (emphases added).

a. pre-defined format

Patent Owner explains: “the term ‘pre-defined format’ refers to the format of the VOD data model, EPG data model, and media data model having a format that is defined *prior to* the organizing step.” PO Resp. 20 (emphasis added). Patent Owner notes there “are at least **three** ‘pre-defined formats’” described in the specification, “one each for the VOD data model corresponding to the VOD subservice, the EPG data model corresponding to the EPG subservice, and the media data model corresponding to the media subservice.” *Id.* (emphasis added). In support, Patent Owner points to portions of columns 34, 29, and 30 of the Specification. PO Resp. 20–21 (citing Ex. 1001, 34:49–54 [media]; 29:63–67 [EPG]; 30:32–41 [VOD]).

Patent Owner refers to claim 1, at steps 1.1.1 and 1.1.2, and notes that “[e]very independent claim challenged in this IPR requires ‘receiving . . . data . . . from one of a corresponding subservice of a plurality of subservices, wherein the plurality of subservices comprises a video-on-demand (VOD) subservice, electronic programming guide (EPG) subservice, and a media subservice.’” PO Resp. 24. Referring to step 1.2.1, Patent Owner argues that “[t]he received data is ‘organiz[ed] according to a *pre-defined format* corresponding to each of the plurality of subservices.’” *Id.* (emphasis added).

Given these alleged requirements of claim 1, Patent Owner contends: “[b]ecause ‘the pre-defined format comprises one of a VOD data model, an EPG data model and a media data model,’ the independent claims explicitly require organizing the received data according to *pre-defined formats*

corresponding to each of the *three* types of subservices.” *Id.* at 25 (citing Ex. 2010 ¶ 118) (emphases added). Patent Owner argues: “[i]n other words, the claimed method organizes VOD data received from a VOD subservice according to *a pre-defined* VOD format, organizes EPG data received from an EPG subservice according to *a pre-defined* EPG format, and organizes media data received from a media subservice according to *a pre-defined* media format.” *Id.* (emphases added)

In support, Patent Owner relies upon Figure 14 of the ’805 patent, with red, green, and purple annotations corresponding to VOD Data Model 1404, EPG Data Model 1408, and Media Data Model 1412, respectively, as reproduced below:

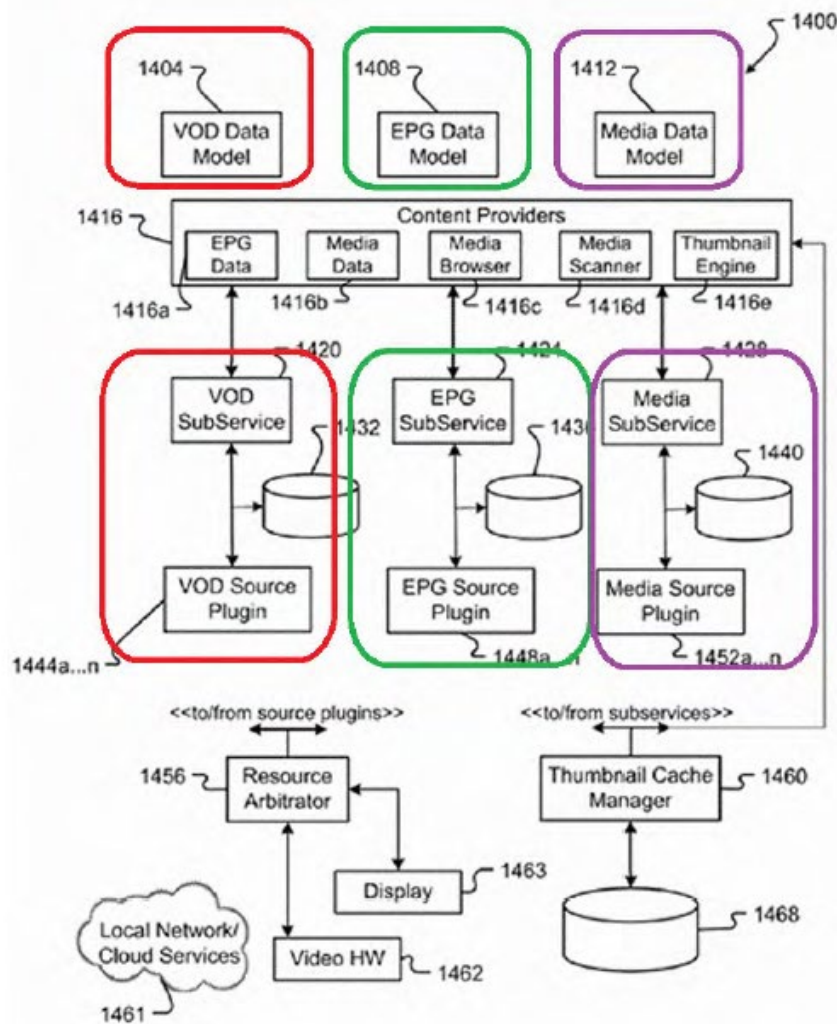


Fig. 14

Depicted above, Patent Owner's annotated version of Figure 14 of the '805 patent.

In further support of its claim construction, Patent Owner cites to additional portions of columns 28, 29, and 30 of the '805 patent specification. PO Resp. 27–28 (citing Ex. 1001, 28:46–55 [VOD]; 29:3–5 [VOD]; 29:63–67 [EPG]; 30:16–21 [Media]). Based upon these descriptions, Patent Owner contends that “a person of ordinary skill would

understand that data from *each* type of subservice is organized according to *a pre-defined* format corresponding to that subservice type – a VOD data model for the VOD subservice, an EPG data model for the EPG subservice, and a media data model for the media subservice.” *Id.* at 28 (citing Ex. 2010 ¶¶ 122–123 (*citing* Ex. 1001, 30:32–41)) (emphases added).

In the Reply, Petitioner disagrees, and contends the ’805 patent uses the term “pre-defined format” to mean a pre-defined *order* of data or metadata, as exemplified by the following passages:

(1) “EPG information embedded with content feeds may contain limited information that are *ordered in a pre-defined format* (i.e., the *order* of other relevant information such as title, time, description, and/or other information about the programming).” Pet. Reply 7 (quoting Ex. 1001, 30:1–5);

(2) “Process 1600 next organizes the requested media and /or data according to a *pre-defined* format as content 1630...The content provider modules will need to process the received media and/or data...and organize such media and/or data into a *pre-defined format* for use by the relevant applications 416.” Pet. Reply 7 (quoting Ex.1001, 34:49–60).

Petitioner further notes that Dr. Lippmann, after reviewing the ’805 patent’s disclosure, testifies that “a POSITA would have understood that the scope and meaning of the term ‘*pre-defined format*,’ as used in the claim and the ’805 patent, refers to the *order of data* or metadata in a pre-defined format.” *Id.* (quoting Ex. 1020 ¶ 10) (bold emphasis added).

In the Sur-reply, Patent Owner argues that its “construction of ‘pre-defined format’ provides an additional reason why the claims are distinguishable over the prior art.” PO Sur-reply 6. “As stated in the Patent Owner Response, ‘organizing...the data according to a pre-defined format

*corresponding to **each of the plurality of subservices***’ refers to organizing according to (1) a pre-defined format corresponding to a VOD subservice, (2) a pre-defined format corresponding to an EPG subservice, and (3) a pre-defined format corresponding to a media subservice.” PO Sur-reply 6 (citing PO Resp. 19–21).

On page 9 of the Sur-reply, Patent Owner further narrows its claim construction and argues that the term “pre-defined format” as recited in step 1.2.1 requires *three different* data models. PO Sur-reply 9 (“Whereas the Preliminary Response and Institution Decision addressed whether element [1.2.4] and the term “uniform format” requires *three* different data models, this argument is directed to whether element [1.2.1] and the term “pre-defined format” requires *three different* data models. For the above reasons, *they do.*”) (emphases added).

Patent Owner further argues:

The independent claims require organizing data according to pre-defined formats corresponding to ***each of*** the VOD, EPG, and media subservices. POR, 24-28. In other words, VOD data received from a VOD subservice must be organized according to a predefined VOD format, EPG data received from an EPG subservice must be organized according to a pre-defined EPG format, and media data received from a media subservice must be organized according to a pre-defined media format. *Id.*

PO Sur-reply 9.

Patent Owner urges: “The claim construction arguments advanced by the Reply ignore the words ‘***each of***’ and should be rejected.” *Id.*

In resolving the dispute between Patent Owner and Petitioner over the meaning of the claim 1 term “pre-defined format,” we note both parties rely upon intrinsic evidence to support their respective arguments, in particular: (1) the claim language, and (2), the supporting portions of the specification.

Regarding the prosecution history (Ex. 1002), Petitioner merely notes the “Examiner issued a Notice of Allowance indicating that the last two claim elements, directed to organizing the data and providing the organized data to a content provider module, were the reason for allowance.” Pet. 8. However, Petitioner does not substantively address the prosecution history in the Petition as it might pertain to claim construction. *Id.* Dr. Lippman also addresses the prosecution history at paragraphs 38–48 of his Declaration (Exhibit 1003), but also does not substantively address the prosecution history as it might pertain to any claim construction dispute between the parties. Dr. Lippman testifies: “I have reviewed the entirety of the ’805 patent, as well as its prosecution history. In my opinion, for purposes of applying the prior art presented herein to evaluate patentability, the claim terms do not require express construction.” Ex. 1003 ¶ 50.

Although Dr. Surati briefly mentions the prosecution history in paragraphs 50 and 51 of his Declaration for Patent Owner (Ex. 2010), and also on page 54 of his deposition (Ex. 1021, 54:25), Dr. Surati also does not substantively address the prosecution history as it might pertain to any claim construction dispute between the parties.

We discuss both the claim language and the specification *infra*, as they inform our claim construction of the disputed claim term “pre-defined format” and the remaining claim terms in dispute between the parties.

Patent Owner relies upon intrinsic evidence in the form of the claim language itself. PO Resp. 20 (referring to the VOD data model, EPG data model, and media data model having a format that is purportedly defined in the claim prior to the organizing step 1.2.1). Patent Owner also relies upon several supporting portions of the specification to support its narrowed construction. PO Resp. 20–21 (citing Ex. 1001, 34:49–54; 29:63–67; 30:32–

41). As noted above, Patent Owner contends the term “pre-defined format” as recited in step 1.2.1 requires “***three different*** data models.” PO Sur-reply 9.

We disagree with Patent Owner. *Id.* We see nothing in the preamble 1.0, or “receiving” step 1.1.1, or “wherein” clause 1.1.2 that ***defines*** a data format prior to organizing step 1.2.1, and we decline to read limitations from the specification into the claim, i.e., a “pre-defined format” being defined prior to organizing step 1.2.1, as argued by Patent Owner.⁵ PO Resp. 20. Preamble 1.0 is silent regarding any mention of a data format: “A method of providing content for a television (TV), the method comprising:” Although step 1.1.1 requires “receiving, by a processor, *data relevant to one or more scheduled events* from one of a corresponding subservice of a plurality of subservices,” at best this merely requires *a type of data* that is “relevant to one or more scheduled events” and does not require a particular data format to be used for “*data relevant to one or more scheduled events*,” nor the “pre-defined” format argued by Patent Owner. PO Resp. 20–21. (emphases added). Nor do we read step 1.1.2 as defining a particular data format used by the three recited types of subservices: “[1.1.2] wherein the plurality of subservices comprises a video-on-demand (VOD) subservice, electronic programming guide (EPG) subservice, and a media subservice.”

⁵ We emphasize that patentability is based upon the claims. “It is the *claims* that measure the invention.” *SRI Int’l v. Matsushita Elec. Corp. of America*, 775 F.2d 1107, 1121 (Fed. Cir. 1985) (*en banc*). A basic canon of claim construction is that one may not read a limitation into a claim from the written description. *Renishaw PLC v. Marposs Societa' per Azioni*, 158 F.3d 1243, 1248 (Fed. Cir. 1998).

Disputed step 1.2.1 recites: “organizing, by the processor, the data according to *a pre-defined format* corresponding to *each of* the plurality of subservices.” (emphases added).

However, we find Patent Owner’s contention unavailing that the term “pre-defined format” recited in step 1.2.1 requires *three different* data model *pre-defined formats* because claim 1 is silent regarding the argued term “different.” *See* PO Sur-reply 9 (regarding Patent Owner’s response to the question of “whether element [1.2.1] and the term ‘pre-defined format’ requires three different data models.” Patent Owner responds: “For the above reasons, they do.”).

Moreover, we note the term “data model” is not introduced until subsequent “wherein” clause 1.2.2, which merely requires that “the pre-defined format comprises *one* of a VOD data model, an EPG data model and a media data model.” (emphasis added).

Because claim 1 is silent regarding the argued word “different” (PO Sur-reply 9), we similarly decline Patent Owner’s invitation to narrowly read the “wherein” clause 1.2.2 recitation of the term “one of” to require *three different* data model pre-defined formats. *See* PO Sur-reply 9.

Simply put, we conclude there is no language in claim 1 that requires the *pre-defined formats* of the VOD data model, EPG data model and media data model (or the data formats used by the corresponding respective “subservices” that obtain data from the content provider) to be implemented using *different* pre-defined formats, in the manner urged by Patent Owner. *See* PO Sur-reply 9.

On the complete record, we agree with Petitioner that the scope of the claim term “pre-defined format” at least *encompasses* “a pre-defined *order* of data or metadata,” which is argued by Petitioner as being supported by a

description found in the '805 patent. Pet. Reply 7 (quoting Ex.1001, 30:1–5; 34:49–60).

b. uniform format

Regarding the claim 1 term “uniform format,” Patent Owner argues that “[b]y contrast, ‘uniform format’ does not mean that all three ‘pre-defined formats’ share a uniform format.” PO Resp. 21. Patent Owner contends that a “person of ordinary skill would instead understand that ‘uniform format’ refers to each ‘pre-defined format’ providing a ‘uniform format’ for that subservice.” *Id.* (citing Ex. 2010 ¶ 70 (“The purpose of organizing data from each subservice according to a pre-defined format corresponding to that subservice is to provide a uniform format for all data received from that subservice”).” Patent Owner contends that “[t]his understanding is consistent with the '805 Patent’s disclosure that uniform formats are provided ‘for the respective subservices,’” as follows:

The data models *provide uniform formats for the respective subservices* (i.e., VOD subservice 1420, EPG subservice 1424, and media subservice 1428) and/or the internal content provider modules 1416 which interface with applications 416. In some implementations, step 1530 may be optional as the media and/or data may be sent to storage or be processed by data management 1400 without any conversion.

PO Resp. 22 (quoting Ex. 1001, 33:25–33).

Regarding the claim 1 term “uniform format” Petitioner replies that Patent Owner “does **not** dispute that the prior art teaches a ‘*uniform format*’” in step 1.2.4. Pet. Reply 8 (citing *generally* PO Resp.). Therefore, Petitioner argues “for the purposes of this proceeding, the term “*uniform format*” does not require express construction.” Pet. Reply 8 (citing *Nidec*

Motor Corp. v. Zhongshan Broad Ocean Motor Co., 868 F.3d 1013, 1017 (Fed. Cir. 2017)).

Nevertheless, at the Board’s request (Dec. 29), Petitioner proceeds to address the scope of the claim 1 term “uniform format.” Pet. Reply 8. Petitioner notes that the ’805 patent uses the term “uniform format” in column 33: “The data models provide **uniform formats** for the respective subservices (i.e., VOD subservice 1420, EPG subservice 1424, and media subservice 1428) and/or the internal content provider modules 1416 which interface with applications 416.” Pet. Reply 8 (quoting Ex.1001, 33:25–30).

Petitioner further notes that Dr. Lippmann explains, “the ’805 patent does not appear to ascribe any specific meaning to the term ‘uniform format’ and the passage does not limit the scope of this term to require a plurality of uniform formats.” Pet. Reply (quoting Ex. 1020 ¶ 13).

In its Sur-reply, Patent Owner notes that “Petitioners do not appear to dispute that the terms “pre-defined format” and “uniform format” mean different things.” PO Sur-reply 8 (citing Reply 21). Patent Owner emphasizes that step 1.2.2 recites: “the pre-defined format comprises *one of* a VOD data model, an EPG data model and a media data model,” and step 1.2.4 recites “*each of* the VOD data model, EPG data model, and media data model provide *a uniform format* for the plurality of subservices.” PO Sur-reply 8 (emphases added).

Patent Owner reiterates from its Response: “In other words, each pre-defined format comprises *one of* the data models, and *each of* the data models provides a uniform format. Thus, “‘uniform format’ does not mean that all three ‘pre-defined formats’ share a uniform format [but instead] refers to each ‘pre-defined format’ providing a ‘uniform format’ for that subservice.” PO Sur-reply 8 (quoting PO Resp. 21).

Even if *arguendo* (without deciding) Patent Owner is correct that the step 1.2.4 term “uniform format” “refers to each ‘pre-defined format’ providing a ‘uniform format’ for that subservice” (*id.*), Petitioner points out that Patent Owner “does **not** dispute that the prior art teaches a ‘*uniform format*’” in step 1.2.4.” Pet. Reply 8 (citing *generally* PO Resp.).

Therefore, on the complete record, we agree with Petitioner that “for the purposes of this proceeding, the term “*uniform format*” does not require express construction.” Pet. Reply 8 (citing *Nidec Motor*, 868 F.3d at 1017.

c. media metadata personalized for a user (Claims 4 and 13)

Patent Owner contends that “[m]edia metadata personalized for a user” as it appears in claims 4 and 13 should be construed as “the *content* of the metadata is personalized for a user.” PO Resp. 14 (citing Ex. 2010 ¶ 54) (emphasis added). Patent Owner seeks this construction “because Petitioner appears to argue that ***selecting*** media metadata for a user, where the content of that metadata does not change, is personalized for a user.” *Id.* at 14 (emphasis added).

Patent Owner argues that its construction is the “only construction consistent with the ’805 Patent’s specification.” Specifically, the ’805 patent states that the “personalized media metadata” is “***generated***” from “metadata received from media subservices.” PO Resp. 14–15 (citing Ex. 1001, 31:26–41) (emphasis added).

Petitioner disagrees in the Reply, and argues Patent Owner is importing limitations from the specification into the claims. Pet. Reply 12 (citing *Superguide Corp. v. DirecTV Enterprises, Inc.*, 358 F.3d 870, 875 (Fed. Cir. 2004); *see also EPOS Techs. Ltd. v. Pegasus Techs. Ltd.*, 766 F.3d

1338, 1341 (Fed. Cir. 2014); Ex. 1020 ¶ 19). Petitioner notes that “[l]imitation [4.0] recites that “*the media data provider is configured to provide media metadata personalized for a user.*” Pet. Reply 12.

Petitioner notes that [Patent Owner] argues that “*media metadata personalized for a user*” requires a construction that “the content of the metadata is personalized for a user.” *Id.* (citing PO Resp. 14). Petitioner contends this “construction is wrong at least because [4.0] does not recite ‘**the content**’ of the metadata [being] personalized for a user.” *Id.* (citing Ex. 1020 ¶ 20). Petitioner contends, “[a]s [Patent Owner’s] expert admitted, [4.0] does not require “the content” or “**the content** of the metadata [being] personalized for a user.” Petitioner notes that claim 13 has the same feature. *Id.* at 12, n.3.

Petitioner rejects the testimony of Patent Owner’s expert (Dr. Surati) who argues that “for metadata to be ‘*personalized*,’ it must be **edited**.” Pet. Reply 13 (citing Ex. 1021, 178:12–18) (emphasis added). Petitioner asserts that “[t]here is no embodiment in the ’805 patent—and [Patent Owner] has not identified any—where metadata for two different users must be changed or edited to be different and therefore ‘*personalized*’ for a user.” *Id.* at 13–14 (citing Ex. 1020 ¶ 21). Petitioner notes that Patent Owner’s “expert admitted that claims 4 and 13 do not require metadata to be different for two different users to be ‘*personalized*,’ and that there is no embodiment in the specification to support this requirement.” *Id.* at 14 (citing Ex. 1021, 145:22–146:17).

Petitioner also argues that Patent Owner’s proposed construction: (1) relies on “generating” personalized metadata for a user, in which “generating” is not recited in limitation [4.0], “a fact [Patent Owner’s] expert admitted.” *Id.* (citing Ex. 1020 ¶ 23), and (2) “improperly excludes

embodiments that do not support [Patent Owner’s] narrow construction.” *Id.* (citing *Medrad, Inc. v. MRI Devices Corp.*, 401 F.3d 1313, 1320 (Fed. Cir. 2005) (“A claim construction that does not encompass a disclosed embodiment is rarely, if ever, correct.”)).

In its Sur-reply, Patent Owner argues that “the Reply does not identify a single embodiment in the ’805 Patent where personalization of the media metadata is made by *selecting media* rather than *modifying metadata* content.” PO Sur-reply 12 (citing Pet. Reply 12–16) (emphases added). Patent Owner contends that “[a]t most, the Reply has Dr. Lippman’s testimony that selecting media is another *plausible* interpretation of the claim language.” *Id.* (emphasis added).

Patent Owner argues that “[p]ersonalization by modifying metadata content is plainly not the same as personalization by selecting media.” PO Sur-reply 12–13. Patent Owner contends: “[w]hen personalizing by selecting media, different users presented with the same media receive the same metadata, whereas when personalizing by modifying metadata content, different users presented with the same media receive different metadata.” *Id.* at 13. Patent Owner thus concludes: “in the case of personalizing by selecting media, the content of the metadata is not personalized for a user. The specification discloses only personalizing by *modifying* metadata—not personalizing by *selecting* media. Thus, Patent Owner’s construction is correct.” *Id.* (emphases added).

Given the evidence cited by Patent Owner (PO Resp. 14 (citing Ex. 2010 ¶ 54)), we agree with Patent Owner that the claim term “media metadata personalized for a user” as recited in claims 4 and 13 should be construed as “the content of the metadata is personalized for a user,” meaning that “the metadata content *of the same media* is personalized to

(i.e., different for) each user.” Ex. 1010 ¶ 54. As persuasively articulated by Dr. Surati, “[t]his is distinguished from ‘the *selection* of the media metadata is personalized for a user,’ such that the *media is selected* for individual users, but all users selecting the same media will see the same metadata.” *Id.* (emphases added). We also agree with Patent Owner that its construction is consistent with the ’805 patent’s specification, which describes the “personalized media metadata” as being “**generated**” from metadata received from media subservices.” PO Resp. 14–15 (citing Ex. 1001, 31:26–41).

Accordingly, based upon the complete record, we agree with and adopt Patent Owner’s claim construction of “[m]edia metadata personalized for a user” as it appears in claims 4 and 13, as being construed as “the content of the metadata is personalized for a user.”

d. media sources of the TV (Claims 6 and 14)

Patent Owner contends that “[m]edia sources of the TV” as it appears in claims 6 and 14 are the “plurality of subservices [that] comprises a video-on-demand (VOD) subservice, electronic programming guide (EPG) subservice, and a media subservice” of independent claims 1 and 10.” PO Resp. 17. Patent Owner asserts that this “construction is supported by the specification and required by the dependency of claim 6 from claim 1 and claim 14 from claim 10.” *Id.* Patent Owner notes “the ’805 patent explicitly refers to the different types of data services (including VOD, EPG, and media) as media sources.” *Id.* (citing Ex. 1001, 28:46–55). Patent Owner also notes “the ’805 Patent further explains that the media browser operates with the VOD, media, and/or other subservices (i.e., EPG) to show information pertaining to the list of available media sources.” *Id.* 17–19

(citing Ex. 1001, 31:42–50; 29:3–23 (“referring to VOD sources such as Amazon Instant Video as ‘dedicated media sources’ and explaining that both VOD sources and external devices are among ‘each of these media sources.’”).

Patent Owner argues that “[b]ased on these disclosures, a person of ordinary skill would understand that media sources of the TV include the VOD, EPG, and media subservices.” PO Resp. at 19 (citing Ex. 2010 ¶¶ 60–65). Patent Owner further argues: “because claim 6 depends from claim 1, the ‘media sources of the TV’ of claim 6 must refer to media sources recited by claim 1. Because the media sources recited by claim 1 are the VOD, EPG, and media subservices, the media sources of the TV of claim 6 must include these three subservice media sources recited by claim 1.” *Id.* Patent Owner contends “[t]he same is true of claims 10 and 14.”

Petitioner disagrees with Patent Owner construction, and argues: “First, claim 6 does not recite that the ‘*media sources of the TV*’ must include the VOD subservice, EPG subservice, and media subservice of claim 1.” Pet. Reply 17 (citing Ex. 1020 ¶ 28). Petitioner states that Patent Owner’s expert admitted this. *Id.* (citing Ex. 1021, 159:16-23; 167:12–17). Petitioner concludes that Patent Owner’s “construction improperly imports unrequired limitations.” *Id.* (citing Ex. 1020 ¶ 28).

Petitioner additionally argues that “the term ‘*media sources of the TV*’ in claim 6 has no antecedent basis and does not further define any “subservice” in claim 1. Pet. Reply 17–18. Petitioner notes that Patent Owner cites to “Ex. 1001, 28:46-55, 31:42-50, and 29:3-23 to support its argument that the ‘subserves’ recited in claim 1 may be ‘media sources.’” Pet. Reply 18 (citing PO Resp. 17–19). Petitioner argues that “none of these cited portions suggests that ‘media sources’ must include a VOD subservice,

an EPG subservice, and a media subservice,” as Patent Owner proposes. *Id.* at 19. Petitioner asserts that the ’805 patent “specification does not define a ‘media source’ as requiring a VOD subservice, an EPG subservice, and a media subservice.” *Id.* (citing Ex. 1020 ¶ 29).

Lastly, Petitioner argues that “[Patent Owner’s] construction is improper because it excludes embodiments where media sources are connected to an intelligent TV 100, such as a DVD player 168a, BluRay player 168b, portable media devices 168c, smart phones 168d, tablet devices 168e, personal computer 168f, external cable boxes 168g, etc.” Pet. Reply 18 (citing Ex. 1001, 13:3–18 (“describing external hardware devices 168 in Fig. 1B connected to Intelligent TV 100 via a wired 108 or wireless 112 connection”), 30:16–31 (“describing external hardware devices 168 that may be connected to the Intelligent TV”). Petitioner emphasizes that Patent Owner’s “expert admitted that he did not consider these media sources.” *Id.* (citing Ex. 1021, 164:13–166:20; Ex. 1020 ¶ 30).

In the Sur-reply, Patent Owner does not further address the claim construction of the term “media sources of the TV,” as recited in claims 6 and 14. *See generally* PO Sur-reply.

On the complete record, we find Patent Owner has not shown a link between the term “media sources of the TV” and the subservices of claim 1. Rather, we determine that the use of a different term, and the discussion of additional media sources in the specification each lead us to conclude that the recited subservices are not required to be included in the “media sources.” *See Applied Med. Res. Corp. v. U.S. Surgical Corp.*, 448 F.3d 1324, 1333 n. 3 (Fed. Cir. 2006) (“[T]he use of . . . different terms in the claims connotes different meanings.”); *see also* Ex. 1001, 13:3–18, 30:16–31.

Accordingly, we agree with Petitioner that claims 6 and 14 do not recite that the “*media sources of the TV*” must include the VOD subservice, EPG subservice, and media subservice of claim 1.” Pet. Reply 17.⁶

C. Principles Of Law

“In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable.” *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review petitions to identify “with particularity . . . the evidence that supports the grounds for the challenge to each claim”)). This burden of persuasion never shifts to Patent Owner. *See Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (discussing the burden of proof in *inter partes* review).

A patent claim is unpatentable under 35 U.S.C. § 103(a) if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time 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 ordinary skill in the art; and (4) when in evidence, objective

⁶ *See supra*, n.5.

evidence of nonobviousness.⁷ *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). “[W]hen a patent claims a structure already known in the prior art that is altered by the mere substitution of one element for another known in the field, the combination must do more than yield a predictable result.” *KSR*, 550 U.S. at 416 (citing *United States v. Adams*, 383 U.S. 39, 50–51 (1966)). An obviousness inquiry is not limited to the prior art’s preferred embodiment. *See, e.g., Pfizer, Inc. v. Apotex, Inc.*, 480 F.3d 1348, 1370 (Fed. Cir. 2007). We also recognize that prior art references must be “considered together with the knowledge of one of ordinary skill in the pertinent art.” *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994) (citing *In re Samour*, 571 F.2d 559, 562 (CCPA 1978)).

D. Ground 1 – Alleged Obviousness Over Melnychenko and Chen

Petitioner contends that independent claims 1, 10, and 17 of the ’805 patent are unpatentable under 35 U.S.C. § 103(a) as obvious over Melnychenko in view of Chen. Pet. 11–51; Pet. Reply 19–26. Petitioner asserts that the combined teachings of Melnychenko and Chen account for the subject matter of each challenged claim. *Id.* Petitioner also provides reasoning as to why a person of ordinary skill in the art would have been motivated to modify the teachings of these references with a reasonable expectation of success. Pet. 14–18.

Patent Owner advances several arguments against Petitioner’s contentions in its Response, with these arguments particularly focused on

⁷ Patent Owner does not present arguments or evidence of secondary considerations (i.e., objective indicia of non-obviousness) in its Response. *See generally* PO Resp. Therefore, secondary considerations do not constitute part of our analysis herein.

“organizing” step 1.2.1 of claim 1, that organizes “the data” introduced into claim 1 by “receiving, by a processor, data” (step 1.1.1) as further limited by “wherein” clause 1.1.2. *See e.g.*, PO Resp. 24–34.

Accordingly, our analysis below likewise focuses on “organizing” step 1.2.1 as argued by Patent Owner. Patent Owner relies upon the testimony of Dr. Surati to support its positions. *See* Ex. 2010.

We provide a summary of the Melnychenko and Chen references below:

1. Summary of Melnychenko (Ex. 1005)

Melnychenko is titled “System and Methods for Modifying Improperly Formatted Metadata.” Ex. 1005, code (54). Melnychenko describes an interactive media guidance application, including an interactive television program guide. *Id.* ¶¶ 31, 32. Melnychenko further describes how such guides allow users to navigate among and locate many types of content, including television programming, video-on-demand (VOD), and Internet content. *Id.* ¶ 32.

Figure 1, reproduced below, shows an illustrative display screen that may be used to provide media guidance application listings in accordance with an embodiment of the invention: *Id.* ¶¶ 16, 35.

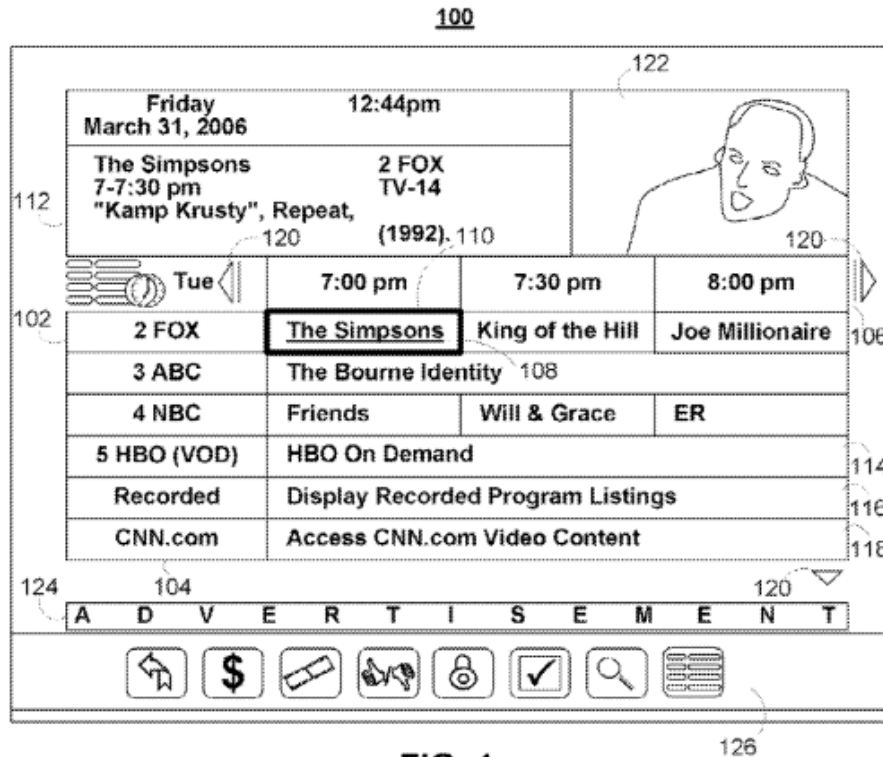


FIG. 1

“Figure 1 shows illustrative grid program listings display 100 that enables access to different types of content in a single display.” *Id.* ¶ 36. Display 100 includes grid 102, highlight region 110, program information region 112 that provides information relating to the program listing selected by highlight region 110, and video region 122 that allows the user to view and/or preview programs. *Id.* ¶¶ 36, 39.

2. Summary of Chen (Ex. 1007)

Chen is titled “Method of Managing Metadata and Set Top Box Device.” Ex. 1007, code (54). Chen relates to “a method of managing metadata and a set top box device therefor, and more particularly to a method of managing metadata operable to plural types of media data and a set top box device therefor.” *Id.* ¶ 3.

Figure 1, reproduced below, is a block diagram of a set top box 100 according to an embodiment of the invention: *Id.* ¶¶ 12, 16.

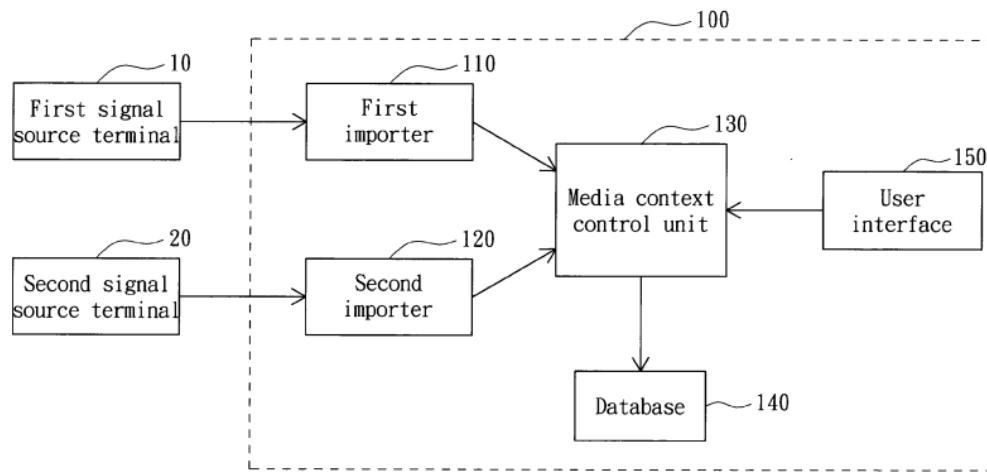


FIG. 1

Figure 1 illustrates “[t]he set top box 100 [which] is operable to receive plural types of media data transmitted by a signal source terminal, for example, TV programs transmitted by a cabled TV, a video on demand (VoD) movie program transmitted by the Internet, an AV data transmitted by a personal computer, or media data stored in other storage devices such as a universal serial bus (USB) storage unit.” *Id.* ¶ 16. “The set top box 100 includes a first importer 110, a second importer 120, a media context control unit 130, and a database 140.” *Id.* The first importer 110 generates a first metadata table complying with a specific table and the second importer 120 generates a second metadata table complying with the specific table. *Id.* [A] user interface 150 [provides] access [to] all the media data operable to the set top box 100 by the specific table of uniform format.” *Id.* ¶ 17.

Figure 3, reproduced below, illustrates the relationship among media data, metadata tables, and a database according to a preferred embodiment of the invention: *Id.* ¶¶ 14, 20.

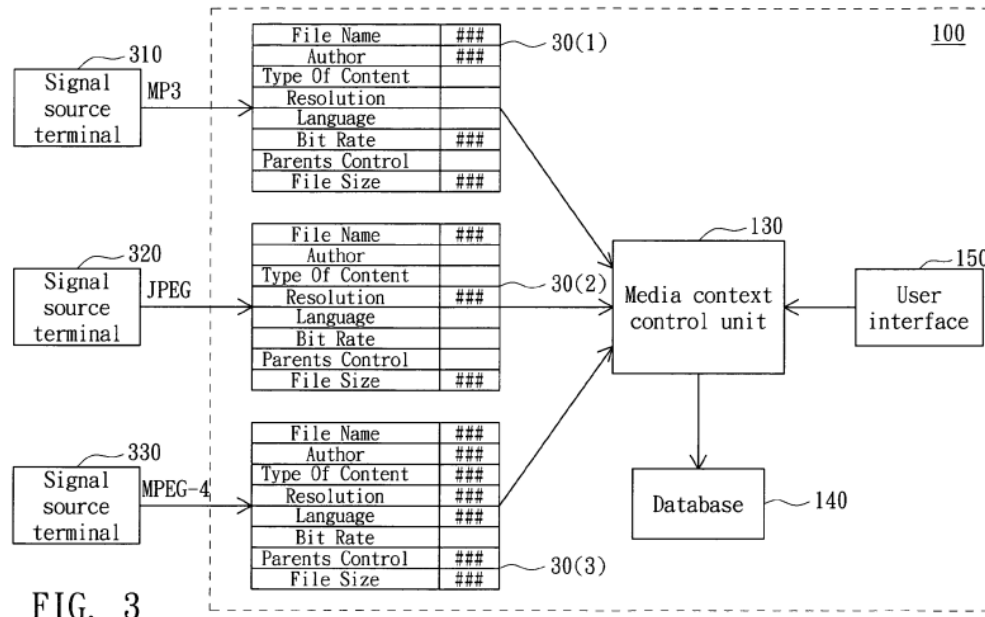


Figure 3 shows signal source terminals 310, 320 and 330, and metadata tables 30(1), 30(2) and 30(3). *Id.* ¶ 20.

3. Analysis of Claim 1

a. Preamble [1.0]

The preamble of claim 1 recites: “[a] method of providing content for a television (TV), the method comprising.” Ex. 1001, 37:56–57.

Petitioner contends Melnychenko’s methods for modifying metadata associated with television content teaches the preamble of claim 1. Pet. 18–19 (citing Ex. 1005, Figs. 1, 3, 4, Abst., ¶¶ 30, 47, 55).

Patent Owner does not substantively rebut Petitioner’s arguments regarding preamble 1.0 in the Response. *See generally* PO Resp.

Based upon our review of the complete record, we find Petitioner has shown the combination of Melnychenko and Chen teaches preamble 1.0.

b. Step [1.1.1]

Step 1.1.1 recites: “receiving, by a processor, data relevant to one or more scheduled events from one of a corresponding subservice of a plurality of subservices.” Ex. 1001, 37:58–60.

Petitioner reads the claimed “processor” on Melnychenko’s Metadata Pre-Processor 958, as depicted in Figure 9B. Pet. 20–21 (citing Ex. 1005 ¶¶ 124, 133, Fig. 9B). Petitioner reads the claimed “receiving . . . data relevant to one or more scheduled events from one of a corresponding subservice of a plurality of subservices” on Melnychenko’s user equipment device 300, as depicted in Figure 3, that “receives from media guidance data source 418 at ‘a system-specified period of time’ or a ‘user-specified period of time,’ which, separately and together, correspond to ‘*one or more scheduled events*.’” Pet. 21 (citing Ex. 1005 ¶¶ 34, 64, 70; Ex. 1003 ¶¶ 110–111). Petitioner contends the claimed “plurality of subservices” is taught by Melnychenko’s Figure 4 that depicts “user television equipment 402 receiv[ing] data from a media content source 416 and media guidance data source 418.” Pet. 23–24 (citing Ex. 1005 ¶ 62, Fig. 4; Ex. 1003 ¶¶ 118–119).

Patent Owner does not substantively rebut Petitioner’s arguments regarding step 1.1.1 in the Response. *See generally* PO Resp.

Based upon our review of the complete record, we find Petitioner has shown the combination of Melnychenko and Chen teaches step 1.1.1.

c. “wherein” clause 1.1.2

“[W]herein” clause 1.1.2 recites: “wherein the plurality of subservices comprises a video-on-demand (VOD) subservice, electronic programming guide (EPG) subservice, and a media subservice.” Ex. 1001, 37:60–63.

Petitioner contends that “Melnychenko’s ‘content source 416 and media guidance data source 418 may be integrated as one source device.’” Pet. 28 (quoting Ex. 1005 ¶ 62). Petitioner further contends “Melnychenko’s content sources 416 provide various types of content including VOD, television EPG, and media.” *Id.* (citing Ex. 1005 ¶¶ 63, 64, 72).

Petitioner contends: “[s]imilar to Melnychenko, Chen[] provides ‘non-limiting’ example sources, including VoD (‘a video on demand (VoD)’), television broadcast (‘a digital TV program, or a cabled TV program’), and media (‘MPEG file, an MP3 file, . . . a WMA file, a JPEG file’).” Pet. 31 (citing Ex. 1007, claim 6; *see also* Ex. 1007 ¶¶ 9, 11, 18, 19, 22).

Patent Owner does not substantively rebut Petitioner’s arguments regarding “wherein” clause 1.1.2 in the Response. *See generally* PO Resp.

Based upon our review of the complete record, we find Petitioner has shown the combination of Melnychenko and Chen teaches “wherein” clause 1.1.2.

d. Step [1.2.1]

Disputed step 1.2.1 recites: “organizing, by the processor, the data according to a pre-defined format corresponding to each of the plurality of subservices.” Ex. 1001, 37:64–66.

Petitioner argues that “Melnychenko renders obvious ‘*organizing, by the processor, the data,*’” because “Melnychenko’s metadata pre-processor 958 modifies received metadata, including modifying punctuations, adding, and moving information.” Pet. 32 (citing Ex. 1005 ¶¶ 116–123, 161; Ex. 1003 ¶¶ 141–142.). Petitioner further contends that Chen renders obvious “‘*organizing...the data*’ in a ‘*format corresponding to each of the plurality of subservices*’ by teaching that the received metadata is organized

in a metadata table corresponding to each different type of content.” Pet. 34 (citing Ex. 1003 ¶ 148, Fig. 3).

Regarding the claim term “pre-defined format,” Petitioner contends: “Chen discloses that the metadata is organized “*according to a predefined format*” because each metadata table complies with a pre-defined “**specific table of uniform format**.” Pet. 34–35 (citing Ex. 1007 ¶¶ 9, 17, 19, 20, Fig. 2 (step 220); Ex. 1003 ¶¶ 149–150 (citing Ex. 1007, Fig. 3)).

Patent Owner disagrees, and contends that Petitioner “fails to show that its prior art combinations organize data according to *a pre-defined format* corresponding to the types of subservices providing that data.” PO Resp. 29 (citing Ex. 2010 ¶¶ 124–133) (emphasis added). Patent Owner notes that “[i]n all instances, the Petition relies upon Melnychenko in view of Chen to suggest this element.” *Id.* (citing Pet. 32–42).

Patent Owner asserts “the Petition admits that Melnychenko ‘does not provide implementation details how such metadata is formatted or how the pre-processor 958 organizes metadata with a variety of formats.’” *Id.* (citing Pet. 32–43). Patent Owner contends that “Chen at most teaches organizing data by *file type* (e.g., MP3, JPEG, or MPEG-4), an entirely distinct method that cannot suggest organizing data by types of *subservices* (the VOD subservice, EPG subservice, and media subservice) as claimed.” *Id.* (citing Ex. 2010 ¶¶ 124–133 (citing Ex. 1007 ¶ 20)) (emphases added).

In support, Patent Owner relies upon Dr. Surati’s testimony which asserts that “Chen does not organize the data from each type of subservice source (VOD, EPG, or media) according to a pre-defined format corresponding to that subservice source type (VOD, EPG, or media).” PO Resp. 29 (quoting Ex. 2010 ¶ 125 (citing Ex. 1007 ¶ 20)). Patent Owner argues that Chen instead “organizes data from multiple sources based on the

file type of the data (MP3, JPEG, or MPEG-4) provided by the source regardless of the type of source (VOD, EPG, or media).” *Id.* at 30 (emphasis added). Patent Owner additionally notes that “Petitioner’s annotations to Chen’s Fig. 3 show that metadata “is organized in metadata tables corresponding to MP3, JPEG, and MPEG-4 content.” *Id.* (citing Ex. 1007; Fig. 3).

Patent Owner contends that a “person of ordinary skill would know that MP3, JPEG, and MPEG-4 are file types—not VOD, EPG, or media subservices.” *Id.* at 31 (citing Ex. 2010 ¶ 127). Thus, Patent Owner contends the claimed “organizing” step would not even be suggested by organizing data according to subservice types as claimed to a person of ordinary skill.” *Id.* (citing Ex. 2010 ¶¶ 128–133).

Patent Owner notes Dr. Surati testifies that “a single subservice type may provide data of multiple file types.” PO Resp. 31 (citing Ex. 2010 ¶ 128). Of particular note, Dr. Surati agrees with Petitioner’s expert Dr. Lippman that “each subservice (VOD, EPG, or media) may provide data in multiple file types.” Ex. 2010 ¶ 128 (citing Ex. 2012). Patent Owner argues, “[i]ndeed, Chen discloses that the three sources of Fig. 3 belong to the same type of subservice—a media subservice.” PO Resp. 31 (citing Ex. 2010 ¶ 128). Patent Owner thus contends: “[b]ecause a single subservice may provide data of multiple file types, organizing data according to file type would not organize the data according to a *pre-defined format* corresponding to the type of subservice, because the format would be shared among all subservices providing data of that file type.” PO Resp. 31–32 (citing Ex. 2010 ¶ 128) (emphasis added).

Patent Owner concludes: “Petitioner cannot rely on Chen’s metadata tables conforming to a uniform format to show organizing data according to

a pre-defined format corresponding to the plurality of subservices as claimed.” PO Resp. 33 (citing Ex. 2010 ¶ 132).

Patent Owner contends “[e]ven if Chen’s [Fig. 3] metadata tables [30(1), 30(2), 30(3)] share a uniform format, that is insufficient to show pre-defined formats corresponding to the plurality of subservices as claimed. Nothing in Chen suggests metadata tables that are pre-defined for types of subservices, rather than types of file formats.” *Id.* Thus, Patent Owner concludes: “Petitioner fails to show that the prior art combinations suggest organizing data received from EPG subservices, VOD subservices, or media subservices according to a pre-defined format corresponding to the type of subservice as claimed.” PO Resp. 34.

In Reply, Petitioner argues: “[a]s Dr. Lippmann explains, “[i]n Figure 3, MP3 metadata table 30(1), JPEG metadata table 30(2), and MPEG-4 metadata table 30(3) are illustrated to be organized in a ‘*pre-defined format*,’ because the relevant fields in the columns are organized in the following order: (1) File Name; (2) Author; (3) Type of Content; (4) Resolution; (5) Language; (6) Bit Rate; (7) Parents Control; and (8) File size.” Pet. Reply 21 (citing Ex. 1020 ¶ 35; Pet. 33–35; Ex. 1007 ¶¶ 19–20, Fig. 3; Ex. 1003 ¶¶ 147–148). Petitioner concludes: “[t]hus, the order of the metadata table is “*pre-defined*” in each of metadata tables 30(1)-30(3).” *Id.* (citing Ex. 1007 ¶ 20 (describing the metadata tables 30(1)-30(3) each having a specific order indicated by the order of the columns of data shown in Figure 3); Pet. Reply 21–22 (citing Ex. 1020 ¶ 35)).

Petitioner asserts that Patent Owner “incorrectly construes ‘*a pre-defined format*’ to mean “**three pre-defined formats.**” *Id.* at 23 (quoting PO Resp. 20). Petitioner alternatively asserts that “[e]ven under this incorrect construction, the combination of Melnychenko and Chen as

presented in the Petition renders this obvious.” *Id.* Petitioner argues that “[a]s shown in the Petition, it would have been obvious to organize the EPG subservice, VOD subservice, and media subservice, as taught by Melnychenko, according to pre-defined formats.” *Id.* (citing Pet. 34–37). Petitioner specifically contends the “metadata in each of the tables for EPG, VOD, and media subservices would be organized in a ‘*pre-defined format*,’ because they include different metadata as indicated by symbol “###.” *Id.* (citing Ex.1007 ¶ 20; Pet. 34–35; Ex. 1020 ¶ 37; Ex. 1003 ¶¶ 149–150).

Petitioner also contends Patent Owner is incorrectly focusing its arguments on the Chen reference, because “the Petition explained that Melnychenko renders obvious a ‘*VOD subservice*,’ an ‘*EPG subservice*,’ and a ‘*media subservice*’ as illustrated in exemplary Figure 9B (modified and annotated).” *Id.* at 24 (quoting Pet.28–30). Petitioner emphasizes that Patent Owner and its expert do not contest that Melnychenko teaches the claimed “*subservices*.” *Id.* (citing *generally* PO Resp. 24–34; Ex. 1021, 106:17–107:3).

Lastly, Petitioner relies upon Dr. Lippman’s testimony explaining that the services in Figure 3 of Chen are “services [that] provide data streams and not files,” as Patent Owner incorrectly asserts. Pet. Reply 26 (citing Ex. 1020 ¶ 38).

In its Sur-reply, Patent Owner counters: “Even if the Board does not adopt Patent Owner’s construction of the term “organizing... the data according to a pre-defined format corresponding to each of the plurality of subservices,” the plain claim language still unambiguously requires organizing data according to a format ***corresponding to subservices***.” PO Sur-reply 2–3. Patent Owner asserts “there is no dispute that the prior art (Chen) does not organize by a format corresponding to subservices—

instead, Chen organizes by a format *corresponding to file types*. *Id.* at 3 (citing PO Resp. 30–31; Pet. Reply 20–22 (only arguing that Chen discloses a pre-defined format and not disputing that the pre-defined format corresponds to file types)). Patent Owner notes that its “Response presented un rebutted expert testimony and supporting evidence that a file type format is completely unrelated to a subservice format.” *Id.* (citing PO Resp. 29–33). Patent Owner thus concludes: “[b]ecause a file type format is not a subservice format, the prior art cannot disclose or suggest the challenged claims.” *Id.*

At the outset, we note that Petitioner relies upon Melnychenko as rendering obvious step 1.2.1 ‘*organizing, by the processor, the data,*’ because “Melnychenko’s metadata pre-processor 958 modifies received metadata, including modifying punctuations, adding, and moving information.” Pet. 32 (citing Ex. 1005 ¶¶ 116–123, 161; Ex. 1003 ¶¶ 141–142.). As noted by Petitioner, Melnychenko teaches an EPG subservice 100, a VOD subservice (“5 HBO (VOD)”), and a media subservice in Figure 1. Pet. 12.

And regarding the disputed step 1.2.1 claim term “pre-defined format,” we note Petitioner relies upon Chen as disclosing the metadata organized “*according to a predefined format*” because each metadata table [30(1), 30(2), 30(3), Fig. 3] complies with a pre-defined “**specific table of uniform format**.” Pet. 34–35 (citing Ex. 1007 ¶¶ 9, 17, 19, 20, Fig. 2 (step 220); Ex. 1003 ¶¶ 149–150 (citing Ex. 1007, Fig. 3)).

However, our analysis of disputed step 1.2.1 turns upon our claim construction for the term “pre-defined format,” as discussed *supra* in section II(B)(1)(a). As noted above, we conclude there is no language in claim 1 that requires the *pre-defined formats* of the VOD data model, EPG data

model and media data model (or the data formats used by the corresponding respective “subservices” that obtain data from the content provider) to be implemented using *different* pre-defined formats, as urged by Patent Owner. See PO Sur-reply 9.

In our claim construction, we agree with Petitioner’s assertion that Patent Owner “incorrectly construes ‘*a pre-defined format*’ to mean “**three pre-defined formats.**” Pet. Reply 23. It logically follows that we find unpersuasive Dr. Surati’s testimony that “Chen simply does not state that it organizes MP3 files from a VOD subservice any *differently* from MP3 files from a media subservice, *as would be required by claim 1.*” Ex. 2010 ¶ 128 (emphasis added).

Simply put, Dr. Surati’s testimony is grounded upon an erroneous premise — i.e., an erroneous claim construction that *three different pre-defined formats* are required by claim 1, i.e., a different pre-defined format, one for each subservice. *Id.* Regarding Dr. Surati’s testimony that “Chen itself discloses three different examples of the [single] media subservice that provides media in the MP3, JPEG, and MPEG-4 file types” (*id.*), as noted by Petitioner, Melnychenko teaches an EPG subservice 100, a VOD subservice (“5 HBO (VOD)”), and a media subservice (e.g., CNN.com) in Figure 1. Pet. 12 (citing Ex. 1005 ¶ 32; Ex. 1003 ¶¶ 61–67).

We agree with Petitioner that Patent Owner’s focus on Chen is unavailing, because “the Petition explained that Melnychenko renders obvious a ‘*VOD subservice*,’ an ‘*EPG subservice*,’ and a ‘*media subservice*’ as illustrated in exemplary Figure 9B (modified and annotated).” Pet. Reply 24 (quoting Pet. 28–30). Moreover, Patent Owner and its expert do not contest that Melnychenko teaches the claimed “*subservices.*” See generally PO Resp. 24–34; Ex. 1021, 106:17–107:3.

And Patent Owner acknowledges that “a single file type may be used by multiple subservices.” PO Resp. 31 (citing Ex. 2010 ¶ 128). We find this admission by Patent Owner suggests that multiple subservices (e.g., VOD, EPG, media) may share a single file type, i.e., of the same format.

We agree with Petitioner that Melnychenko teaches the organization of data in its metadata pre-processor. Pet. 24–25 (citing Ex. 1005 ¶ 126; Ex. 1003 ¶¶ 120–123). Therefore, we agree with Petitioner that “Melnychenko discloses that received metadata is from a media guidance data source, which renders obvious that the received data is ‘*from one of a corresponding subservice.*’” Pet. 25 (citing Ex. 1003 ¶ 124).

We also agree with Petitioner that the scope of the claim term “pre-defined format” at least encompasses “a pre-defined *order* of data or metadata,” which is argued by Petitioner as being supported by a description found in the ’805 patent.⁸ Pet. Reply 7 (quoting Ex. 1001, 30:1–5; 34:49–60).

Dr. Lippman persuasively testifies: “like the ’805 patent, Melnychenko’s media guidance application receives content such as TV programming (EPG programming), VOD content, and media content such as streaming Internet content.” Ex. 1003 ¶ 62 (citing Ex. 1005 ¶ 32). And Patent Owner acknowledges “the goal of Melnychenko is to conform all pre-

⁸ “A claim construction that excludes a preferred embodiment is rarely, if ever correct and would require highly persuasive evidentiary support.” *Kaufman v. Microsoft Corp.*, 34 F.4th 1360, 1372 (Fed. Cir. 2022) citing *Epos Technologies Ltd. v. Pegasus Technologies Ltd.*, 766 F.3d 1338, 1347 (Fed. Cir. 2014); *see also Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1583 (Fed. Cir. 1996).

processed metadata into a single metadata format that is compatible with the desired application or purpose.” PO Resp. 6 (citing Ex. 1005 ¶¶ 116–140, Fig. 11).

We agree with Petitioner that Chen teaches the organization of received metadata in a predefined order, consistent with our claim construction, in Chen’s Figure 3, metadata tables 30(1), 30(2), and 30(3). Pet. 15. We credit Dr. Lippman’s testimony that “[a] POSITA would have understood that **Chen’s teachings represent a general technological principle** and are not limited to the exemplary content of MP3, JPEG, and MPEG-4.” Ex. 1003 ¶ 151 (citing Ex. 1007 ¶¶ 9, 11, 18, 19, 22). We additionally credit Dr. Lippman’s testimony that Chen’s “services provide data streams and not files.” Pet. Reply 26 (citing Ex. 1020 ¶ 38).

“The test for obviousness is what the *combined* teachings of the references would have suggested to one of ordinary skill in the art.” *In re Young*, 927 F.2d 588, 591 (Fed. Cir. 1991) (citing *In re Keller*, 642 F.2d 413, 425 (CCPA 1981)) (emphasis added). “Non-obviousness cannot be established by attacking references individually where the rejection is based upon the teachings of a *combination* of references.” *In re Merck & Co.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986) (citing *Keller*, 642 F.2d at 425) (emphasis added). In determining obviousness, furthermore, a reference “must be read, not in isolation, but for what it fairly teaches in *combination* with the prior art as a whole.” *Id.* (emphasis added).

This reasoning is applicable here. Therefore, we find the *collective* teachings of Melnychenko and Chen render obvious step 1.2.1 (“*organizing, by the processor, the data according to a pre-defined format corresponding to each of the plurality of subservices*”) by teaching that the metadata received from Melnychenko is stored in Chen’s metadata tables (Figure 3)

which each correspond to a type of content (having a pre-defined format) corresponding to the subservices (VOD, EPG, Media) of Melnychenko. (emphasis added). *See* Pet. 34 (citing Ex. 1003 ¶ 148).

Based upon our review of the complete record, we find Petitioner has shown the combination of Melnychenko and Chen teaches disputed step 1.2.1.

e. “wherein” clause [1.2.2]

“wherein” clause 1.2.2 of claim 1 recites: “wherein the pre-defined format comprises one of a VOD data model, an EPG data model and a media data model.” Ex. 1001, 37:66–38:1.

Petitioner contends: “In one embodiment, Chen’s specific table of ***uniform format*** corresponds to an ***XML file*** corresponding to all of the media data operable to the user’s device (e.g., set-top box).” Pet. 37 (citing Ex. 1007 ¶ 19) (emphasis added). Petitioner asserts: “This is demonstrated by Chen’s Figure 3 . . . where the metadata tables (which are generated to comply with the ‘specific table of uniform format’ of XML file) use symbol ‘###’ to denote what field will have metadata inputted and the order of the fields in the columns specify how the metadata is to be stored.” *Id.* at 38 (citing Ex. 1003 ¶ 163).

Patent Owner does not substantively rebut Petitioner’s arguments regarding “wherein” clause 1.2.2 in the Response. *See generally* PO Resp.

Based upon our review of the complete record, we find Petitioner has shown the combination of Melnychenko and Chen teaches “wherein” clause 1.2.2.

f. “wherein” clause [1.2.3]

“wherein” clause 1.2.3 of claim 1 recites: “wherein organizing the data according to the pre-defined format comprises converting the data received from the subservice into the pre-defined format of the corresponding data model and.” Ex. 1001, 38:1–5.

Petitioner contends:

It would have been obvious to a POSITA that in the proposed combination with Chen (*see* [1.2.1]-[1.2.2]), organizing includes converting Melnychenko’s metadata, which may come in a variety of metadata formats from the VOD, TV/EPG, and media guidance data source (which may be initially received in a format as shown at Figure 5) to be in a “**uniform format**.” Ex.1007, [0017], Ex.1003, ¶¶171-173. For example, it would have been obvious for Melnychenko’s metadata file 600 (which represents one format for a single piece of content, Ex.1005, [0089]) to be converted into a metadata table of uniform format, i.e., has fields that relate to all of the content that may be received by Melnychenko’s television. Ex.1003, ¶173.

Pet. 42.

Patent Owner does not substantively rebut Petitioner’s arguments regarding “wherein” clause 1.2.3 in the Response. *See generally* PO Resp.

Based upon our review of the complete record, we find Petitioner has shown the combination of Melnychenko and Chen teaches “wherein” clause 1.2.3.

g. “wherein” clause [1.2.4]

“wherein” clause 1.2.4 of claim 1 recites: “wherein each of the VOD data model, EPG data model, and media data model provide a uniform format for the plurality of subservices; and.” Ex. 1001, 38:5–7.

Petitioner contends:

Melnychenko in view of Chen discloses that metadata tables corresponding to each media data sources are generated according to a “specific table of **uniform format**” (Ex.1007, [0017]) and that the specific table is of an XML file (Ex.1007, [0019]) with data models for VOD, EPG, and Internet and media (“*the VOD data model, EPG data model, and media data model*”). Thus, the combination of Melnychenko and Chen renders obvious that each of the media data models “*provide a uniform format for the plurality of subservices.*” Ex.1003, ¶¶ 177-179.

Pet. 43–44.

Patent Owner does not substantively rebut Petitioner’s arguments regarding “wherein” clause 1.2.4 in the Response. *See generally* PO Resp.

Based upon our review of the complete record, we find Petitioner has shown the combination of Melnychenko and Chen teaches “wherein” clause 1.2.4.

h. Step [1.3]

Step [1.3] of claim 1 recites: “providing, by the processor, the organized data to one or more of a plurality of content provider modules of the TV.” Ex. 1001, 38:8–10.

Petitioner notes that the claim terms “one or more” and “module” are defined in the ’805 patent: “‘*one or more*,’ includes ‘at least one of A, B, or C.’” Pet. 45 (quoting Ex.1001, 3:21-28). Petitioner also notes that “the ’805 patent defines ‘*module*’ as ‘any known or later developed hardware, software, firmware, artificial intelligence, fuzzy logic, or combination of hardware and software.’” *Id.* (quoting Ex. 1001, 30:65–31:3).

Petitioner then contends that “Chen discloses that the organized metadata tables are provided to a media context control unit 130 which

facilitates storage in a database 140, as shown below at Figure 3.” *Id.* at 46 (citing Ex. 1007 ¶¶ 16, 17; Ex. 1003 ¶ 187).

Patent Owner does not substantively rebut Petitioner’s arguments regarding “providing” step 1.3 in the Response. *See generally* PO Resp.

Based upon our review of the complete record, we find Petitioner has shown the combination of Melnychenko and Chen teaches step 1.3.

i. Rationale for Combining Melnychenko and Chen under Ground 1

Petitioner contends, *inter alia*: “Melnychenko and Chen are each in the same field of endeavor and therefore analogous art to the ’805 patent . . . [i]n addition, Melnychenko and Chen are each reasonably pertinent to a problem the inventors of the ’805 patent attempted to solve . . . of organizing metadata.” Pet. 13–14. Next, Petitioner contends that “[i]t would have been obvious to a POSITA, when implementing Melnychenko’s system, to apply Chen’s metadata organizing teachings because they provide implementation details applicable to Melnychenko’s metadata . . . and storing the organized metadata in a database.” *Id.* at 15–16.

According to Petitioner, one of the benefits of applying Chen’s metadata organizing teachings to Melnychenko’s system includes allowing for the “design [of] a user interface operable to plural types of media data instead of designing various user interface according to the types of media data,” which results in simplified user interface that is more diversified and more convenient to operate. *Id.* (quoting Ex. 1007 ¶ 17).

Petitioner also argues that another benefit of applying Chen’s metadata organizing teachings to Melnychenko’s system would result in the

“prompt[] and correct[] retrieve[al] [of] the media data stored in the database.” *Id.* (quoting Ex. 1007 ¶ 20). Petitioner asserts that “a POSITA considering how to organize Melnychenko’s metadata . . . would have applied Chen’s [metadata] organizing teachings . . . to obtain one or more of the noted benefits.” *Id.* (citing Ex. 1003 ¶ 87). Petitioner sets forth the reasons why “a POISTA would have expected to have success in applying Chen’s teachings to Melnychenko.” Pet. 17 (citing Ex. 1003 ¶ 90).

We note Patent Owner does not address the propriety of the combination of Melnychenko and Chen in its Response, or in its Sur-reply. *See generally* PO Resp.; PO Sur-reply.

Based upon our review of the complete record, and for the reasons argued by Petitioner (Pet. 13–14), we find Petitioner has sufficiently shown a proper combination of the teachings of Melnychenko and Chen under 35 U.S.C. § 103(a).

j. Conclusion for Claim 1 under Ground 1

Having considered the arguments and evidence presented by both the Petitioner and Patent Owner, we determine that Petitioner has shown by a preponderance of the evidence that the subject matter of independent claim 1 would have been obvious over the collective teachings Melnychenko and Chen, under 35 U.S.C. § 103(a).

4. Remaining Independent Claims 10 and 17 under Ground 1

Petitioner argues that the remaining independent claims 10 and 17 are “substantially similar” to claim 1 and are therefore unpatentable for the same reasons as previously argued for claim 1, as considered under Ground 1. (Pet. 49–51).

As noted by Patent Owner in its Response:

Every independent claim challenged this IPR requires ‘receiving...data...from one of a corresponding subservice of a plurality of subservices, wherein the plurality of subservices comprises a video-on-demand (VOD) subservice, electronic programming guide (EPG) subservice, and a media subservice’ [and] [t]he received data is ‘organiz[ed] according to a pre-defined format corresponding to each of the plurality of subservices.’

PO Resp. 24–25.

We agree with both parties regarding the similar limitations of independent claims 10 and 17, which closely parallel the steps of claim 1, particularly regarding the disputed organizing step 1.2.1 (argued by Patent Owner) which recites: “organizing, by the processor, the data according to a pre-defined format corresponding to each of the plurality of subservices.” Ex. 1001, 37:64–66.

Compare with limitation 10.4.1: “organizing the data according to a pre-defined format corresponding to each of the plurality of subservices.” Ex. 1001, 38:48–49. We note limitation 10.1 recites “a processor.” Ex. 1001, 38:38.

Compare with limitation 17.3.1: “organizing the data according to a pre-defined format corresponding to each of the plurality of subservices.” Ex. 1001, 40:5–6. We note limitation 17.1.2 recites “a processor.” Ex. 1001, 39:20.

For the reasons discussed above, we find Petitioner has shown by a preponderance of the evidence that the combination of Melnychenko and Chen teach all the steps of claim 1, including the disputed “organizing” step 1.2.1, that is the focus of Patent Owner’s arguments. Because independent claims 10 and 17 each recite the limitations of independent claim 1 using

similar language of commensurate scope, we additionally find Petitioner has shown the combination of Melnychenko and Chen teach all the limitations of independent claim 10, and independent claim 17, as considered under Ground 1 over Melnychenko and Chen.

E. Ground 2 – Alleged Obviousness Over Melnychenko, Chen, Kim, and Lee-1

Petitioner contends that claims 1–3, 9–12, and 16–18 would have been obvious over the combination of Melnychenko, Chen, Kim, and Lee-1. Pet. 52–74.

In its Response, Patent Owner only addresses the “*read-only format*” term recited in dependent claims 3 and 12. (emphasis added). Patent Owner does not address claims 1, 2, 9, 10, 11, and 16–18, as considered under Ground 2. PO Resp. 42–44. Patent Owner does not argue: (1) the cited references under Ground 2 have been improperly combined by Petitioner, or (2) that there would not have been a reasonable expectation of success with the combination. *See generally* PO Resp.; PO Sur-reply.

In its Reply, Petitioner asserts that Patent Owner “does not specifically address (and therefore concedes) the obviousness of claims 1, 1[0], and 17 in Ground 2.” Pet. Reply 27 (citing *generally* PO Resp.).

In its Sur-reply, Patent Owner again only addresses the “read-only format” term recited in dependent claims 3 and 12.

We provide a summary of the additional Kim and Lee–1 references below:

1. *Summary of Kim (Ex. 1006)*

Kim is titled “Image Display Apparatus and Method for Operating the Same.” Ex. 1006, code (54). Figure 19, reproduced below, shows a “home screen displayed on an image display apparatus according to an embodiment.” *Id.* ¶ 21.

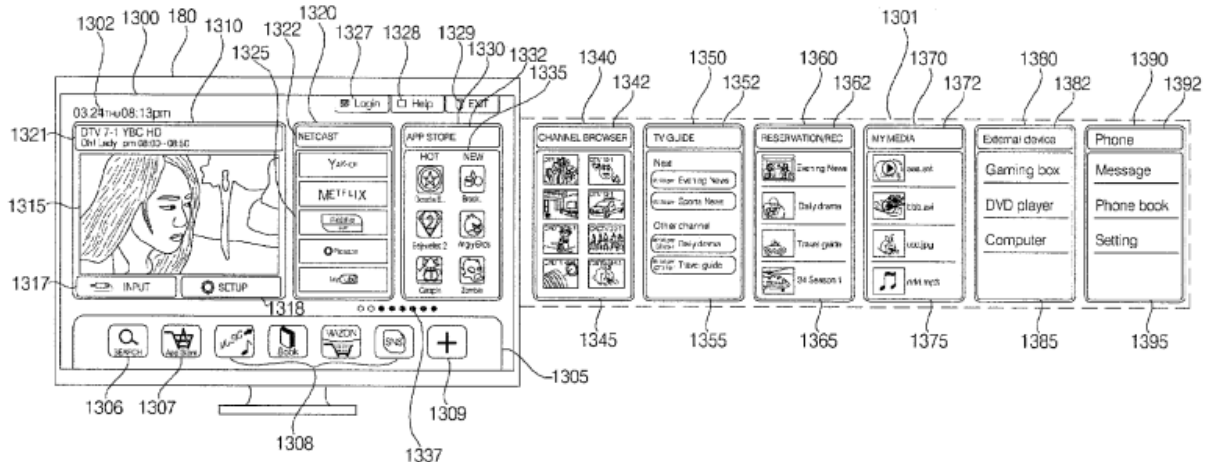


Figure 19 shows a card object area with “a plurality of card objects 1310, 1320, and 1330 which are classified based on the source or a type of content.” *Id.* ¶¶ 192–196. Card object 1310 may display a broadcast image. *Id.* ¶ 195. Card object 1320 may provide a list of content providers. *Id.* Card object 1330 may provide a list of applications. *Id.* Other card objects may be arranged in a hidden area 1301. *Id.* ¶ 196.

2. *Summary of Lee-1 (Ex. 1008)*

Kim incorporates Lee-1 by reference for examples of thumbnails and methods of using the same. Ex. 1006 ¶ 106. Lee-1 is titled “Apparatus for Processing Images and Method Thereof.” Ex. 1008, code (54). Lee-1 describes a “thumbnail generator 250 generates a thumbnail by scaling and compressing pictures inputted from [a] video decoder 215 or [a] DV decoder

217 . . . [a] size change is performed to display a thumbnail with an appropriate size when it is displayed on the display.” *Id.* at 8:31–40.

3. *Analysis of Independent Claims 1, 10, and 17 under Ground 2*

In its Reply, Petitioner asserts that Patent Owner “does not specifically address (and therefore concedes) the obviousness of claims 1, 1[0], and 17 in Ground 2.” Pet. Reply 27 (citing *generally* PO Resp.).

Ground 2 is cumulative to Ground 1 over Melnychenko and Chen as to independent claims 1, 10, and 17 and our analysis set forth above equally applies here for Ground 2. Based upon our review of the complete record, we find Petitioner has shown that the base combination of Melnychenko and Chen teaches independent claims 1, 10, and 17 under Ground 2 for the same reasons discussed above regarding independent claims 1, 10, and 17, as considered under Ground 1 over Melnychenko and Chen.

4. *Analysis of Dependent Claim 2 under Ground 2*

Dependent claim 2 recites “The method of claim 1, wherein the plurality of content provider modules comprises an EPG data provider, a media data provider, a media browser, a media scanner, and a thumbnail engine.”

Petitioner contends that claim 2 would have been obvious over the combination of Melnychenko, Chen, Kim, and Lee-1. Pet. 67–70. Petitioner provides a detailed mapping of each claim term recited in claim 2 to the corresponding feature found in the respective reference. *Id.*

In its Response, Patent Owner does not address dependent claim 2 as considered under Ground 2. PO Resp. 42–44.

Based upon our review of the complete record, we find Petitioner has shown that dependent claim 2 would have been obvious over the collective teachings of the references cited by Petitioner under Ground 2.

5. *Analysis of Dependent Claims 3 and 12 under Ground 2*

Dependent claim 3 recites “The method of claim 2, wherein the EPG data provider is configured to serve one or more applications of the TV with EPG information in a *read-only format*.” (emphasis added).

Dependent claim 12 similarly recites “The data service system of claim 11, wherein the EPG data provider is configured to serve one or more applications of the TV with EPG information in a *read-only format*.” (emphasis added)

Petitioner reads the “TV with EPG information in a *read-only format*” as recited in claims 3 and 12 on Kim as follows:

Kim discloses that “[t]he information object 1321 [in the broadcast card object 1310] that displays information related to the broadcast image 1315 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.” Ex.1006, [0199]. This information is served in a *read-only format* because “the user may readily obtain information regarding the displayed broadcast image 1315 through the information object 1321,” and “EPG information” about the broadcast program is displayed “if the user selects the information object 1321.” Ex.1006, [0199]. A POSITA would have understood that this EPG information is served in a *read-only format* because its purpose is to provide information to the user about the broadcast program currently displayed and therefore may not be edited. *See, e.g.,* Ex.1006, [0142] (controller 170 receives “encoded signal such as an EPG which includes broadcasting information specifying the start time, end time, etc. of scheduled broadcast TV or radio programs.”).

Pet. 71–72 (citing Ex. 1003 ¶¶ 281–282) (emphasis added).

Regarding dependent claims 3 and 12, Patent Owner responds and focuses on the “read-only format” claim term, and asserts that “Petitioner’s expert provides no underlying facts to support this conclusion and merely repeats the Petitioner’s allegations verbatim. Under *Xerox*, this opinion is entitled to no weight.” PO Resp. 43 (citing *Xerox Corp. v. Bytemark, Inc.*, IPR2022-00624, Paper 12 at *5 (PTAB Feb. 10, 2023) (precedential).

Patent Owner further asserts that “a person of ordinary skill in the art at the time of invention would have known that EPG information could be edited.” PO Resp. 43 (citing Ex. 2010 ¶¶ 157–162). Patent Owner notes that “Dr. Surati provides an example from the approximate time of invention of the ’805 Patent suggesting that it would have been beneficial to personalize or edit EPG information.” *Id.* (citing Ex. 2013 (US Pat. No. 8,776,101 to Donoghue)). Patent Owner contends “[t]his evidence directly contradicts Petitioner’s contention that EPG information could not have been edited.” PO Resp. 43.

Regarding dependent claims 3 and 12, Petitioner contends that Patent Owner “appears to be suggesting that Kim must provide that **all** EPG information may not be edited.” Pet. Reply 28. Petitioner notes that “[c]laims 3 and 12 do not require that **all** EPG information must be read-only.” *Id.* Petitioner notes that “as explained by Dr. Lippman, ‘[i]t would be obvious to serve certain types of EPG information, such as the channel number, channel name, broadcast program title, and airtime disclosed in Kim (Ex.1006, [0199]), in a read-only format because that EPG

information (e.g., channel number...) is designated by the broadcast provider as static information that should not be editable.” Pet. Reply 28 (citing Ex. 1020 ¶ 41; Ex. 1003 ¶ 281).

In its Sur-reply, Patent Owner reiterates that the “only ‘evidence’ provided by the Petition is Dr. Lippman’s conclusory testimony that EPG “is served in a read-only format because its purpose is to provide information to the user about the broadcast program currently displayed and therefore may not be edited.” PO Sur-reply 10 (citing Ex. 1003 ¶ 281). Patent Owner asserts that the “Patent Owner Response showed that it was well known at the time of invention that EPG could be edited, and it was desirable to do so.” *Id.* (citing PO Resp. 43–44).

Patent Owner acknowledges that Kim “does teach presenting program content in an EPG-like interface.” PO Sur-reply 11 (citing Ex. 2013, 33:39–45; Ex. 1021, 175:23—177:12). But Patent Owner notes that “immediately preceding the teaching of the EPG-like interface is another teaching to populate a personalized EPG using recommended or user-selected content. Ex. 2013, 33:33–39. This disclosure confirms that it was known to personalize (thus, edit) EPG.” *Id.* (citing Ex. 1021, 179:9–180:9).

Patent Owner concludes: “There is no dispute that none of Petitioners’ prior art teaches EPG in a read-only format. The only ‘evidence’ of EPG in a read-only format is Petitioners’ expert’s say-so that EPG could not be edited.” PO Sur-reply 11–12 (citing *TQ Delta, LLC v. Cisco Systems, Inc.*, 942 F.3d 1352, 1362 (Fed. Cir. 2019) (“Untethered to any supporting evidence, much less any contemporaneous evidence, Dr. Tellado’s *ipse dixit* declaration fails to provide any meaningful explanation.”)).

Patent Owner summarizes: “The evidence, however, shows that editing EPG was well known at the time of invention. Petitioners have thus

not met their burden of showing EPG in a *read-only format*.” PO Sur-reply 12 (emphasis added).

We find that Petitioner has not shown by a preponderance of the evidence that Kim teaches EPG information in a read-only format. *See* PO Sur-reply 11–12. We note Petitioner relies upon Dr. Lippman’s testimony which cites to paragraphs 199 and 142 of Kim as evidence to support the assertion that a “POSITA would have understood that [Kim’s] EPG information is served in a read-only format because its purpose is to provide information to the user about the broadcast program currently displayed and therefore may not be edited.” Ex. 1003 ¶ 281 (citing Ex. 1006 ¶¶ 199, 142). However, we find the cited paragraphs 199 and 142 of Kim are silent regarding any mention of EPG information being in a read-only format, as argued by Patent Owner. PO Sur-reply 11–12. And common sense cannot replace reasoned analysis and evidentiary support. *See Arendi S.A.R.L. v. Apple Inc.*, 832 F.3d 1355, 1361–63 (Fed. Cir. 2016).

Based upon our review of the complete record, and also in light of Patent Owner’s citation to *TQ Delta*, 942 F.3d at 1362, we agree with Patent Owner that Kim teaches populating a personalized EPG using recommended or user-selected content that has not been shown by Petitioner to be in a *read-only format*. PO Resp. (citing Ex. 2013, 33:33–39) (emphasis added).

Therefore, we find Petitioner has not met its burden of showing that dependent claims 3 and 12 are unpatentable over the cited Kim reference as considered under Ground 2.

6. *Analysis of Dependent Claim 9 under Ground 2*

Dependent claim 9 recites “The method of claim 2, wherein the thumbnail engine is configured to provide thumbnails for media, applications, or other contents.”

Petitioner contends that claim 9 would have been obvious over the combination of Melnychenko, Chen, Kim, and Lee-1. Pet. 72–74. Petitioner provides a detailed mapping of each claim term recited in claim 9 to the corresponding feature found in the respective reference. *Id.*

In its Response, Patent Owner does not address dependent claim 9 as considered under Ground 2. PO Resp. 42–44.

Based upon our review of the complete record, we find Petitioner has shown that dependent claim 9 would have been obvious over the collective teachings of the references cited by Petitioner under Ground 2.

7. *Analysis of Dependent Claim 11 under Ground 2*

Dependent claim 11 recites “The data service system of claim 10, wherein the plurality of content provider modules comprises an EPG data provider, a media data provider, a media browser, a media scanner, and/or thumbnail engine.”

Petitioner contends that claim 11 would have been obvious over the combination of Melnychenko, Chen, Kim, and Lee-1. Pet. 74 (citing Ex. 1003 ¶ 301). Petitioner provides a mapping of claim 11 to the corresponding feature found in the respective reference. *Id.*

In its Response, Patent Owner does not address dependent claim 11 as considered under Ground 2. PO Resp. 42–44.

Based upon our review of the complete record, we find Petitioner has shown that dependent claim 11 would have been rendered obvious over the collective teachings of the references cited by Petitioner under Ground 2.

8. *Analysis of Dependent Claim 16 under Ground 2*

Dependent claim 16 recites “The data service system of claim 11, wherein the thumbnail engine is configured to provide thumbnails for media, applications, or other contents.”

Petitioner contends that claim 16 would have been obvious over the combination of Melnychenko, Chen, Kim, and Lee-1. Pet. 74. Petitioner provides a mapping of claim 16 to the corresponding feature found in the respective reference. *Id.*

In its Response and Sur-reply, Patent Owner does not address dependent claim 16 as considered under Ground 2. PO Resp. 42–44.

Based upon our review of the complete record, we find Petitioner has shown that dependent claim 16 would have been obvious over the collective teachings of the references cited by Petitioner under Ground 2.

9. *Analysis of Dependent Claim 18 under Ground 2*

Dependent claim 18 recites “The intelligent TV of claim 17, wherein the plurality of content provider modules comprises an EPG data provider, a media data provider, a media browser, a media scanner, and/or thumbnail engine.”

Petitioner contends that claim 18 would have been obvious over the combination of Melnychenko, Chen, Kim, and Lee-1. Pet. 74. Petitioner provides a mapping of claim 18 to the corresponding feature found in the respective reference. *Id.*

In its Response and Sur-reply, Patent Owner does not address dependent claim 18 as considered under Ground 2. PO Resp. 42–44.

Based upon our review of the complete record, we find Petitioner has shown that dependent claim 18 would have been obvious over the collective teachings of the references cited by Petitioner under Ground 2.

F. Ground 3 – Alleged Obviousness Over Melnychenko, Chen, Kim, Lee-1, and Lee-2

Petitioner contends that claims 4 and 13 would have been obvious over the combination of Melnychenko, Chen, Kim, Lee-1, and Lee-2. *See* Pet. 74–79; Pet. Reply 30–34.

Regarding claims 4 and 13, Patent Owner disputes Petitioner’s arguments regarding both claim construction and the respective teachings of the cited references. *See* PO Resp. 34–38; PO Sur-reply 12–14. However, Patent Owner does not argue: (1) the cited references under Ground 3 have been improperly combined by Petitioner, or (2) that there would not have been a reasonable expectation of success with the combination. *See generally* PO Resp.; PO Sur-reply.

We addressed *supra* the claim construction issues for claims 4 and 13 under Section II(B)(c). We address the further detailed arguments from the parties regarding claims 4 and 13, *infra*. We provide a summary of the additional Lee–2 reference below:

1. *Summary of Lee-2 (Ex. 1009)*

Lee-2 is titled “Image Display Apparatus and Method for Operating the Same.” Ex. 1009, code (54). Figure 39B, reproduced below, illustrates a favorite channel list screen including a favorite channel list: *Id.* at 41:42–44.



Figure 39B shows “a group area 3920 [that] includes tabbed menus including [a] plurality of groups, for example, A group, B group, C group, and D group. Each group favorite channel list may correspond to the favorite channel list of each user.” *Id.* at 41:42–67.

2. *Analysis of Dependent Claims 4 and 13*

Dependent claim 4 recites “The method of claim 2, wherein the media data provider is configured to ***provide media metadata personalized for a user.***” (emphases added).

Dependent claim 13 similarly recites “The data service system of claim 11, wherein the media data provider is configured to *provide media metadata personalized for a user*.” (emphases added).

For claim 4, Petitioner first relies upon the prior art considered under Ground 2 (Melnychenko, Chen, Kim, Lee–1), in which “the prior art discloses OSD generator functional programs that generate different card objects (‘*content provider modules*’).” Pet. 76 (citing Ex. 1003 ¶¶ 323–324).

For claim 4, Petitioner secondly relies upon Kim (Ex. 1006) which “discloses ‘**pre-stored user channels (e.g., favorite list)**,’ but provides limited implementation details on this feature.” *Id.* (citing Ex. 1006 ¶ 206). Petitioner argues: “Lee-2 supplements [Kim] by teaching a favorite channel list that is personalized for a user (e.g., B user).” Pet. 76–77 (citing Ex. 1003 ¶¶ 325–327).

Petitioner notes that “Lee-2’s favorite channel list settings are configured by the user.” Pet. 77. Petitioner notes that as shown in “Figure 33B, Lee-2’s OSD generator functional program (Ex. 10[09], 17:56-64, 42:59-61) generates a Favorite Channel card object 2060 that includes personalized metadata (e.g., user-set thumbnails) for a user.” *Id.* (citing Ex. 1003 ¶¶ 326–327).

Petitioner argues that “[c]onsistent with the discussion at [1.3] and [2.1], [under] Ground 2, it would have been obvious to a POSITA, when implementing OSD generator functional programs, in Melnychenko, to also apply Lee-2’s favorite channel teachings.” Pet. 78 (citing Ex. 1003 ¶¶ 328–329). Petitioner contends “[t]his would beneficially provide Melnychenko with an OSD generator functional program that generates a Favorite Channel card object 2060 that includes personalized metadata to make the user instantly aware of ‘the favorite channel list.’” *Id.* (citing Ex. 10[09], 37:67–

38:2; *see also* Reasons to Combine Lee-2 and Melnychenko; Ex. 1003 ¶ 329).

For dependent claim 13, as also considered under Ground 3, Petitioner relies upon its previous Ground 2 discussion as applied to dependent claim 11, and its discussion above regarding claim 4 as considered under Ground 3. Pet. 79 (citing Ex. 1003 ¶ 330).

Patent Owner disagrees and focuses the argument on claim construction. Patent Owner contends: “[p]roperly construed, personalizing media metadata for a user requires the content of that media metadata to be personalized for the user (*i.e.*, the content for the same media must be different between users).” PO Resp. 34 (citing Ex. 2010 ¶ 135). Patent Owner argues that “[p]ersonalizing the *selection* of media metadata for a user, as opposed to personalizing the *content* of the metadata, is insufficient to meet ‘media metadata personalized for a user’ as claimed.” *Id.* (emphasis added).

Patent Owner provides a first example: “if the *media metadata* is the *title* of a program, personalizing the media metadata for two users requires the first user and the second user to see *different*, personalized program *titles*. *Id.* (emphasis added). Patent Owner argues: “[i]f all users presented with the *same program see the same title*, [*i.e.*, the same “media metadata”] [then] the media metadata (program title) has not been personalized for the user as claimed.” *Id.* (emphases added)

Patent Owner contends that Petitioner’s “argument fails because it applies the wrong understanding of ‘media metadata personalized for a user.’” PO Resp. 35. Patent Owner contends: “[a]s explained above, personalizing media metadata means ‘the *content* of the *metadata* is personalized for a user.’” *Id.* (emphases added). Patent Owner further

contends that “[p]ersonalizing the *selection of media* in a favorite list is not personalizing media metadata for a user because the media metadata is identical for all users that have the same media in their favorite list.” *Id.* (citing Ex. 2010 ¶¶ 136–138) (emphases added).

Patent Owner buttresses this point with a second example: “[w]hen a user selects *media* for a *favorite channel*, the user has not personalized the *media metadata* as claimed—rather, the *media metadata is the same* for all users with the *same media selections in their favorite list*.” PO Resp. 35–36 (citing Ex. 2010 ¶ 138) (emphases added).

Patent Owner contends: “[b]y contrast, personalizing the content of the media metadata as claimed requires that the content of the metadata *change user to user* even if the users *select the same media*.” *Id.* Patent Owner thus concludes that “personalizing the selection of media in a favorite list as disclosed by Lee-2 is not personalizing media metadata for a user as claimed.” *Id.* (emphasis added).

Patent Owner understands the Petitioner as alleging that “Lee-2’s users may set a thumbnail for programs in their favorite channel” and “that these ‘user-set thumbnails’ are media metadata personalized for a user.” PO Resp. 36 (citing Pet. 77). Patent Owner argues that “Lee-2’s thumbnails, however, are not user generated or modified and are not personalized for a user.” *Id.* (citing Ex. 2010 ¶¶ 139–143). Patent Owner contends that “Lee-2 does not provide details of how to obtain its thumbnails.” *Id.* Patent Owner argues that “these details are only described in U.S. application Ser. No. 12/651,730 incorporated in Lee-2 by reference.” *Id.* (citing Ex. 2010 ¶ 141). Patent Owner urges that “the ’730 Application explicitly teaches that a thumbnail is an image or video extracted by the device from the video signal of the media. *Id.* (citing Ex. 2014, 8:19-30). Patent Owner thus asserts that

“the ’730 Application confirms that thumbnails are generated from the media without user input” and “[n]othing in Lee-2 suggests that thumbnails are generated or modified by a user—at most, the thumbnails correspond to media *selected for a user*, but that is insufficient to suggest ‘*media metadata personalized for a user*’ as claimed.” *Id.* (emphases added).

Patent Owner thus contends that Petitioner’s reliance upon “Lee-2’s favorite channel list screen to suggest media metadata personalized for a user” is misplaced. PO Resp. 37. Patent Owner reproduces the pertinent portion of Lee-2 on page 37 of the Response, which we also reproduce below:

The favorite channel list screen may further include a channel setup menu 3930. For example, the channel setup menu 3930 may include menu items, EDIT for editing channels, ZOOM for changing the number of displayed thumbnail images, GROUP VIEW for viewing thumbnail images by group, COMPACTVIEW for displaying a broadcast image in a part and a channel list in another part, and EXIT.

PO Resp. 37 (citing Ex. 1009, 41:61-67).

Regarding Lee-2, Patent Owner argues that the “disclosed features of the favorite channel list screen, however, do not suggest that users may edit any thumbnail.” PO Resp. 37 (citing Ex. 2010 ¶ 143). Petitioner contends that “those of ordinary skill would understand that the ‘EDIT’ menu item ‘edit[s] channels’ – that is, selects programs to add or remove from the favorite channel list.” *Id.* Patent Owner further argues that “as discussed above, selecting programs for the favorite channel list does not suggest ‘media metadata personalized for a user.’” *Id.* Patent Owner asserts that “[l]ikewise, ‘Zoom for changing the number of displayed thumbnail images’ does not modify any thumbnail.” *Id.* Patent Owner urges that “those of ordinary skill would recognize that the Zoom feature increases or decreases

the size of the thumbnails in channel list area 3910.” *Id.* Patent Owner contends that “[t]he number of displayed thumbnail images changes because zoomed in, thumbnail images are larger and fewer of them can be displayed in the display area and zoomed out, thumbnail images are smaller and more of them can be displayed in the display area.” *Id.*

Patent Owner thus concludes that “ZOOM, like EDIT, does not modify any thumbnail” and “[f]or these reasons, Petitioner has not shown that any prior art combination personalizes media metadata for a user as claimed.” *Id.*

In its Reply, Petitioner disagrees. Petitioner asserts that Patent Owner’s “arguments for claim 4 are based entirely on its incorrect construction for ‘*media metadata personalized for a user.*’” Pet. Reply 31 (citing PO Resp. 34; Ex. 1021, 140:9–142:1 (Dr. Surati’s prior art arguments are based on claim construction arguments)). Petitioner urges that “[i]f the Board rejects Patent Owner’s improper construction of ‘*media metadata personalized for a user*’ (it should), then Patent Owner has not contested (and therefore conceded) the unpatentability of claims 4 and 13 under the plain and ordinary meaning of ‘*media metadata personalized for a user*’ as ‘media metadata that has been personalized for a user.’” Pet. Reply 31 (citing Pet. Reply Section II.B. regarding claim construction).

In its Sur-reply, Patent Owner argues: “‘Media data personalized for a user’ means ‘the content of the metadata is personalized for a user’—not ‘personalizing media for a user and providing the metadata associated with that media.’” PO Sur-reply 13. Patent Owner contends the “Reply, like the Petition, is directed to the second, incorrect construction and fails to show how the prior art renders obvious the first, correct construction.” *Id.* (citing Pet. Reply 30–34). Patent Owner argues that the “Petition and the Reply

exclusively cite evidence of personalization by *selecting the media*, not personalization by *modifying the metadata content*.” PO Sur-reply 13–14 (citing Pet. Reply 32 (arguing the “favorite channel settings are ‘personalized for [the] user’ because they are configured by the user in the channel setup menu.”)) (emphases added). Patent Owner reiterates that “[s]electing media, however, is not evidence of personalizing media metadata as properly construed.” PO Sur-reply 14 (citing PO Resp. 34–38).

Patent Owner contends that “[t]o the extent the Reply at 33–34 argues ‘that if different users select different favorite channels, the metadata for those users will be different,’ this argument ignores the fact that different users presented with the *same media* will receive the *same metadata*.” PO Sur-reply 14 (emphasis added). Patent Owner thus asserts that “the content of the metadata is not personalized for a user.” *Id.* Patent Owner concludes: “[f]or these reasons, Petitioners have not shown that any prior art combination personalizes media metadata for a user as claimed.” *Id.*

We note that consistent with our claim construction for claims 4 and 13, as discussed above under Section II(B)(1)(c), we have adopted Patent Owner’s claim construction of “[m]edia metadata personalized for a user” as it appears in claims 4 and 13, as being construed as the *content* of the *media metadata* is personalized for a user.

Given our claim construction, Petitioner does not persuasively show how the discussions of favorite channel lists in Kim or Lee-2 teach or suggest the content of *media metadata* being personalized for a user (Pet. 76–78), because two different users with the same favorite channel lists will have the *same non-personalized media metadata*, contrary to the requirements of claims 4 and 13.

Moreover, we find Dr. Surati’s deposition testimony persuasive that “for metadata to be ‘*personalized*,’ it must be *edited*.” Ex. 1021, 178:12–18) (emphasis added). We find this is logical, because the claim 4 and claim 13 language requires the “*media metadata*” to be “*personalized*” (i.e., individualized) “for a user.”

In the scenario posited by Petitioner (Pet. Reply 30–34), when media (e.g., a favorite TV channel in Lee-2 (Pet. Reply 32 (citing Ex. 1009, Fig. 39B))) is selected for a given user by the media data provider (i.e., Kim’s OSD generator—Pet. Reply 31), the media *selection* (favorite TV channel) may be part of a personalized *selection* of favorite TV channels for the user, but we find the media metadata itself (i.e., the favorite TV channel as represented by a thumbnail image) is not personalized or individualized for the user, because the media metadata (TV channel thumbnail) is *fixed* in association with its respective channel number. Moreover, the TV shows on a particular favorite TV channel are *fixed* for broadcast on that channel.

We thus agree with Patent Owner that personalizing *media* for a user and merely providing the existing (unchanged) *metadata* associated with that media does not meet the claim limitation. PO Sur-reply 13.

As persuasively argued by Patent Owner, when different users are hypothetically presented with the *same media*, they will receive the *same media metadata*, which does not meet the claim limitation which expressly requires providing “media metadata personalized for a user.” *Id.* at 14.

Accordingly, based upon the complete record, and given our claim construction, we find Petitioner has not shown that dependent claims 4 and 13 would have been obvious over the collective teachings of the cited references under Ground 3.

G. Ground 4 – Alleged Obviousness Over Melnychenko, Chen, Kim, Lee-1, Lee-2, and Ferren

Petitioner contends that claim 5 would have been obvious over the combination of Melnychenko, Chen, Kim, Lee-1, Lee-2, and Ferren. *See* Pet. 79–83. Patent Owner does not respond to Petitioner’s arguments. *See generally* PO Resp.; PO Sur-reply. We provide a summary of the additional Ferren reference below:

1. Summary of Ferren (Ex. 1010)

Ferren is titled “Mechanism for Facilitating Multiple Multimedia Viewing Planes in Media Display Systems.” Ex. 1010, code (54). Ferren describes use of “a relational database management system or an embedded database (e.g., Structured Query Language Lite (SQLite®)).” *Id.* at 10:4–37, Fig. 7. Ferren further describes “database 710 may be used to store datasets relating to the integrated [user interface], including (1) menus content, (2) sub-menus content, (3) metadata for media, (4) icons (for menu items), and (5) lists of current media selections, etc.” *Id.*

2. Analysis of Dependent Claim 5 under Ground 4

Dependent claim 5 recites: “The method of claim 4, wherein the media data provider is further configured to store the media metadata in an SQLite database.”

Petitioner contends that claim 5 would have been obvious over the combination of Melnychenko, Chen, Kim, Lee-1, Lee-2, and Ferren. *See* Pet. 79–83. In particular, Petitioner notes that “Melnychenko’s metadata is stored in the metadata database 956 of the user equipment device 964 in Figure 9B.” Pet. 80. Petitioner additionally notes that “Ferren discloses that metadata related to multimedia data is stored in an SQLite database.” Pet.

81 (citing Ex. 1010, 10:4-36, Fig. 7; Ex. 1003 ¶ 338). Petitioner asserts that a POSITA would have been motivated to modify Melnychenko with Ferren’s SQLite database because “SQLite is regarded as relatively small and fast for embedded systems and might not have any need for any external protocol processes.” Pet. 82 (citing Ex. 1010, 10:4–36; Ex. 1003 ¶ 339).

However, because we find Petitioner has not shown that claim 4 (from which claim 5 directly depends) is unpatentable under Ground 3, we also find for the same reasons that Petitioner has not shown that dependent claim 5 would have been obvious over the collective teachings of the references cited under Ground 4.

H. Ground 5 – Alleged Obviousness Over Melnychenko, Chen, Kim, Lee-1, and Choi

Petitioner contends that claims 6–8, 14, and 15 would have been obvious over the combination of Melnychenko, Chen, Kim, Lee-1, and Choi. *See* Pet. 83–90.

Patent Owner does not argue: (1) the cited references under Ground 5 have been improperly combined by Petitioner, or (2) that there would not have been a reasonable expectation of success with the combination. *See generally* PO Resp.; PO Sur-reply.

We provide a summary of the additional Choi reference below:

1. Summary of Choi (Ex. 1011)

Choi is titled “Method of Providing External Device List and Image Display Device.” Ex. 1011, code (54). Choi describes “a plurality of external device icons 820 representing a plurality of external devices are displayed on [a] full screen 810 of [a] display unit 180.” *Id.* ¶ 250. Choi further describes “displaying a specific symbol on an external device icon is

used as one example of a method of distinguishing icons from each other, but the present invention is not limited thereto. That is, any one of letters, symbols, colors, and flashing lights may be used for distinction.” *Id.*

2. *Analysis of Dependent Claims 6 and 14*

Dependent claim 6 recites: “The method of claim 2, wherein the media browser is configured to provide a real-time view of media sources of the TV and maintain a list of connected ***media sources of the TV.***” (emphasis added).

Dependent claim 14 similarly recites “The data service system of claim 11, wherein the media browser is configured to provide a real-time view of media sources of the TV and maintain a list of connected ***media sources of the TV.***” (emphasis added).

We addressed *supra* the claim construction issues for claims 6 and 14 under Section II(B)(d). We address the further detailed arguments from the parties regarding claims 4 and 13, *infra*.

Petitioner contends that claims 6 and 14 would have been obvious over the combination of Melnychenko, Chen, Kim, Lee-1, and Choi. *See* Pet. 83–88.

Patent Owner argues that “none of the prior art suggests providing a real-time view of the plurality of subservices, including a VOD subservice, an EPG subservice, and a media subservice. Indeed, as Dr. Surati explains, the prior art systems are not designed to provide a real-time view of these subservices.” PO Resp. 38 (citing Ex. 2010 ¶¶ 145–155).

In the Reply, Petitioner disagrees. Pet. 35. Petitioner asserts that Patent Owner’s “arguments for claims 6 and 14 are based entirely on its improper construction that “*media sources of the TV*” must include the VOD

subservice, EPG subservice, and media subservice of claims 1 and 10. *Id.* (citing PO Resp. 38, 40–41). Petitioner contends “[t]his construction is wrong.” *Id.*

For claims 6 and 14, Petitioner relies principally upon Choi’s Figure 11, which Petitioner argues evidences that it was known to provide a real-time view of external devices that are currently connected to an input port of the TV, represented in a list of icons 820 with specific symbols 830a-830c indicating input port connections.” Pet. Reply 34 (citing Ex. 1011 ¶ 250; Ex. 1003 ¶¶ 347–349).

Patent Owner does not further address claims 6 and 14 in the Sur-reply. *See generally* PO Sur-reply.

As discussed *supra* at Section II(B)(1)(d), we do not agree with Patent Owner’s argument that “media sources of the TV” in claims 6 and 14 are limited to the subservices of claims 1 and 10.

As Petitioner persuasively argues, Choi’s Figure 11 evidences that “it was known to provide a real-time view of external devices that are currently connected to an input port of the TV.” Pet. Reply 34 (citing Ex. 1011 ¶ 250; Ex. 1003 ¶¶ 347–349).

Based on the complete record, we find Petitioner has shown that dependent claims 6 and 14 are obvious over the collective teachings of the references cited by Petitioner under Ground 5.

3. *Analysis of Dependent Claim 7*

Dependent claim 7 recites: “The method of claim 6, wherein the media browser maintains a non-permanent storage.”

Petitioner notes that “the prior art teaches that the OSD generator functional program is configured to store a list of connected external devices

in memory, such as RAM.” Pet. 88 (citing Ex. 1011 ¶¶ 111, 113, 264). Petitioner thus contends that “the prior art renders obvious ‘*the media browser maintains a non-permanent storage,*’ as claimed.” *Id.* (citing Ex. 1003 ¶ 356).

In its Response, Patent Owner does not address dependent claim 7 as considered under Ground 5. PO Resp. 38–42.

Based upon the complete record, we find Petitioner has shown that dependent claim 7 would have been obvious over the collective teachings of the references under Ground 5.

4. *Analysis of Dependent Claim 8*

Dependent claim 8 recites: “The method of claim 6, wherein the media scanner is configured to populate a media table using data retrieved by the media browser and rescan for new media periodically.”

Petitioner provides a mapping of the claim 8 elements to the corresponding features found in the cited references, which are further described in detail by Dr. Lippman testimony. Pet. 89 (citing Ex. 1003 ¶¶ 357–359). Petitioner concludes it would have been obvious to “a POSITA, in the combination with Melnychenko, to execute the search functional program at a “**system specified period of time**” that corresponds when new content is received, so that the user would be presented the latest content in the results.” Pet. 80 (citing Ex. 1003 ¶ 360).

In its Response, Patent Owner does not address dependent claim 8 as considered under Ground 5. PO Resp. 38–42.

Based upon the complete record, we find Petitioner has shown that dependent claim 8 would have been obvious over the collective teachings of the cited references.

5. *Analysis of Dependent Claim 15*

Dependent claim 15 recites: “The data service system of claim 11, wherein the media scanner is configured to populate a media table using data retrieved by the media browser and rescan for new media periodically.”

For claim 15, Petitioner relies upon its previous grounds as applied to claims 11 and 8. Pet. 90. The claim mapping of the claim 15 elements to the corresponding features found in the cited references is further addressed by Dr. Lippman testimony. *Id.* (citing Ex. 1003 ¶ 362).

In its Response, Patent Owner does not address dependent claim 15 as considered under Ground 5. PO Resp. 38–42.

Based upon the complete record, we find Petitioner has shown that dependent claim 15 would have been obvious over the collective teachings of the cited references.

III. CONCLUSION

The table below summarizes our conclusions as to the challenged claims:

Claims	35 U.S.C. §	References/ Basis	Claims Shown Unpatentable	Claims Not shown Unpatentable
1, 10, 17	103(a)	Melnychenko, Chen	1, 10, 17	
1–3, 9–12, 16–18	103(a)	Melnychenko, Chen, Kim, Lee-1	1, 2, 9–11, 16–18	3, 12
4, 13	103(a)	Melnychenko, Chen, Kim, Lee-1, Lee-2		4, 13
5	103(a)	Melnychenko, Chen, Kim, Lee-1, Lee-2, Ferren		5
6–8, 14, 15	103(a)	Melnychenko, Chen, Kim, Lee-1, Choi	6–8, 14, 15	
Overall Outcome			1, 2, 6–11, 14–18	3–5, 12, 13

IV. ORDER

Accordingly, it is

ORDERED that, based on a preponderance of the evidence, claims 1, 2, 6–11, and 14–18 of U.S. Patent No. 10,419,80 B2 have been shown to be unpatentable; and

ORDERED that, based on a preponderance of the evidence, claims 3–5, 12, and 13 of U.S. Patent No. 10,419,80 B2 have not been shown to be unpatentable; and

FURTHER ORDERED that 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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