

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.
Petitioners,¹

v.

MULTIMEDIA TECHNOLOGIES PTE. LTD.,
Patent Owner.

Case IPR2024-00354
Patent 10,419,805

EXHIBIT 2010

DECLARATION OF RAJEEV SURATI

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

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I. INTRODUCTION

1. My name is Dr. Rajeev Surati. I have been retained as an expert witness to provide my independent opinion in regards with matters at issue in the *inter partes* review IPR2024-00354 concerning U.S. Pat. No. 10,419,805 (“the ’805 Patent”). I have been retained by Multimedia Technologies Pte. Ltd. (“Multimedia”), the Patent Owner, in this proceeding. I have been informed that the Petitioners are LG Electronics, Inc. and LG Electronics U.S.A., Inc. (“LG”). I have also been informed that Vizio, Inc. (“Vizio”) filed an identical petition in IPR2024-00694 and have been joined as a Petitioner in this IPR.

2. Unless otherwise noted, the statements made herein are based on my personal knowledge, and if called to testify about this declaration, I could and would do so competently and truthfully.

3. A detailed record of my professional qualifications including cases in which I was an expert is being submitted herewith as Exhibit 2011 and is summarized in Section II, *infra*.

4. I am being compensated for my work in this matter at the rate of \$665/hour. I am also being reimbursed for reasonable and customary expenses associated with my work and testimony in this investigation. My compensation is not contingent on the outcome of this matter or the specifics of my testimony.

5. I am not a legal expert and offer no opinions on the law. However, I have been informed by counsel of the various legal standards that apply, and I have applied those standards in arriving at my conclusions.

6. In this declaration, I have been asked to address certain invalidity opinions relating to the '805 Patent, specifically those provided by LG in its Petition, Paper 1 ("Petition") challenging the '805 Patent and the accompanying declaration of Dr. Andrew Lippman, Ex. 1003 ("Lippman Decl." or "Lippman declaration"), regarding the alleged invalidity of the '805 Patent. The Petition and Dr. Lippman argue that claims 1-18 ("Challenged Claims") are unpatentable.

7. In this expert declaration, I provide my opinions in response to the Grounds in the Petition and the Lippman declaration, as well as the basis for my opinions. As I explain in detail later in this expert report, based on my study of the '805 Patent, the Lippman declaration, and various references cited by Petitioner and Dr. Lippman, it is my opinion that the Challenged Claims are patentable over the cited references alone or in the various combinations in the Grounds.

8. I have found multiple limitations in the Challenged Claims that are not disclosed by any one of those references or a proposed combination of references. I identify those undisclosed limitations on a claim-by-claim, reference-by-reference basis. My decision not to address a limitation of a Challenged Claim should not be interpreted as an admission that such a limitation is found in the art in the Ground

cited by Petitioner and Dr. Lippman, or that a POSITA would have an apparent reason to combine or modify references in a manner meeting the limitation.

9. I submit this declaration having reviewed the '805 Patent, the Challenged Claims, the '805 Patent file history, and various references cited by Petitioner in its Petition and/or in the Lippman declaration. The material I have considered includes but is not limited to the items set forth below:

PETITIONER MATERIALS CONSIDERED	
Paper 1	Petition
Paper 9	Institution Decision
Ex. 1002	'805 Patent File History
Ex. 1003	Declaration of Dr. Lippman
Ex. 1005	U.S. Pat. Pub. No. 2013/0263184 to Melnychenko ("Melnychenko")
Ex. 1006	U.S. Pat. Pub. No. 2012/0054794 to Kim ("Kim")
Ex. 1007	U.S. Pat. Pub. No. 2007/0226268 to Chen ("Chen")
Ex. 1008	U.S. Pat. No. 9,008,190 to Lee ("Lee-1")
Ex. 1009	U.S. Pat. No. 9,398,339 to Lee ("Lee-2")
Ex. 1010	U.S. Pat. No. 8,893,184 to Ferren ("Ferren")

Ex. 1011	U.S. Pat. Pub. No. 2013/0057764 to Choi (“Choi)
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10. I have also considered materials from the following list of Patent Owner’s list of exhibits:

PATENT OWNER MATERIAL CONSIDERED	
Ex. 2012	Deposition Transcript of Dr. Andrew Lippman in IPR2024-00354

11. My opinions as set forth in this expert declaration are based on these sources of information, together with my education, training, and experience, including my work in the field of the ’805 Patent.

II. QUALIFICATIONS AND PROFESSIONAL EXPERIENCE

12. My complete qualifications and professional experience are described in my Curriculum Vitae, a copy of which is submitted as Ex. 2011. The following is a brief summary of my relevant qualifications and professional experience.

13. I have provided my full background in the curriculum vitae included here as Exhibit 2011. My CV details my experience in electrical engineering and computer science and also includes a list of publications I have authored or co-authored.

14. I attended the Massachusetts Institute of Technology (MIT) from 1988 to 1999, during which, I earned a Bachelor of Science (1992), Master of Science (1995) and a Doctor of Philosophy (1999) in Electrical Engineering and Computer

Science. My Ph.D. thesis was entitled “Scalable Self-Calibrating Technology for Large Scale Displays.”

15. Between 1989-1999 I was employed as a researcher/programmer at the MIT Artificial Intelligence Lab. At the lab I worked for Thomas F. Knight Jr. Ph.D., one of the noted inventors of the first bit mapped displays for computers as well as many other notable accomplishments. The lab is also noted for its excellence in machine vision.

16. In 1996 I began working on a Ph.D. thesis related to display of multimedia across large displays. My Ph.D. thesis system was a special kind of display allowing one to create ultra-high resolution displays composed of multiple projectors tiled with a slight overlap so that a camera-based feedback system could create an inverse map to drive the system such that a person would only see a continuous seamless display with no bezel or overlap. The camera-based system required imaging and decoding of 2d fiducials, and thus I became an expert at machine vision for the purpose of decoding and encoding 2d fiducials such as bar codes – the optical systems involved, the systems programming, etc. Today, this technology is better known as automatic calibration for projection mapping or structured light. My experience, along with a patent I developed and licensed based on my Ph.D. thesis, were used to create a new startup company named Scalable

Display Technologies that works with a variety of Pro AV display companies' products.

17. I am a named inventor on U.S. Pat. No. 6,456,339, "Super-resolution Display," which reflects my Ph.D. work.

18. In 2004, I founded Scalable Display Technologies (SDT), and I have been the President and Chairman of the company since the founding. Among its operations, SDT operates in the Audio Video domain and has licensed software and firmware to various companies including Hitachi and NEC. I also wrote a network-synchronized media playback system involving encoding and decoding of video and audio content as well as real time recording and video capture, a product known as "ScalablePlayer." This product was written on top of the DirectShow system from Microsoft. In conjunction with this, for some show demonstration systems, I wrote a desktop application in C# that allowed one to preview and select different inputs and outputs.

19. As part of this system I worked on several home theater systems that involved integrating and enabling the kind of functionality that the patents in this case address. These were computer systems and hardware systems that managed the input and display of content on 110 inch plus often curved screens. Things being interfaced and displayed on the system included a multitude of input and output from tv tuners, to cablebox input etc, to dvd and xbox360s.

20. Additionally, at SDT I have worked with most of the major video wall control manufacturers on customizing their systems to work with large display walls using overlapping projectors. These include Jupiter Systems, RGB Spectrum Matrox, and Datapath. In addition, I helped architect and specify some special video wall GPU functions for both AMD and NVIDIA.

21. I have received additional patents, including: U.S. Pat. No. 8,817,111, “System and method of calibrating a display system free of variation in system input resolution”; U.S. Pat. No. 8,994,757, “System and method for providing improved display quality by display adjustment and image processing using optical feedback”; U.S. Pat. No. 9,215,455, “System and method of calibrating a display system free of variation in system input resolution”; U.S. Pat. No. 9,369,683, “System and method for calibrating a display system using manual and semi-manual techniques”; and U.S. Pat. No. 9,497,447, “System and method for color and intensity calibrating of a display system for practical usage.”

22. In 2000, I started a company known as “photo.net” which was a large online photography community where I worked with many consumer electronics manufacturers in the digital camera business. There, I implemented a photo sharing system involving the delivery of multimedia content. Additionally, I worked on e-commerce capabilities that involved some product configuration options. In running photo.net I became intimately familiar with implementing file systems for use with

multimedia and super high performance image encoding/decoding systems as well as real time delivery of high bandwidth content.

23. In 1996, I founded Flash Communications, which was focused on technology related to U.S. Pat. No. 5,943,478 and associated technology that I had developed related to pop-up two-way messaging over the Internet. I am one of the named co-inventors of U.S. Pat. No. 5,943,478, which is entitled “System for Popup Messaging over the Internet,” which describes a two-way messaging system like AOL Instant Messenger and MIT’s Zephyr service built at Internet scale.

24. In 1998, Flash Communications was sold to Microsoft Corporation, and Flash Communications’ messaging technology was incorporated into Microsoft’s Messenger service and Microsoft Exchange 2000 Instant Messaging Server.

25. While working at Microsoft between 1999 and 2000, I implemented an XML-based protocol that formed a basis for the Extensible Messaging and Presence Protocol (XMPP), which is now an IETF standard for the Exchange Instant Messaging Server. I participated internally with the program management team on helping specify this protocol for the IETF standardization process.

26. Also while at Microsoft, I invented and was named as an inventor on other patents related to instant messaging, including: U.S. Pat. No. 6,415,318, “Inter-enterprise messaging system using bridgehead servers”; U.S. Pat. No. 6,604,133, “Inter-enterprise messaging system using bridgehead servers”; and U.S. Pat. No.

6,260,148, “Methods and systems for message forwarding and property notifications using electronic subscriptions.”

27. Between 2000 and 2004, I worked as a consultant and investor at Nexaweb Corporation, where I helped implement several two-way messaging features over HTTP.

28. I am on the advisory boards of several technology companies, including UnifySquare, which is a unified communications/real time collaboration consultancy; Paneve, which develops general purpose ASICs coupled with compiler technology; Nexaweb, which develops real time web application frameworks using HTTPS; Antix Labs, which develops compiler technology for universal gaming platform; and Permabit, which develops content addressable storage.

29. For my contributions as an inventor and entrepreneur, I have received several awards, including the Global Indus Technovator Award 2009 and Laureate of 2009 Computer World Honors Program.

III. RELEVANT LEGAL STANDARDS

A. Burden of Proof

30. I understand that Petitioner has the burden of proving unpatentability by a preponderance of the evidence. 35 U.S.C. § 316(e). Preponderance of the evidence “means the greater weight of evidence, evidence which is more convincing

than the evidence which is offered in opposition to it.” *Hale v. Dep't of Transp.*, 772 F.2d 882, 885 (Fed. Cir. 1985).

B. Obviousness (35 U.S.C. § 103)

31. I also understand that a patent may be rendered “obvious” based on an alleged prior art reference or a combination of such references in view of what a person of ordinary skill in the art would understand based on his or her knowledge and the references. I understand that a patent cannot be properly granted for subject matter that would have been obvious to a person of ordinary skill in the art at the time of the alleged invention, and that a patent claim directed to such obvious subject matter is invalid under 35 U.S.C. § 103. It is also my understanding that in assessing the obviousness of claimed subject matter one should evaluate obviousness over the prior art from the perspective of one of ordinary skill in the art at the time the invention was made (and not from the perspective of either a layman or a genius in that art).

32. I have been informed that the following factors must be evaluated to determine whether the Petitioner has met its burden of proof that a claimed invention is obvious:

1. The scope and content of the prior art relied upon by Petitioner;
2. The difference or differences, if any, between each claim of the patent and the prior art;

3. The level of ordinary skill in the art at the time the invention of the patent was made; and
4. Any objective indicia of non-obviousness, such as: (1) commercial success of an embodiment; (2) a long-felt need; (3) skepticism; (4) failure by others to find the solution provided by the claimed invention; (5) copying by others of the subject matter of the claim invention; (6) unexpected results of the claimed invention; (7) acceptance of others and industry praise; and (8) licensing of the patents.

33. I have been informed that to prevail on obviousness the Petitioner must establish that (1) the prior art teaches or suggests each of the limitations of the claim; (2) there exists an apparent reason to combine and/or modify the prior art as proposed; and (3) a person of ordinary skill would have a reasonable expectation of success that the proposed combination and/or modification of the prior art would operate for its intended purpose.

34. I have been informed that a claim is not proved obvious merely by demonstrating that each of the elements was independently known in the prior art. I have been informed that many, if not all, inventions rely on building blocks already known, and claimed inventions almost of necessity will likely be combinations of what is already known.

35. I have been informed that it is important in the obviousness inquiry to identify whether a POSITA at the time of the invention would have motivation to combine or modify the prior art references in the manner proposed by the Petitioner so as to arrive at the claimed invention. Put another way, a finding of obviousness should be supported by an apparent reason to combine or modify the prior art references as proposed by the Petitioner.

36. I have been informed that it is important in the obviousness inquiry that it is understood how the references are combined, including how the combination of references is supposed to work. An explanation of the operation of the combined references is often a prerequisite to determining whether a POSITA would have been motivated or had a reason to make the proposed combination/modification and would have had a reasonable expectation of success.

37. In assessing obviousness, I have been instructed to consider both the ordinary creativity and common sense of the person of ordinary skill in the art. I also understand that it is normally impermissible for common sense or common knowledge to be applied to fill gaps in prior art that fails to teach or suggest a limitation of the claim. I also understand that the obviousness inquiry should guard against hindsight bias or hindsight reconstruction where after-the-fact reasoning is applied to combine prior art elements using the claim as a template, without

establishing that, as of the date of the invention, there exists a motivation to combine or apparent reason to combine or modify the prior art as proposed.

38. In assessing obviousness, I have been instructed that, in order to qualify as proper prior art for an obviousness analysis, a reference must qualify as analogous art. I have been informed that a reference qualifies as analogous art with respect to the claims if it is either: (1) from the same field or endeavor as the patent; or (2) the reference is reasonably pertinent to the particular problem addressed by the invention. I have also been informed that for a reference to be reasonably pertinent, it must logically have commended itself during the ordinary course of development to an inventor's attention in considering the problem.

39. In assessing obviousness, I have also been instructed that, as noted above, secondary considerations can often be probative evidence of non-obviousness and can serve to avoid hindsight bias. I have been instructed that secondary considerations can be sufficient to overcome a prima facie case of obviousness.

IV. LEVEL OF ORDINARY SKILL IN THE ART AND PRIORITY DATE

40. My opinions in this declaration are based on the understandings of a person of ordinary skill in the art, which I understand is sometimes referred to as an "ordinary artisan" or by the acronym "POSITA" (Person of Ordinary Skill in the Art), as of the time of the invention. For purposes of this Declaration, I have been instructed to use August 17, 2012, as the time of invention (priority date), which I

understand is the date that the Petitioner is using. *See* Ex. 1003 [Lippman Decl.], ¶ 19.

41. I understand that the person of ordinary skill in the art is a hypothetical person who is presumed to have known the relevant art at the time of the invention. By “relevant,” I mean relevant to the Challenged Claims of the ’805 Patent.

42. I understand that, in assessing the level of skill of a person of ordinary skill in the art, one should consider the type of problems encountered in the art, the prior solutions to those problems found in the prior art, the rapidity with which innovations are made, the sophistication of the technology, the level of education of active workers in the field, and my own experience working with those of skill in the art at the time of the invention.

43. In this case, Dr. Lippman has asserted in his declaration that a person of ordinary skill in the art as of the time of the ’805 Patent “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.” *See* Ex. 1003 [Lippman Decl.], ¶ 19.

44. While I do not necessarily agree with Dr. Lippman’s definition of a POSITA, I have applied this definition in my analysis for the purposes of this

declaration. I was at the time of invention, and am currently, one of more than ordinary skill in the art through my education, research, and work experience. As of the date of the invention, I was very familiar with the types of problems encountered in the field. Indeed, I am very familiar with people having this level of skill in the area of user interfaces in the field of television systems and networking and human-computer interaction.

V. THE '805 PATENT

45. The Petition challenges claims 1-18 of the '805 Patent as obvious under various grounds:

- Ground 1: Claims 1, 10, and 17 as obvious over Melnychenko and Chen;
- Ground 2: Claims 1-3, 9-12, and 16-18 as obvious over Melnychenko, Chen, Kim, and Lee-1;
- Ground 3: Claims 4 and 13 as obvious over Melnychenko, Chen, Kim, Lee-1, and Lee-2;
- Ground 4: Claim 5 as obvious over Melnychenko, Chen, Kim, Lee-1, Lee-2, and Ferren; and
- Ground 5: Claims 6-8, 14, and 15 as obvious over Melnychenko, Chen, Kim, Lee-1, and Choi.

See Pet., 11.

A. Overview of the '805 Patent and Invention

46. The '805 Patent broadly relates to intelligent televisions, also known as ITV's, smart TVs and/or internet TVs. According to the '805 Patent, the prior art failed to, *inter alia*, “provide seamless and intuitive user interfaces for navigating and/or executing the various features of the Smart TV.” Id. at 2:8-10. Accordingly, there remained “a need for an Intelligent TV with intuitive user interfaces and with seamless user interaction capability.” Ex. 1001, 2:16-17.

47. To address this, the '805 Patent describes and claims inventions that provide these “intuitive” and “seamless” interfaces, including functionality to sort and display data regarding available content. Ex. 1001 at 11:12-21, 17:44-62. In particular, the '805 patent is directed to “a data service system in an Intelligent Television (TV) includes an internal content provider module configured to provide content to video hardware or display of the Intelligent TV or to a content provider module or application of the Intelligent TV and a subservice configured to provide the internet content provider module with requested data for a pre-defined data model.” Ex. 1001 at Abstract.

48. The '805 patent explains that each type of content (e.g., EPG, VOD, media) and its corresponding metadata have an associated data model, such as VOD data model 1404 for VOD data, EPG data model 1408 for EPG data, and media data model 1412 for media data. Ex.1001, 28:35-37. The '805 patent explains that “[t]he data models govern what information is to be stored and how that information will

be stored by the data service.” Ex.1001, 21:6-8, 28:37-38. For example, in reference to Figure 14, the ’805 patent provides that “[t]he 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.” Ex.1001, 33:25-29. Thus, the ’805 patent provides that each data model (e.g., VOD data model 1404) or a particular type of content (e.g., VOD content) provides a corresponding format for that content and associated metadata (e.g., metadata for VOD content):

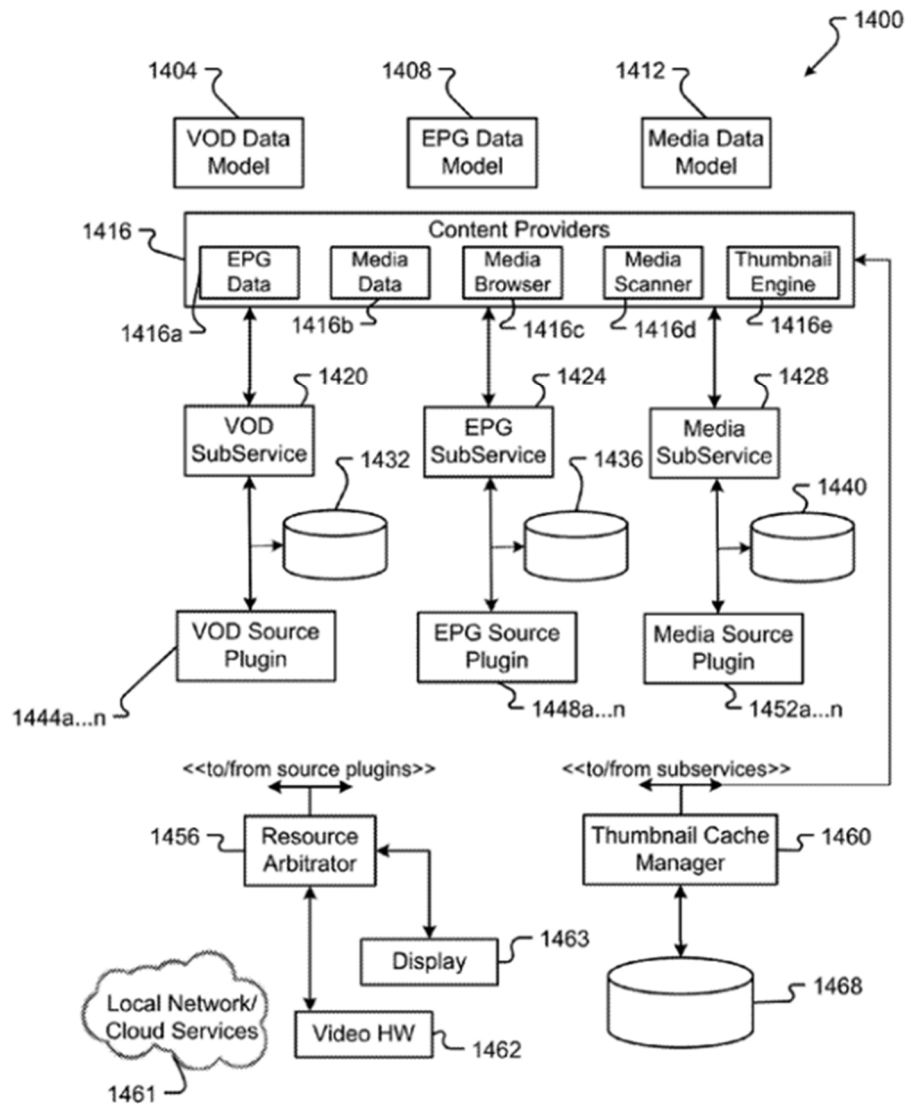


Fig. 14

49. Claim 1 recites several of these features:

1. A method of providing content for a television (TV), the method comprising:
 - receiving, by a processor, data relevant to one or more scheduled events 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

organizing, by the processor, the data according to a pre-defined format corresponding to each of the plurality of subservices, wherein the pre-defined format comprises one of a VOD data model, an EPG data model and a media data model, 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 wherein each of the VOD data model, EPG data model, and media data model provide a uniform format for the plurality of subservices;

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

Ex. 1001 at Claim 1.

VI. CLAIM CONSTRUCTION

50. I understand that claims of the patent-at-issue in this IPR are generally interpreted according to their ordinary and customary meaning in the art taking into consideration the so-called “intrinsic evidence” of the patent consisting of (1) the claim language; (2) the specification; and (3) the prosecution history.

51. I understand that claim terms may be explicitly defined in the patent specification, or they may be implicitly defined through consistent usage in the specification. I also understand that the scope of claim terms may be limited by statements in the specification or prosecution history where the applicant clearly disavows or disclaims subject matter, acts as his/her own lexicographer or otherwise indicates the meaning of claim terms through statements made by the applicant.

52. I understand that for purposes of the institution stage the Board found there was no need to provide express constructions of any claim terms. Instn. Dec.,

Paper 9, 16-17. However, the Board encouraged the parties to address the scope and meaning of the terms “predefined format” and “uniform format.” *Id.*, 29.

53. For the purposes of my analysis, it is my opinion that the terms “media metadata personalized for a user” and “media sources of the TV” warrant construction. Additionally, I address the scope of the terms “predefined format” and “uniform format” consistent with their plain and ordinary meaning. Except for the terms discussed below, I have applied the plain and ordinary meaning of the claim terms in establishing the patentability of the claims of the ’805 Patent.

A. “Media metadata personalized for a user” (Claims 4 and 13)

54. In my opinion, “media metadata personalized for a user” means “the content of the metadata is personalized for a user.” That is, the metadata content *of the same media* is personalized to (*i.e.*, different for) each user. For example, if two users were viewing the same program, personalizing media metadata of that program for the two users means that the first user could see a first title personalized to the first user, but the second user would see a different second title personalized to the second user. This 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.

55. My opinions are consistent with the disclosures of the ’805 patent and the understandings of a POSITA. The ’805 patent repeatedly states that the

“personalized media metadata” is “generated” from metadata received from media subservices:

In another example, media data provider 1416 b is configured to ***provide personalized media metadata*** and stores the personalized media metadata into a database for further access. In one implementation, the personalized media metadata is stored in a sqlite database. The user may set up a personalized profile or preference for types, genres, or other preferred characteristics of media. The user may access and set up the profiles in a corresponding application. Alternatively, Intelligent TV 100 may contain pre-defined profiles and/or may automatically build a profile for a user by analyzing the user's past viewing preferences progressively. Media data provider 1416 b may work with media subservice 1428, VOD sub service 1420, and/or other subservices. For example, ***media data provider 1416 b uses the metadata regarding media collected by media subservice 1428 in order to generate the personalized media metadata.***

Ex. 1001, 31:26-41.

For example, EPG data provider 1416 a serves applications with EPG information in a read-only format. As such, EPG data provider 1416 a may transmit EPG information received from EPG subservice 1424 in EPG data model 1408 without modification. In another example, media data provider 1416 b provides personalized media metadata and stores data in a sqlite database. As such, media data provider 1416 b may receive media and information from VOD subservice 1420, EGP subservice 1424, and media subservice 1428. ***Media data provider 1416 b will also organize the media and data received from these subservices to generate the personalized media metadata and further stores the generated metadata into the sqlite database.*** The relevant application may simply access the database for the personalized media metadata.

Ex. 1001, 34:61-35:8.

56. The '805 Patent consistently discloses that personalized media metadata is generated from other received metadata. The '805 Patent never suggests that personalization of media metadata occurs when media or programs are selected based on a user. A POSITA would recognize that only metadata *content* that is personalized for a user would be “generated” from data received from media subservices. It makes no sense to “generate” personalized metadata from existing metadata if personalizing metadata meant selecting the programs of that metadata based on the user rather than modifying the content of the metadata based on the user. A POSITA would understand that “generating” metadata creates personalized metadata based on the user. Selecting programs based on the user does not “generate” personalized metadata as disclosed by the '805 Patent.

57. My opinions are also consistent with Dr. Lippman’s testimony. While Dr. Lippman’s declaration does not address the construction of “media metadata personalized for a user,” I understand that Dr. Lippman testified in deposition that both potential constructions were “possible meanings of these words.” Ex. 2012, 31:4-18. I agree that, absent context, both potential constructions could be plausible meanings of “media metadata personalized for a user.”

58. However, once the two potential constructions are considered in the context of the specification, a POSITA would readily understand that personalizing

media metadata for a user means “the content of the metadata is personalized for a user” and does not mean “the selection of the media metadata is personalized for a user.” As I explained above, the ’805 Patent consistently discloses that personalizing metadata means generating metadata content for the user, not selecting media and metadata associated with the media for the user.

59. For these reasons, “media metadata personalized for a user” means “the content of the metadata is personalized for a user.”

B. “Media sources of the TV” (Claims 6 and 14)

60. In my opinion, the “media sources of the TV” as recited in claims 6 and 14 are the plurality of subservices providing content to the TV of claims 1 and 10. In addition, claims 1 and 10 explicitly require that “the plurality of subservices comprises a video-on-demand (VOD) subservice, electronic programming guide (EPG) subservice, and a media subservice.” Therefore, the “media sources of the TV” in claims 6 and 14 must at least comprise a VOD subservice source, an EPG subservice source, and a media subservice source.

61. My opinion is consistent with the ’805 Patent. The ’805 patent explicitly refers to the different types of data services (including VOD, EPG, and media) as media sources:

The different types of data services (video on demand, electronic programming guide, media) each have a data subservice component (i.e., VOD subservice 1420, EPG subservice 1424, and media subservice 1428) that is in communication with one or more internal

and/or external sources. *Each data subservice component is in communication with the corresponding source plugins (i.e., VOD source plugins 1444 a-n for VOD subservice 1420, EPG source plugins 1448 a-n for EPG source subservice 1424, and media source plugins 1452 a-n for media source subservice 1428).*

Ex. 1001, 28:46-55.

62. With respect to the claimed media browser that provides a real-time view of the media sources, 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:

Media browser 1416 c is configured to provide a view of the media sources in real-time. Further media browser 1416 c maintains a list of the connected media sources. In one implementation, media browser 1416 c does not require any permanent storage as media browser 1416 c is configured to collect real-time information. Media browser 1416 c may work with VOD subservice 1420, media subservice 1428, and/or other subservices to gather information pertaining to a list of media sources and/or contents available.

'805 Patent, 31:42-50. Thus, a POSITA would appreciate that the real-time view of media sources provided by the media browser pertains to the disclosed subservices, including the VOD, EPG, and media subservices.

63. While the '805 Patent discloses that media sources may include “external storage” or “devices connected to [the i]ntelligent TV” (Ex. 1001, 29:12-23), the '805 Patent nonetheless teaches that external devices are media sources because they fall under one of the subservices:

Media browser 1416 c may work with VOD subservice 1420, media subservice 1428, and/or other subservices to gather information pertaining to a list of media sources and/or contents available. For example, media subservice 1428 may receive information pertaining to connected devices 168 and whether the connected devices 168 have accessible media contents via the respective media source plugins 1452 a-n.

Ex. 1001, 31:47-57. Here, connected devices are a subset of the media subservice.

64. Critically, the '805 Patent does not limit “media sources” to external devices. The '805 patent explicitly teaches that VOD and the other claimed subservices as “media sources”:

For example, each of VOD source plugins 1444 a-n may be configured to communicate with one specific VOD source or some plurality of VOD sources. Some VOD sources include dedicated media sources (i.e., over the internet), such as Amazon Instant Video, AOL Video, Blockbuster, DailyMotion, Google Play, Hulu, Joost, IPTV, iTunes Store, MetaCafe, NetFlix, Pandora, PlayStation Store, Vimeo, Voddlr, Vudu, WatchESPN, YouTube, Xbox Video, or other dedicated distribution platforms and other content websites. Other VOD sources may include over-the-air or cable VOD sources with analog or digital feeds. Intelligent TV 100 may also access internal data storage (i.e., data storage 314) or other external storage (i.e., digital media library 148) that contains additional VOD media. Further, devices connected to Intelligent TV 100 (i.e., devices 168 or other devices accessible to Intelligent TV 100 over network 132) may also contain additional VOD media. Each of these media sources may have a corresponding VOD source plugin developed that can communicate with the specific media source.

Ex. 1001, 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.”).

65. Based on these disclosures, a POSITA would understand that “media sources of the TV” are the plurality of subservices providing content to the TV. In addition, claims 1 and 10 further require the “plurality of subservices” to comprise a VOD subservice, an EPG subservice, and a media subservice. Accordingly, the “media sources of the TV” of claims 6 and 14 must also at least comprise a VOD subservice source, an EPG subservice source, and a media subservice source.

C. “Pre-defined Format” and “Uniform Format” (All Claims)

66. I have applied the plain and ordinary meaning of the terms “pre-defined format” and “uniform format” in my analysis of the patentability of the Challenged Claims below. In this Section, I address the scope of the terms “predefined format” and “uniform format” consistent with their plain and ordinary meaning.

67. I agree with the Institution Decision that the terms “pre-defined format” and “uniform format” are not coextensive in scope but rather mean separate things. In my opinion, the terms “pre-defined format” and “uniform format” are separate and independent limitations that must both be satisfied.

68. 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 organization step (“pre-defined”). There are at least three “pre-defined formats,” 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.

69. The specification provides multiple examples of support where data from the VOD subservice, EPG subservice, or media subservice are organized according to a pre-defined format corresponding to the specific subservice source. For example, the specification states:

Process 1600 next organizes the requested media and/or data according to a pre-defined format as content 1630. As discussed with respect to process 1500, in step 1540, the content provider modules 1416 process the received media and/or data from the corresponding subservices 1420, 1424, and 1428.

Ex. 1001, 34:49-54.

An exemplary EPG source plugin receives and processes EPG information from a designated EPG information source. The EPG source plugin is ***configured to process the received EPG information according to the specific format of the corresponding designated EPG information source.***

Ex. 1001, 29:63-67 (emphasis added).

Similar to as discussed with respect to the EPG source plugins 1448 a-n, VOD source plugins 1444 a-n and media source plugins 1452 a-n may need to translate the various different media format and information received into a consistent model. In one implementation, ***information related to the VOD or media received from a corresponding VOD source plugin or media source plugin can be***

translated according to the respective VOD data model 1404 or media data model 1412 and stored into the respective storage 1432 or storage 1440.

Ex. 1001, 30:32-41 (emphasis added).

70. By contrast, “uniform format” does not mean all three “pre-defined formats” share a uniform format. Rather, “uniform format” refers to each “pre-defined format” providing a “uniform format” for that subservice – in other words, 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. The ’805 Patent confirms this when it explicitly states that the uniform formats are provided “for the respective subservices”:

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.

Ex. 1001, 33:25–33 (emphasis added).

71. For these reasons, it is my opinion that, while the terms “pre-defined format” and “uniform format” do not require construction beyond their plain and ordinary meaning, they nonetheless have separate and distinct meanings under their plain and ordinary meanings.

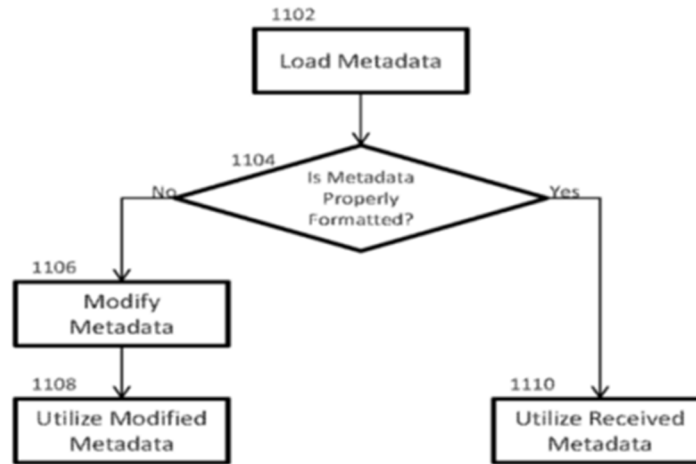
VII. SUMMARY OF THE PRINCIPLE APPLIED REFERENCES

D. Melnychenko (Ex. 1005)

72. Melnychenko, entitled “System and Methods for Modifying Improperly Formatted Metadata,” generally discloses a system for “for modifying metadata associated with content that is improperly formatted.” Ex. 1005 at Abstract. Melnychenko addresses scenarios where metadata which has been initially formatted in an application, source or purpose-specific “metadata format” or has otherwise been corrupted, is needed for an application or purpose requiring a different format. *Id.* at [0064]-[0067], [0088]-[0105], [0106]- [0115].

73. The system described by Melnychenko aggregates metadata from a variety of sources (*id.* at [0082]-[0087]) and pre-processes it to, instead of having its initial format, conform to a particular specified format desired for the application. *Id.* at [0116]-[0140]; *see generally, id.* at Figs. 13-15; [0157]-[0180]. While both the aggregation and conformation processes described by Melnychenko utilize information from a variety of sources (*see id.* at [0083]-[0085], [0142]-[0148], [0175]), the goal of Melnychenko is to conform all pre-processed metadata into a single metadata format that is compatible with the desired application or purpose. *See, e.g., id.* at [0116]-[0140], Fig. 11:

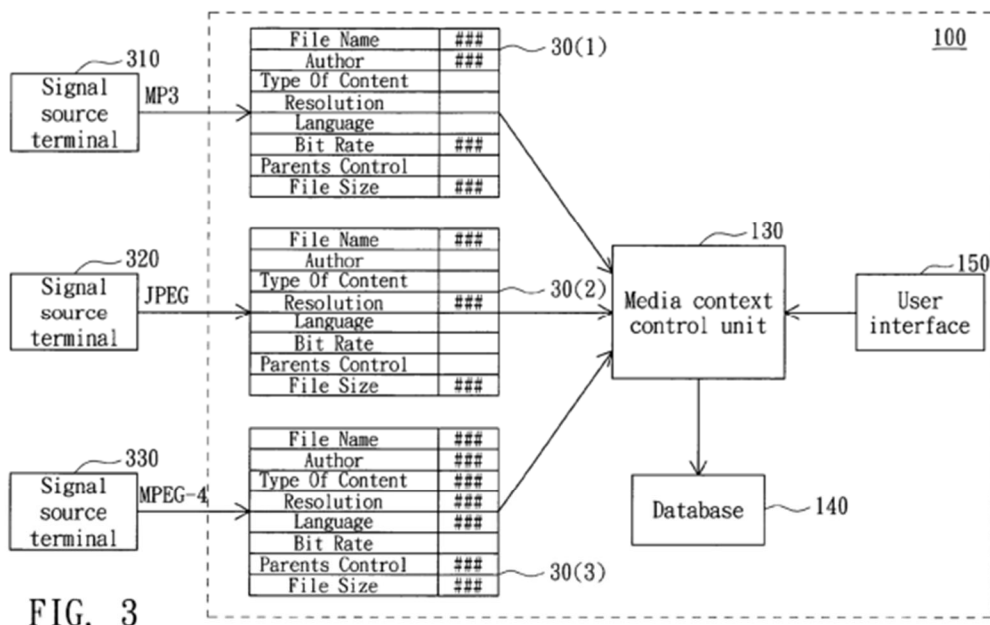
1100



E. Chen (Ex. 1007)

74. Chen, entitled “Method of Managing Metadata and Set Top Box Device,” generally discloses a method of managing metadata in a set top box device. The method operates on file types, e.g. MP3, WPA, JPEG, and MPEG-4, and formats metadata based on the file types to store in a database. *See, e.g.*, Ex. 1007 at [0006], [0018].

75. For example, in Figure 3, Chen’s set top box device 100 accepts file of the MP3, JPEG, and MPEG-4 formats and imports metadata into metadata tables 30(1), 30(2), and 30(3) corresponding to the file types MP3, JPEG, and MPEG-4:



Ex.1007, Fig. 3.

76. Chen’s method specifically declines to employ “different types of media data in a corresponding database according to the” information corresponding with that type. *Id.* at [0006]; *see also id.* at [0007]. Instead, as a way of minimizing storage space, Chen’s method stores “plural types of media data” in metadata tables: formatted in accordance with a single “uniform format.” *Id.* at [0017]; *see also id.* at Fig. 3.

F. Kim (Ex. 1006)

77. Kim, entitled “Image Display Apparatus System and Method for Operating the Same,” generally discloses an image display apparatus (e.g., television) having a user interface in the form of a “home screen” having a series of

graphical “card objects” (windows) representing different “source[s] or type[s]” of content. Kim, [0193], [0194] (“card object may be a window having a predetermined configuration”). The home screen may be displayed as a default user interface or upon the user selecting a home key or providing a “go-to-home” input on the remote control device. Kim, [0192], [0094].

Home Screen and Card Objects

78. As illustrated in Figure 19, the home screen 1300 includes the:

- (1) Broadcast card object 1310 for broadcast content including a broadcast image display area 1315 depicting broadcast content that is currently-tuned and an information object 1321 about the currently-tuned broadcast content;
- (2) Netcast card object 1320 with thumbnails for various internet sources of content (“content providers” or “CPs”);
- (3) App Store card object 1330 including text and thumbnails for a list of software applications available for downloading;
- (4) Channel Browser card object 1340 with thumbnails representing different broadcast channels;
- (5) TV Guide card object 1350 with descriptive text for a program list of available programs;
- (6) Reservations/recording card object 1360 with text and thumbnails for a program list of programs recorded or to be recorded;

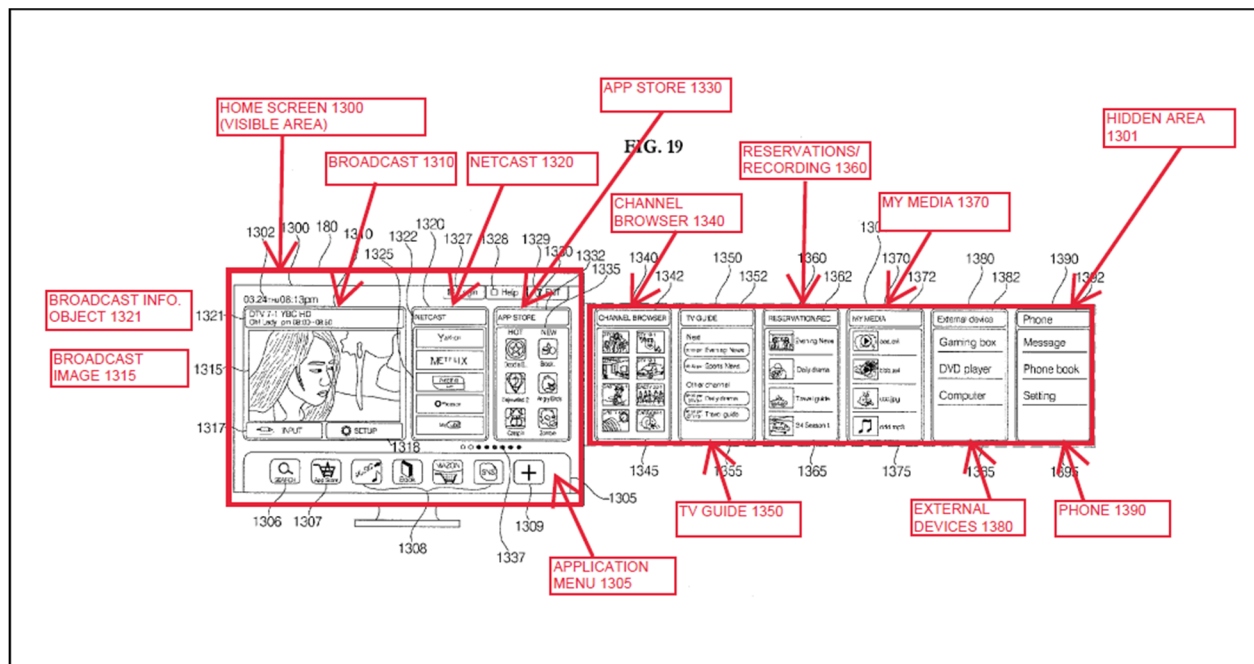
(7) My Media card object 1370 with text and thumbnails for available multimedia files such as videos, photographs, and the like;

(8) External Device card object 1380 with text identifying external devices connected to the television; and a

(9) Phone card object 1390 with text identifying information associated with a phone device such as a mobile phone.

Kim, [0193]-[0215].

79. Figure 19 below depicts the home screen of Kim:



Kim, Fig. 19 (annotated).

80. Kim discloses a plurality of card objects in the home screen, including:

The card objects may include at least one card object representing a thumbnail list of broadcast channels, a card object representing a

broadcast program guide, a card object representing a program reservation list or a program recording list, or a card object representing a media list of a device connected to the image display apparatus 100. The card objects may further include at least one of a card object representing a list of connected external devices or a card object representing a call-associated list. The home screen may further include an application menu with at least one application that can be executed.

Kim, [0094].

81. Kim describes that card objects and other objects and icons on the home screen may be selected, meaning that the focus is changed to “focus-on” the selected object or icon. Kim, [0247]. The user selection of a card object on the home screen results in the card object being displayed full-screen. Kim, [0098] (“Moreover, if one of the card objects displayed on the display 180 is selected, the controller 170 may display the selected card object as a full screen image to cover the entirety of the display 180.”).

82. Kim describes the various card objects as follows:

Referring again to FIG. 19, the card object 1310 may be named BROADCAST and may display a broadcast image. The card object 1320 may be named NETCAST and may provide a list of CPs, e.g., a list of CPs available through NetCast. The card object 1330, which may be named APP STORE, may provide a list of applications.

The hidden card objects, as shown in FIG. 19, may include a CHANNEL BROWSER card object 1340 which may provide a thumbnail list of broadcast channels, a TV GUIDE card object 1350

which may provide a program list, a RESERVATION/REC card object 1360 which may provide a reserved or recorded program list, a MY MEDIA card object 1370 which may provide a list of multimedia files which are available on the image display apparatus 100 or on a device connected to the image display apparatus 100, an EXTERNAL DEVICE card object 1380 which may provide a list of external devices which may be connected to the image display apparatus 100, and a PHONE card object 1390 which may provide a list of call-related items.

Kim, [0195]-[0196].

83. Kim describes more specifically that the “BROADCAST card object 1310 may display a broadcast image 1315 received through the tuner 110 or the network interface 130, an information object 1321 that displays information about the broadcast image 1315.” Kim, [0197]. The broadcast image 1315 is fixed insofar “broadcast image 1315 may be viewed while the other displayed card objects ... may be scrolled.” Kim, [0197]. The information object 1321 presents information about the currently-viewed program on broadcast image 1315, such as a channel number, program name, and airtime. Kim, [0199].

84. Kim describes more specifically that “[t]he [Netcast] card object 1320 may contain a card object name 1322 (NETCAST) and a CP list 1325 that displays a list of CPs ... [such as] Yakoo, Metflix, ... and Mytube.” Kim, [0201]. As with the other card objects, Kim discloses that user selection of the Netcast object 1320 will result in it being displayed in full-screen mode. Kim, [0201] (“Upon selection of the

card object name 1322, the card object 1320 may be displayed as a full screen image on the display 180.”).

85. Kim describes more specifically that “[t]he [App Store] card object 1330 may include a card object name 1332 [] and an application list 1335 ... [that] may display a plurality of icons representing applications available on a server, for example, for download or purchase.” Kim, [0202]. “Upon selection of an application icon from the application list 1335, information related to the selected application may be displayed on the display 180.” Kim, [0202].

86. Kim describes more specifically that the “[Channel Browser] card object 1340 may represent a list of broadcast channels [and] may include a card object name 1342 (CHANNEL BROWSER) and a thumbnail list of broadcast channels 1345.” Kim, [0205]. “Upon selection of a thumbnail image from the thumbnail list 1345, a broadcast program from the selected channel may be displayed on the display 180.” Kim, [0206].

87. Kim describes more specifically that the “[TV Guide] card object 1350 ... may contain a card object name 1352 (TV GUIDE) and a program list 1355 ... [that] list[s] broadcast programs for the currently displayed channel or broadcast programs for one or more different channels.” Kim, [0207]. “If a program is selected from the program list 1355, a broadcast image of the selected program (e.g.,

currently being broadcast) or broadcasting information related to the selected program (e.g., future broadcasts) may be displayed on the display 180.” Kim, [0207].

88. Kim describes more specifically that the “[Reservation/Recording] card object 1360 ... [that] may include scheduled recordings or scheduled programs which have been recorded.” Kim, [0208]. “Upon selection of a scheduled recording or a recorded program from the scheduled or recorded program list 1365, broadcast information related to the scheduled recording or the recorded broadcast program may be displayed on the display 180.” Kim, [0208].

89. Kim describes more specifically the “[My Media] card object 1370 display[s] a list [1375] of multimedia files” that may include “still images, and audio.” Kim, [0209]. “Upon selection of a file from the media list 1375, the selected file may be opened and a window (e.g., audio/video player or picture viewer window) that corresponds to the selected file may be displayed on the display 180.” Kim, [0209].

90. Kim describes more specifically the “[External devices] card object 1380 may display a list of connected external devices and may contain a card object name 1382 (EXTERNAL DEVICE) and a device list 1385 of external devices connected to the image display apparatus 100.” Kim, [0210]. “Moreover, upon selection of a specific external device from the external device list 1385, a menu related to the selected external device may be displayed.” Kim, [0210].

91. Kim describes more specifically that the “[Phone] card object 1390 may display call-related information and may include a card object name 1392 (PHONE) and a call-related list 1395 ... [that] may be a listing related to calls placed or received from a portable phone.” Kim, [0211]. Kim discloses that when an incoming call is detected, the Phone card object 1390 will be displayed, or if it is already displayed, it will be highlighted” to draw the user’s attention. Kim, [0211]. Kim describes an incoming call:

Upon receipt of an incoming call at the portable phone ... the call-related card object 1390 may be automatically displayed in the card object area of the display 180. If the card object 1390 is already displayed on the display 180, it may be highlighted or otherwise distinguished from the other card objects.

Therefore, the user may readily identify incoming calls received on a nearby portable phone ... Moreover, upon selection of the card object name 1392, the card object 1390 may be displayed as a full screen image on the display 180.

Kim, [0211]-[0212].

92. Kim discloses that the home screen of Figure 19 may have an application menu 1305 that includes “mandatory application menu items 1306, 1307, and 1309 (Search, App Store, and +) and optional application menu items 1308 (e.g., Music, Book, MAZON, and SNS).” Kim, [0214]. The Search application menu item 1306 provides a search function, and the App Store application menu item 1307 can provide direct access to the App Store card object 1330. Kim, [0214].

93. Figures 21-23 of Kim disclose how visible card objects and hidden card objects in the home screen can be scrolled or moved. Kim, [0223]-[230], Figs. 21-23.

User Settings

94. Kim discloses that settings such as video settings, audio settings, and network settings can be set using setup object 1318. Kim, [0200] (“The setup object 1318 may be used to set various settings of the image display apparatus 100, such as video settings, audio settings, screen settings, reservation settings, ... network settings, or another appropriate setting for the image display apparatus 100.”). Kim does not teach or suggest that settings are set for specific users. *Id.*

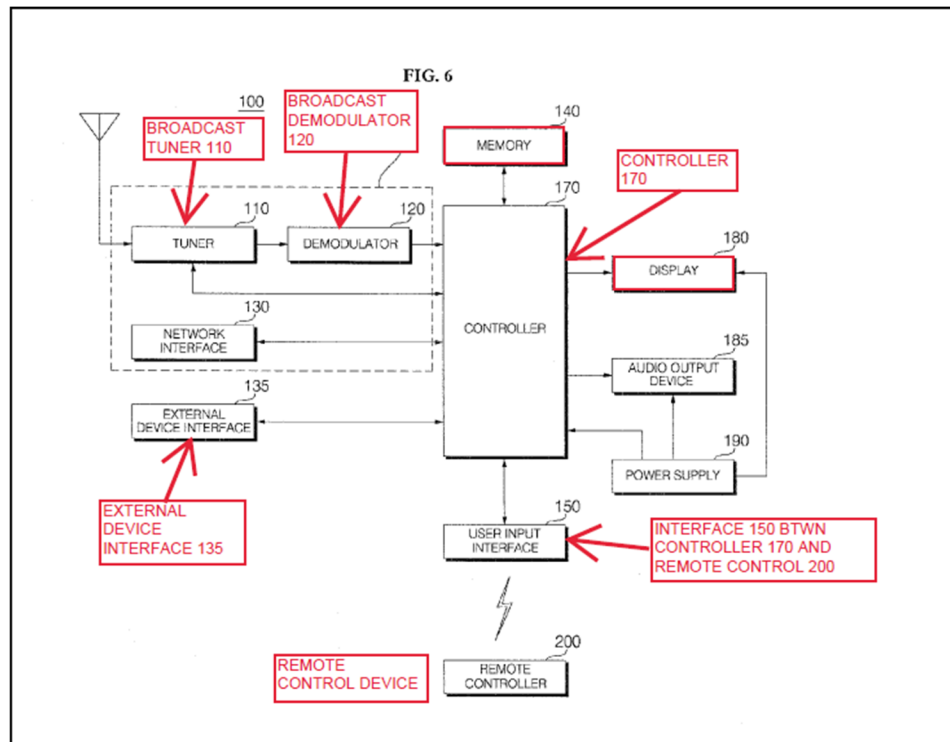
User Log-in

95. Kim discloses that a user may access the login menu 1327 on the home screen of Figure 19 to login to the App Store 1330 or to a network connected to the television. Kim, [0203] (“A Login menu item 1327 ... may be displayed above the card objects 1320 and 1330 [and] [t]he user may login to the APP STORE or a network connected to the image display apparatus 100.”).

96. Kim does not teach or suggest identifying a user based on the selection of a home screen key or go-to-home screen key to invoke the home screen.

System Diagram of Image Display Apparatus

97. Figure 6 of Kim is a block diagram of the image display apparatus 100 (e.g., television), which includes blocks for a broadcast tuner 110, demodulator 120, network interface 130, memory 140, controller 170, display 180, and a user input interface 150 that acts as an interface between the controller 170 and remote control 200:



Kim, Fig. 6 (annotated), [0065]-[0095].

98. The user interface 150 receives signals sent from remote control 170 and transmits signals to the controller 170. The user interface 150 may receive various signals from the remote control including “a channel selection signal” or a “channel switch command.” Kim, [0086], [0174].

99. The controller 170 processes incoming signals (e.g., an MPEG transport stream [TS]) and outputs images to be displayed on display 180. Kim, [0087]-[0088]. The controller 170 may provide overall control of the television, including control of the display 180 in its presentation of broadcast or other content. Kim, [0089]-[0093]. The controller 170 may include processors such as a video processor, video decoder, audio processor, data processor. Kim, [0133]-[0136].

External Devices

100. The external device interface 135 may be connected to various external devices, such as a DVD or Blue-ray player, game console, camera, or a computer. The external device interface may have an I/O interface with a USB port, CVBS port, S-video port, DVI port, or other appropriate port for connecting an external device, as described below:

The external device interface 135 may be connected to an external device such as a Digital Versatile Disk (DVD) player, a Blu-ray player, a game console, a camera, a camcorder, or a computer (e.g., a laptop computer), wirelessly or by wire. Then, the external device interface 135 externally receives video, audio, and/or data signals from the external device and transmits the received input signals to the controller 170. ... In order to receive or transmit audio, video, and data signals from or to the external device, the external device interface 135 may include[] the A/V I/O interface and/or the wireless communication module.

The A/V I/O interface of the external device interface 135 may include a Universal Serial Bus (USB) port, a Composite Video Banking Sync (CVBS) port, a Component port, a Super-video (S-Video) (analog) port, a Digital Visual Interface (DVI) port, a High-Definition Multimedia Interface (HDMI) port, a Red-Green-Blue (RGB) port, a D-sub port, or another appropriate port for connecting to an external device.

Kim, [0076]-[0077].

101. Kim discloses that the External device card object 1380 in Figure 19 may list external devices that are “connected to the image display apparatus 100 ...[that] may include a gaming box, a DVD player, a computer, or another appropriate device.” Kim, [0210], Fig. 19.

Other User Interface Displays

102. Separate from the home screen of Figure 19, Kim discloses other user interfaces on the TV display such as a full-screen “application list” depicting applications available for download and/or locally available applications. Kim, [0184]-[0185].

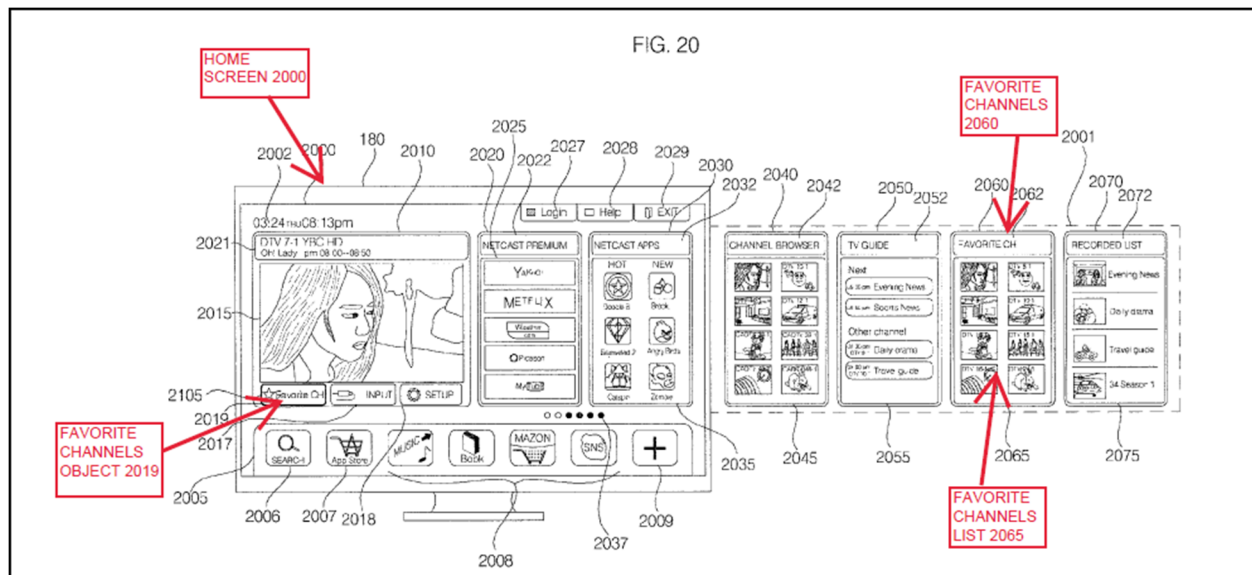
103. Figures 25-32 of Kim disclose how a user can access the App Store card object 1330 using, for example, a “go-to-app store input,” which results in the display of an App Store screen. Kim, [0234]-[0235], Figs. 25-32. The App Store screen includes tabbed menus with categories for sorting applications. Kim, [0236]-[0247], Fig. 25.

104. Figures 38-41 illustrate full-screen user interfaces for a Search window that is displayed upon the user selecting the search option, such as by selecting search option 1306 in Figure 19. Kim, [0266], Figs. 38-41, Fig. 19. The user inputs a search keyword or phrase (e.g., “Shutter Island”) and the Search window displays a series of programs as the search results. Kim, [0266]-[0269], Fig. 38. The search results can be sorted using category tabs.

G. Lee-2 (Ex. 1009)

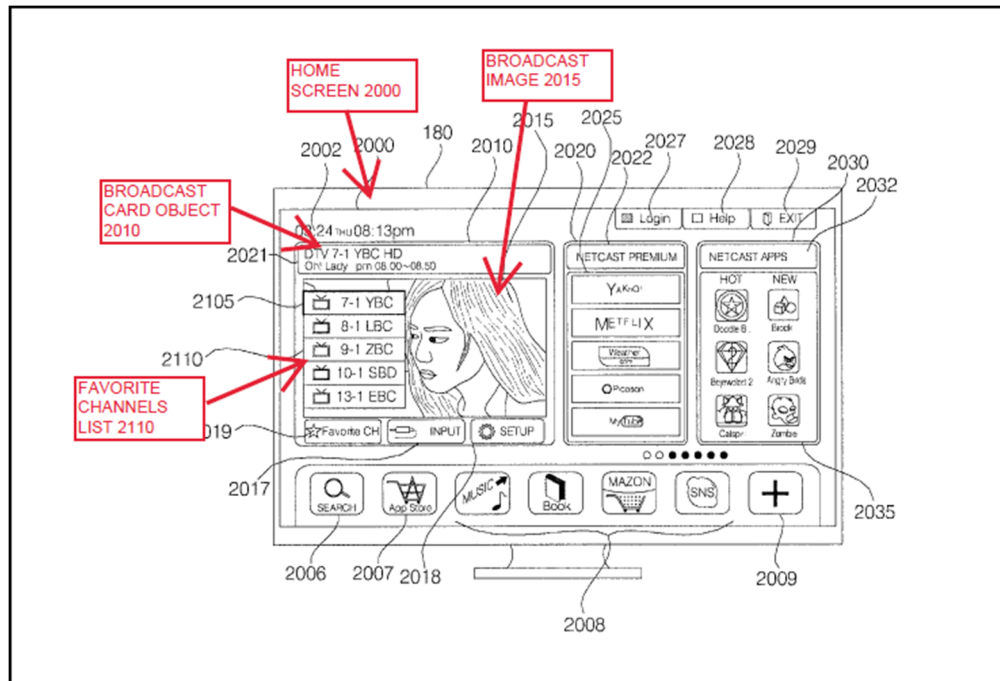
105. Lee-2, entitled “Image Display Apparatus and Method for Operating the Same,” generally describes a home screen display including a favorite channels card object having a favorite channel list. Lee-2, Abstract.

106. Figure 20 of Lee-2 presents a home screen display 2000 with various card objects 2010-2070, including a Favorite Channels card object 2060 having a favorite channels list 2065. The home screen also includes a favorite channels object 2019 that may be selected to cause the favorite channels list 2110 to be presented as depicted in Figure 21B. Lee-2, 27:4-28:18, 29:27-29 (“The [Favorite Channels] card object 2060 representing favorite channels may include a card object name 2062 (FAVORITE CH) and a list of pre-stored favorite channels 2065.”), Figs. 20, 21B. The home screen in Figure 20 with the Favorite Channels card object 2060 is depicted below:



Lee-2, Fig. 20 (annotated:

107. Upon selection of the favorite channels object 2019 in Figure 20 or Figure 21A, a modified home screen 2000 is presented that includes the favorite channels list 2110 in the broadcast image area 2015. Lee-2, 30:44-61, Fig. 21B. Figure 21B illustrating the modified home screen 2000 with the favorite channels list 2110 is depicted below:

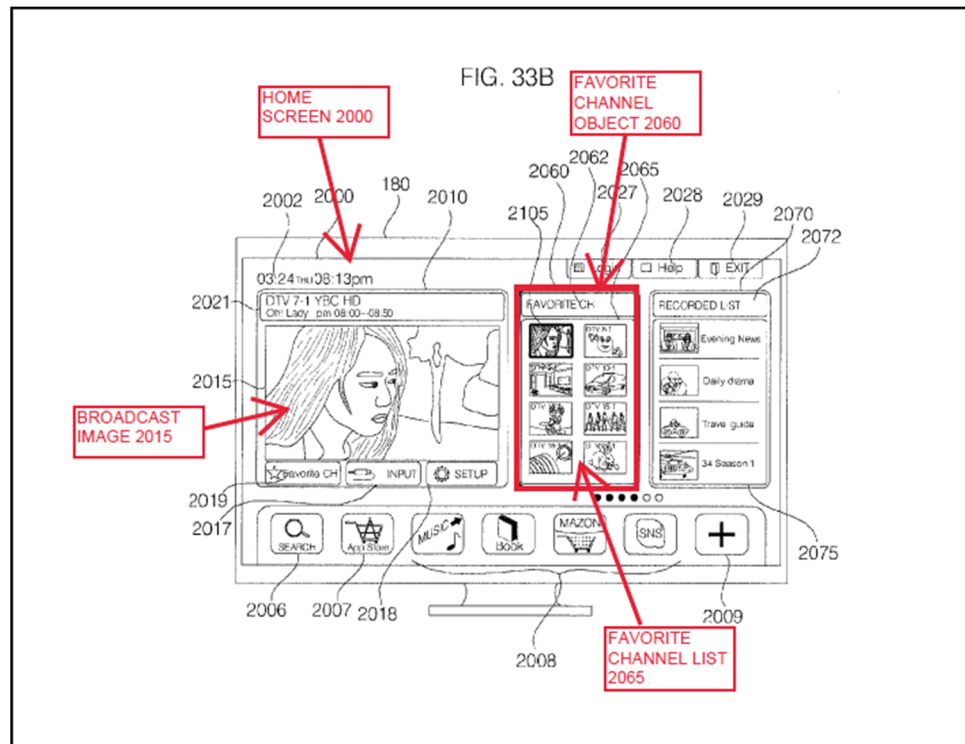


Lee-2, Fig. 21B (annotated).

108. Figure 32A illustrates a full-screen display of a selected program in currently-viewed image 3210 in display 180. Lee-2, Fig. 32A. If the user selects a favorite channel key, the user interface of Figure 32B is presented which includes the Favorite Channel card object 2060 with the favorite channel list 2065 superimposed over the currently-viewed program image. Lee-2, 37:60-38:11, Fig. 32B. Lee-2 does not disclose that the Favorite Channel card object 2060 or any channel listing 2065 within it are highlighted. Lee-2, 37:60-38:11.

109. Similar to Figures 32A-32B, Figure 33A illustrates a full-screen display of a currently-viewed image 3310. If the user selects a favorite channel key on the remote control, an updated home screen 2000 is presented in Figure 33B that includes the Favorite Channels card object 2060 with the favorite channel list 2065.

Lee-2, 38:3-11. Lee-2 discloses that the Favorite Channel card object 2060 may be highlighted. Lee-2, 38:7-11 (“The home screen 2000 may include the FAVORITE CH card object 2060. Particularly, the FAVORITE CH card object 2060 may be highlighted. Therefore, the user can readily view the FAVORITE CH card object 2060 including the favorite channel list 2065”). Accordingly, a POSITA would understand that in Figure 33B the Favorite Channel object 2060 is highlighted because the user selected the favorite key on the prior screen of Figure 33A. Figure 33B is presented below:



Lee-2, Fig. 33B (annotated).

110. Figure 39A illustrates a home screen 2000 including a favorite channel object 2019. If the user selects the favorite channel object 2019, a full-screen Favorite Channels List display is presented as depicted in Figure 39B. Lee-2, Figs. 39A-B. The Favorite Channels List display may present favorite channels in a channel list area 3910 for each of four users A-D according to the selected tab in tab group area 3920. Lee-2, 41:47-60, Fig. 39B. The Favorite Channels List display is presented in Figure 39B:

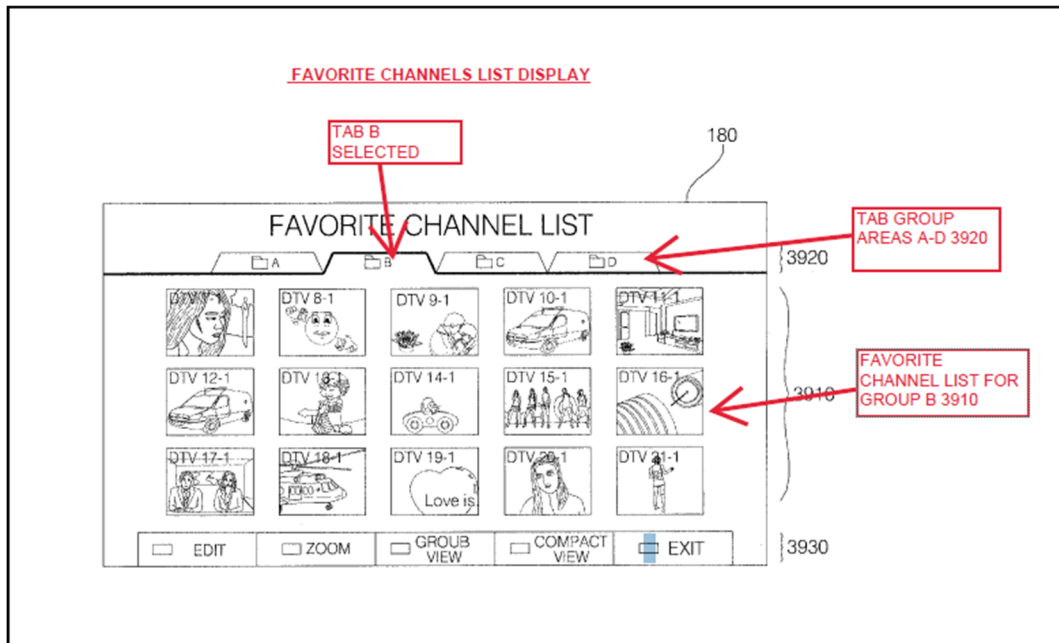


Fig. 39B (annotated).

111. Lee-2 describes the Favorite Channels List display as follows:

Referring to FIG. 39B, upon selection of the favorite channel object 2019, a favorite channel list screen including a favorite channel list is displayed fullscreen. The favorite channel list screen may include a plurality of groups A through D.

In FIG. 39B, a group area 3920 includes tabbed menus including the 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.

Lee-2, 41:41-50.

H. Choi (Ex. 1011)

112. Choi, entitled “Method of Providing External Device List and Image Display Device,” describes a method of displaying an external device list on an image display device such as a television. Choi, Abstract.

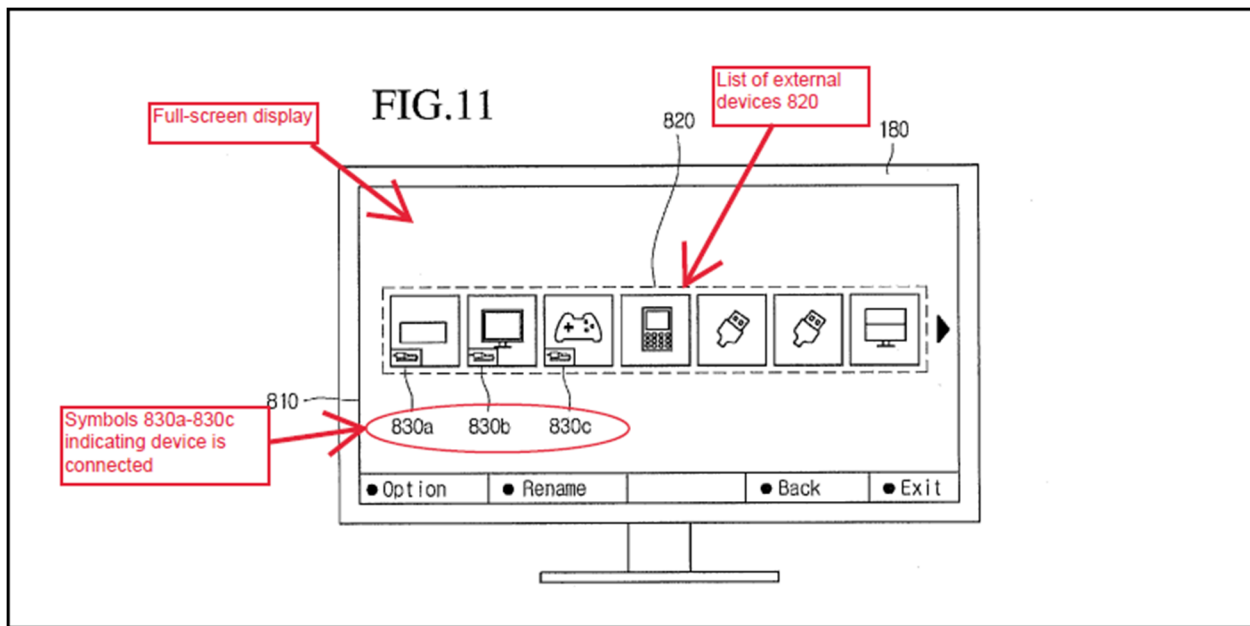
113. Figure 5 of Choi describes an external device interface unit 135 that may connect external devices to the image display device, such as a DVD player, Blu-ray player, game console, and computer. Choi, [0097] (“The external device interface unit 135 may be used for wire/wireless connection of an external device such as a Digital Versatile Disk (DVD) player, a Bluray player, a game console, a camera, a camcorder, and a computer (such as a notebook computer).”).

114. The external device interface unit 135 may include an A/V input/output unit that includes “a USB terminal, a Composite Video Banking Sync (CVBS) terminal, a component terminal, an S-Video terminal (i.e., an analog type), a Digital Visual Interface (DVI) terminal, a High Definition Multimedia Interface (HDMI) terminal” Choi, [0099].

115. Choi describes in Figure 11 a full-screen External devices screen on display unit 180 that includes a series of external devices 820 including icons 830a-830c indicating which external devices are connected to the image display apparatus (e.g., television). Choi, [0250], Fig. 11. Choi does not teach or suggest an icon that identifies an external device as being connected to any particular input port. Choi describes the full-screen display of external objects and connected-status icons as follows:

As shown in FIG. 11, a plurality of external device icons 820 representing a plurality of external devices are displayed on the full screen 810 of the display unit 180. Moreover, the control unit 170 **determines which external device icons 820 are connected** to the image display device 100 in order to display specific symbols 830a, 830b, and 830c on the external device icons **that are being connected to the image display device 100**. Therefore, external device icons that are not being connected to the image display device 100 are distinguished.

Choi, [0250] (emph. added), Fig. 11. Figure 11 of Choi is presented below:



Choi, Fig. 11 (annotated).

116. Choi does not teach or suggest that the symbols 830a-830c identify or indicate input ports.

VIII. GROUNDS 1-5 FAIL BECAUSE MELNYCHENKO AND CHOI ARE NOT “PRINTED PUBLICATIONS” UNDER 35 U.S.C. § 311(B)

117. I am informed that Patent Owner asserts that Melnychenko (Ex. 1005) and Choi (Ex. 1011) are not permissible references because they are not “printed publications” in accordance with the statute governing IPRs. As this is a purely legal issue, I note it but am not rendering any opinion on it.

**IX. GROUND 1: CLAIMS 1, 10, AND 17 ARE PATENTABLE
OVER MELNYCHENKO AND CHEN**

- A. Melnychenko and Chen do not suggest limitation 1.2: “organizing, by the processor, the data according to a pre-defined format corresponding to each of the plurality of subservices, wherein the pre-defined format comprises one of a VOD data model, an EPG data model and a media data model, 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 wherein each of the VOD data model, EPG data model, and media data model provide a uniform format for the plurality of subservices”**

118. Element 1.2 of the '805 Patent requires “organizing[] data [received from one of a VOD subservice, a EPG subservice, and a media service] according to a *pre-defined format corresponding to each of the plurality of subservices.*”

Because element 1.1.2 specifies that “the plurality of subservices comprises a [VOD] subservice, [a EPG] subservice, and a media subservice,” claim 1 explicitly requires a pre-defined format for each of the VOD subservice, EPG subservice, and media subservice. Furthermore, because the pre-defined format corresponds to *each* of the plurality of subservices, claim 1 must require organizing data from a respective type of subservice according to a pre-defined format corresponding to that subservice type. When read together with element 1.2.3, “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,” a POSITA would understand that claim 1 requires organizing **VOD subservice data**

according to a pre-defined format that is a VOD data model, organizing EPG subservice data according to a pre-defined format that is an EPG data model, and organizing media subservice data according to a pre-defined format that is a media data model. Claims 10 and 17 contain substantially the same limitations.

119. The '805 Patent's Figure 14 as annotated below further illustrates the organizing step:

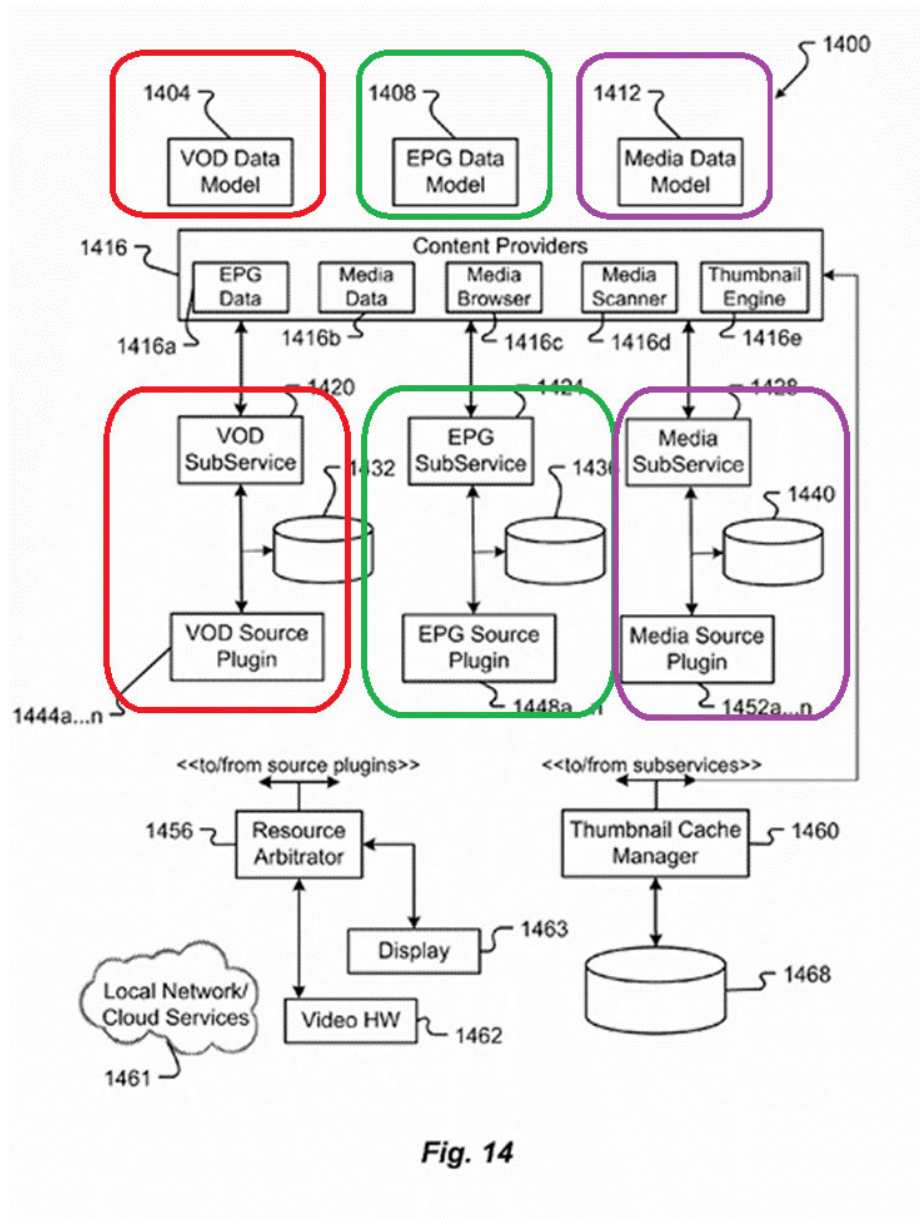


Fig. 14

120. While VOD subservice 1420, EPG subservice 1424, and media subservice 1428 work with content providers 1416 “to provide customized media data and information” (Ex. 1001, 30:65-31:3), Fig. 14 teaches that dedicated source plugins corresponding to each of the subservices (**VOD source plugin 1444 for VOD subservice 1420**, **EPG source plugin 1448 for EPG subservice 1424**, and

media source plugin 1452 for media subservice 1428) apply the appropriate data model to the respective subservice source (**VOD data model 1404 for the VOD subservice 1420**, **EPG data model 1408 for the EPG subservice 1424**, and **media data model 1412 for the media source 1428**). Ex. 1001, 30:36-41 (“[I]nformation related to the VOD or media received from a corresponding VOD source plugin or media source plugin can be translated according to the respective VOD data model 1404 or media data model 1412 and stored into the respective storage 1432 or storage 1440...”).

121. The '805 Patent explicitly states that each data model applies to each corresponding subservice type (VOD data model to the VOD subservice, EPG data model to the EPG subservice, and media data model to the media subservice). Each type of data service has a corresponding data subservice component with a corresponding source plugin:

The different types of data services (video on demand, electronic programming guide, media) each have a data subservice component (i.e., VOD subservice 1420, EPG subservice 1424, and media subservice 1428) that is in communication with one or more internal and/or external sources. Each data subservice component is in communication with the corresponding source plugins (i.e., VOD source plugins 1444 a-n for VOD subservice 1420, EPG source plugins 1448 a-n for EPG source subservice 1424, and media source plugins 1452 a-n for media source subservice 1428).

Ex. 1001, 28:46-55.

122. The '805 Patent explicitly states that each of the VOD source plugins, EPG source plugins, and media source plugins apply the specific pre-defined format corresponding to the subservice source of the plugins (VOD data model for the VOD subservice, EPG data model for the EPG subservice, media data model for the media subservice):

For example, each of VOD source plugins 1444 a-n may be configured to communicate with one specific VOD source or some plurality of VOD sources.

Ex. 1001, 29:3-5.

An exemplary EPG source plugin receives and processes EPG information from a designated EPG information source. The EPG source plugin is ***configured to process the received EPG information according to the specific format of the corresponding designated EPG information source.***

Ex. 1001, 29:63-67.

Media source plugins 1452 a-n are configured to interface or communicate with the various media sources available to Intelligent TV 100.

Ex. 1001, 30:16-21.

123. Again, the '805 Patent repeatedly states 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:

Similar to as discussed with respect to the EPG source plugins 1448 a-n, VOD source plugins 1444 a-n and media source plugins 1452 a-n may need to translate the various different media format and

information received into a consistent model. In one implementation, ***information related to the VOD or media received from a corresponding VOD source plugin or media source plugin can be translated according to the respective VOD data model 1404 or media data model 1412*** and stored into the respective storage 1432 or storage 1440.

Ex. 1001, 30:32-41.

124. Petitioner alleges that Melnychenko in view of Chen suggests organizing data from each type of subservice according to a pre-defined format corresponding to that subservice type. *See* Pet., 32-42. While Petitioner concedes 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,” Petitioner argues that Chen organizes received metadata in a “metadata table” “corresponding to each different types [*sic*] of content.” *See* Pet., 32-33.

125. I disagree that organizing metadata in a table corresponding to different types of content suggests organizing data received from the VOD, EPG, and media subservice types according to a pre-defined format corresponding to each of the subservice types (VOD, EPG, and media, respectively) as claimed. Unlike the method recited by claim 1, 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). Unlike claim 1, Chen does not organize data from a VOD subservice source according to a pre-defined format comprising a VOD data model, organize data from an EPG

subservice source according to a pre-defined format comprising an EPG data model, or organize data from a media subservice source according to a pre-defined format comprising a media data model. Instead, Chen 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). Chen explicitly states that its metadata tables “correspond to” an MP3 file, a JPEG file, and an MPEG-4 file respectively – not to a VOD source, an EPG source, and a media source:

The metadata tables 30(1), 30(2) and 30(2) include columns such as file name, author, file size and so on. ***The columns correspond to the columns of the metadata of the MP3 file, JPEG file and MPEG-4 file.***

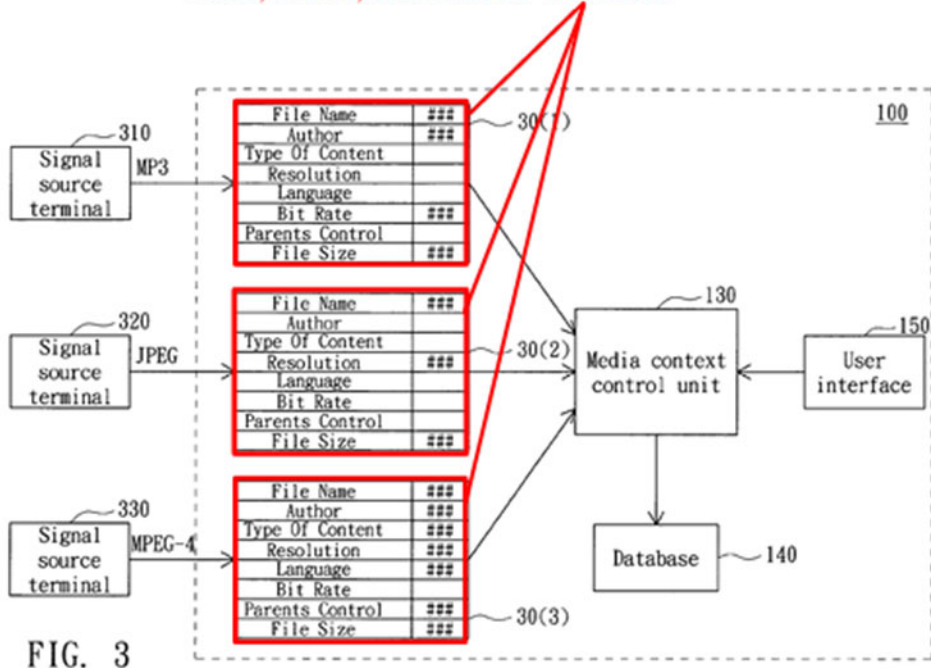
Ex. 1007, [0020]. Chen then confirms that the formats of the metadata tables are based on the file type (*i.e.*, certain columns correspond only to MP3 files, or to MPEG-4 files):

However, the metadata tables 30(1), 30(2) and 30(3) still include partial columns. Examples of partial columns include the bit rate column corresponding to the metadata of MP3 file only, the parent control column corresponding to the metadata of MPEG-4 file only, and the resolution column corresponding to the metadata of JPEG file. In the metadata table 30(1), only the metadata columns corresponding to MP3 file are inputted with data. In the metadata table 30(2), only the metadata columns corresponding to JPEG file are inputted with data. In the metadata table 30(3), only the metadata columns corresponding to MPEG-4 file are inputted with data.

Id.

126. This is explicitly shown by Petitioner’s annotations to Fig. 3 of Chen:

Metadata is organized in metadata tables corresponding to MP3, JPEG, and MPEG-4 content



Ex.1007, Fig. 3 (annotated).

See Pet., 34.

127. Here, Petitioner's annotations to Fig. 3 confirm that Chen organizes metadata in metadata tables corresponding to the *file format of the content* – not corresponding to *each of the plurality of subservices* as claimed. Fig. 3 as annotated unambiguously shows that Chen organizes MP3 files according to an MP3 format, JPEG files according to a JPEG format, and MPEG-4 files according to an MPEG-4 format. But MP3, JPEG, and MPEG-4 are not VOD, EPG, or media subservices. Rather, it is well known that MP3, JPEG, and MPEG-4 are file types. A POSITA would understand that Chen organizes data by file format: MP3

according to a MP3 format, JPEG according to a JPEG format, and MPEG-4 according to a MPEG-4 format. Thus, instead of organizing data according to pre-defined formats corresponding to the type of subservice, Chen organizes data according to formats corresponding to the file type of the data.

128. Moreover, a POSITA would not understand organizing data according to formats *corresponding to file types* as disclosed by Chen to suggest organizing data according to formats *corresponding to subservices* as claimed. I agree with Dr. Lippman's deposition testimony that each subservice (VOD, EPG, or media) may provide data in multiple file types. Ex. 2012. Thus, a VOD subservice may provide data in the MP3, JPEG, or MPEG-4 format, but a media subservice may also provide data in the MP3, JPEG, or MPEG-4 format. *Id.* Indeed, Chen itself discloses three different examples of the media subservice that provides media in the MP3, JPEG, and MPEG-4 file types. Chen states that signal sources 310, 320, and 330 are external storage and connected devices having accessible media content, which would be categorized as media subservices: "Examples of signal source terminals **310**, **320** and **330** include a USB storage unit, a personal computer and a cabled TV respectively." Ex. 1007, [0020]. Thus, a POSITA would recognize that Chen utilizes multiple formats for a single subservice depending on which file types are provided by that subservice – not three pre-defined formats for three different subservices as claimed. When Chen applies its metadata table based on MP3, JPEG,

or MPEG-4 content, it does so regardless of the type of subservice (that is, MP3 files are organized according to the MP3 format regardless of whether the source is VOD, EPG, or media; JPEG files are organized according to the JPEG format regardless of whether the source is VOD, EPG, or media; and MPEG-4 files are organized according to the MPEG-4 format regardless of whether the source is VOD, EPG, or media). 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.

129. For that reason, even if Chen’s teachings are applied to Melnychenko, a POSITA would at most organize files received from each subservice according to a format based on the type of the file. Chen contains no suggestion to organize data from each subservice according to a format based on the type of the subservice.

130. Petitioner’s error is further compounded by their conflation of “pre-defined format” and “uniform format.” As I explained in Section VI.C, “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 organization step (“pre-defined”). There are at least three “pre-defined formats” recited in claim 1: 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.

131. By contrast, “uniform format” does not mean all three “pre-defined formats” share a uniform format. Rather, “uniform format” refers to each “pre-defined format” providing a “uniform format” for that subservice – in other words, 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.

132. Consistent with the Board’s findings on page 26 of the Institution Decision, 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. Even if Chen’s metadata tables 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.

133. For these reasons, the prior art does not 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.

X. GROUND 3: CLAIMS 4 AND 13 ARE PATENTABLE OVER MELNYCHENKO, CHEN, KIM, LEE-1, AND LEE-2

A. Melnychenko, Chen, Kim, Lee-1, and Lee-2 do not suggest providing “media metadata personalized for a user”

134. Both claims 4 and 13 recite “the media data provider is configured to provide media metadata personalized for a user.” I have reviewed Melnychenko, Chen, Kim, Lee-1, and Lee-2, and it is my opinion that none of these references teach or suggest media metadata personalized for a user as understood by a POSITA.

135. As I explained in Section VI.A, a POSITA would understand that “media metadata personalized for a user” is media metadata *content* that is personalized for a user. To personalize the media metadata for a user, the content of that media metadata must be personalized for the user (i.e., the content for the same media must be different between users). Personalizing the *selection* of media metadata for a user is insufficient to meet this limitation if the content of the media metadata is the same for all users that selected the same media metadata. In other words, if the media metadata is the title of a program and that media metadata is personalized for two users, the first user and the second user should see different, personalized program titles. If all users that select the same program see the same title, then the media metadata (program title) has not been personalized for the user as claimed.

136. The Petition appears to make two arguments concerning how Kim’s disclosure of “a favorite channel list” in combination with Lee-2’s disclosure of “a

favorite channel list that is personalized for a user” personalizes media metadata for a user.

137. **First**, Petitioner appears to argue that Lee-2’s favorite channel list is personalized for a user because the programs in each favorite channel are selected personally for a user. *See* Pet., 76-77 (“Lee-2 supplements by teaching a favorite channel list that is personalized for a user...Lee-2’s favorite channel list settings are configured by the user.”). Dr. Lippman’s declaration repeats these points verbatim. *See* Ex. 1003 [Lippman Decl.], ¶ 325-327. I also understand that Dr. Lippman testified in deposition that Lee-2’s favorite channel list is personalized for a user because the programs in the channel are selected personally for the user (*i.e.*, User A as shown in Fig. 39B may have different programs in their favorite channel than User B). Ex. 2012, 31:23-32:15. According to Dr. Lippman, the media metadata is personalized for a user because the media corresponding to the metadata is selected and personalized for a user, hence the metadata is selected and personalized for the user. *Id.*

138. This conclusion is premised on an incorrect understanding of the term “media metadata personalized for a user.” As I explained in Section VI.A, personalizing media metadata means “the content of the metadata is personalized for a user.” Personalizing 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, as confirmed by Dr. Lippman. Ex. 2012, 31:10-32:15. When a user selects media for a favorite channel, the user has not personalized the media metadata as claimed. Rather, as Dr. Lippman confirmed, that metadata is the same for all users that selected the same media for their favorite list. *Id.* This contrasts with personalizing the **content** of the media metadata as claimed, where the content of the metadata changes user to user even if the users select the same media. Accordingly, personalizing the selection of media in a favorite list in Lee-2 is not personalizing media metadata for a user as claimed.

139. **Second**, Petitioner argues that “Lee-2’s favorite channel list settings are configured by the user” and “Lee-2’s OSD generator functional program generates a Favorite Channel card object 2060 that includes personalized metadata (e.g., user-set thumbnails) for a user.” *See* Pet., 77. Petitioner appears to allege that users may set a thumbnail for programs in their favorite channel, and this “user-set thumbnail” is media metadata personalized for a user. *Id.* The same argument appears in Dr. Lippman’s declaration verbatim. *See* Ex. 1003 [Lippman Decl.], ¶ 327.

140. In my opinion, referring to the thumbnails shown in Fig. 39B of Lee-2 as “user-set thumbnails” is perhaps misleading and may give the incorrect

impression that users can either generate or modify the thumbnails, or select one of several thumbnails for a particular program in the favorite channel list.

141. To be clear, Lee-2 does not disclose or suggest such functionality. Lee-2 does not describe how to generate thumbnails. However, Lee-2 states that the “details of the thumbnail images and lists are disclosed in U.S. application Ser. No. 12/651,730 filed Jan. 4, 2010, whose entire disclosure is incorporated herein by reference.” Ex. 1009, 42:43-45. The ’730 Application (issued as U.S. Patent 9,008,190) discloses that a thumbnail is an image or video extracted by the device from the video signal of the media:

The video decoder **215** extracts a picture from an inputted video signal and decodes it. The extracted picture may be a picture of a video signal or several pictures corresponding to a partial interval of a video signal. The decoding of the picture can be performed using an MPEG-2, MPEG-4, or H.264 decoder. The DV decoder **217** receives a digital signal DV and extracts a picture or several pictures of a partial interval. For example, the decoder **215** or decoder **217** signals at its input and outputs P-frame, I-frame and B-frame. To provide a still picture thumbnail, the thumbnail generator uses the I-frame, and to provide a moving picture thumbnail, the thumbnail generator uses the P, I and B frames.

Ex. 2014, 8:19-30. This disclosure confirms that thumbnails are generated from the media without user input. There is no disclosure that thumbnails are generated or modified by a user. At most, the thumbnails correspond to media selected for a user, but as explained above, that is insufficient to suggest “media metadata

personalized for a user” as claimed. Nothing in Lee-2 suggests a thumbnail is personalized for a user as properly understood.

142. Additionally, Dr. Lippman cites the following passage of Lee-2 as support for “user-set thumbnails”:

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.

See Ex. 1003 [Lippman Decl.], ¶ 326 (*citing* Ex.1009, 41:61-67).

143. This passage does not suggest that users may edit any thumbnail. Rather, a POSITA would understand that the “EDIT” menu item “edit[s] channels” – that is, selects programs to add or remove from the favorite channel list. As discussed above, selecting programs for the favorite channel list does not suggest “media metadata personalized for a user.” Likewise, “Zoom for changing the number of displayed thumbnail images” does not modify any thumbnail. Instead, a POSITA would understand that ZOOM increases or decreases the size of the thumbnails in channel list area 3910. The 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. ZOOM, like EDIT, does not modify any thumbnail.

144. Accordingly, the prior art does not suggest “media metadata personalized for a user” as properly understood and claimed.

XI. GROUND 5: CLAIMS 6 AND 14 ARE PATENTABLE OVER MELNYCHENKO, CHEN, KIM, LEE-1, AND CHOI

A. Melnychenko, Chen, Kim, Lee-1 and Choi do not suggest “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”

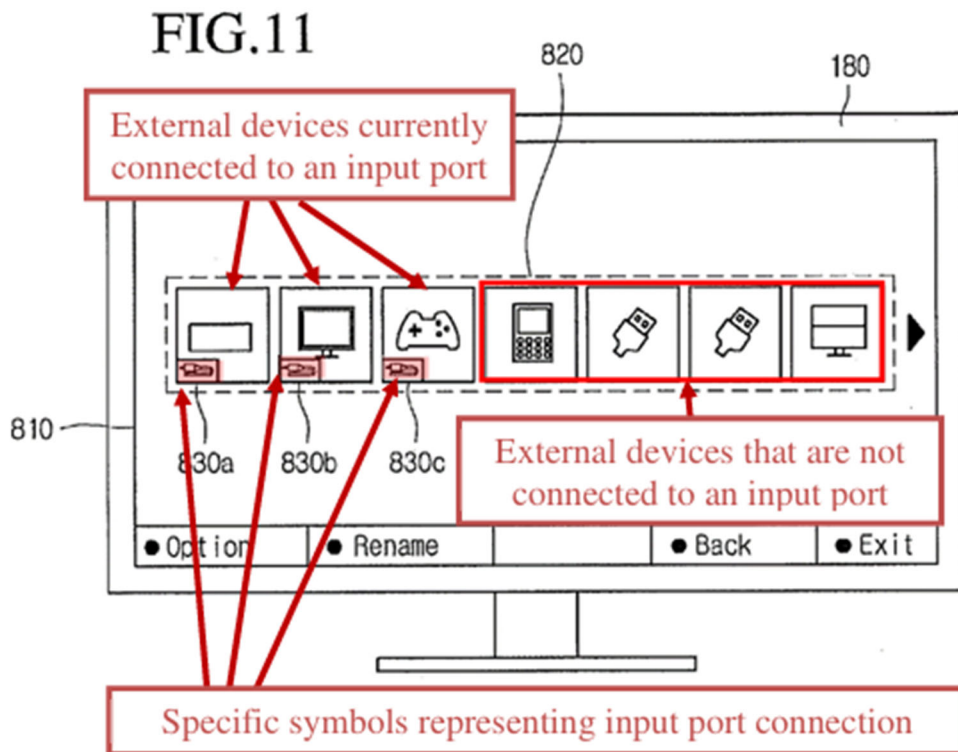
145. Both claims 6 and 14 recite “the media browser is configured to provide a real-time view of media sources of the TV and maintain a list of connected media sources of the TV.” I have reviewed Melnychenko, Chen, Kim, Lee-1, and Choi, and it is my opinion that none of these references teach or suggest the media browser provides a real-time view of media sources of the TV as understood by a POSITA.

146. As I explained in Section VI.B, a POSITA would understand that the “media sources of the TV” include the subservice sources recited in independent claims 1 and 10 respectively. Thus, claims 6 and 10 require that the media browser provide a real-time view of VOD subservice sources, EPG subservice sources, and media subservice sources, and must maintain a list of these connected subservices.

147. The Petition alleges that the prior art discloses claims 6 and 10 because “Kim discloses that the External Device card object 1380 includes ‘a list of external devices which may be connected’ via an input port, e.g., ‘HDMI,’ etc. [... the] list of external devices may include ‘Gaming box,’ ‘DVD player,’ etc.”

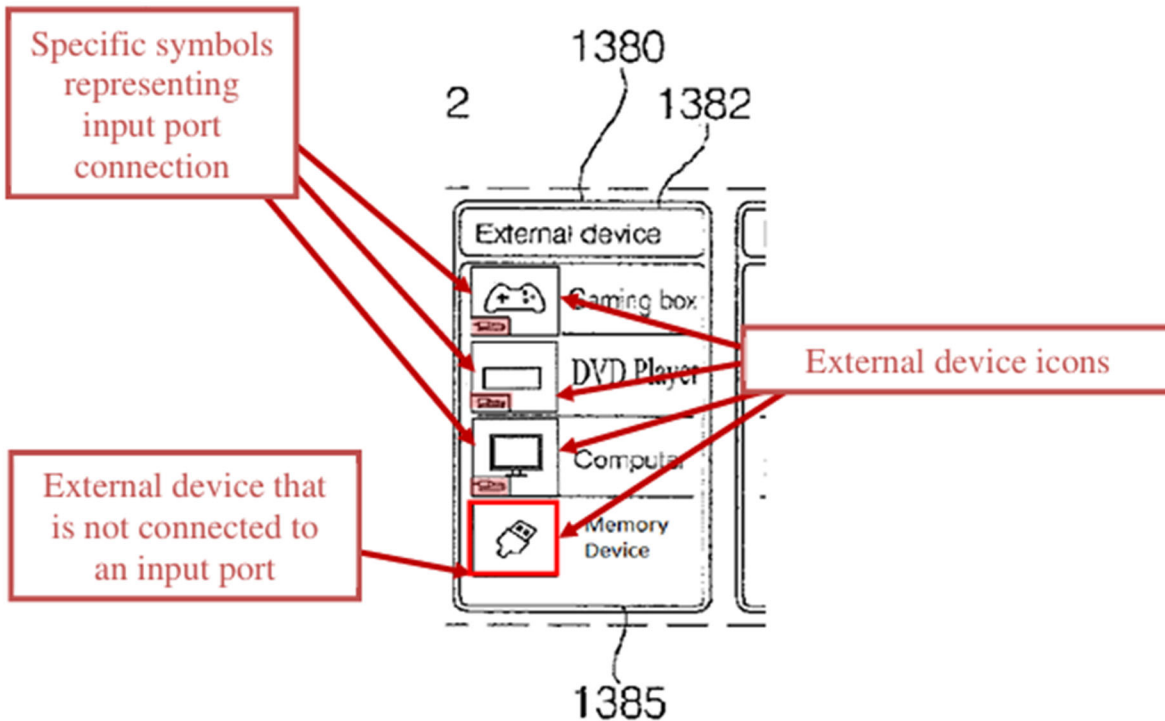
and “Choi discloses that external devices determined to be connected may be represented by icons with specific symbols.” *See* Pet., 84. Dr. Lippman’s declaration repeats these arguments. *See* Ex. 1003 [Lippman Decl.], ¶ 345-353.

148. For example, the Petition identifies Fig. 11 of Choi as showing icons of “external devices” that are connected or not connected to a smart TV:



Ex.1011, Fig. 11 (annotated).

See Pet., 85. The Petition alleges that Melnychenko may be modified in view of these teachings to similarly display external device icons:



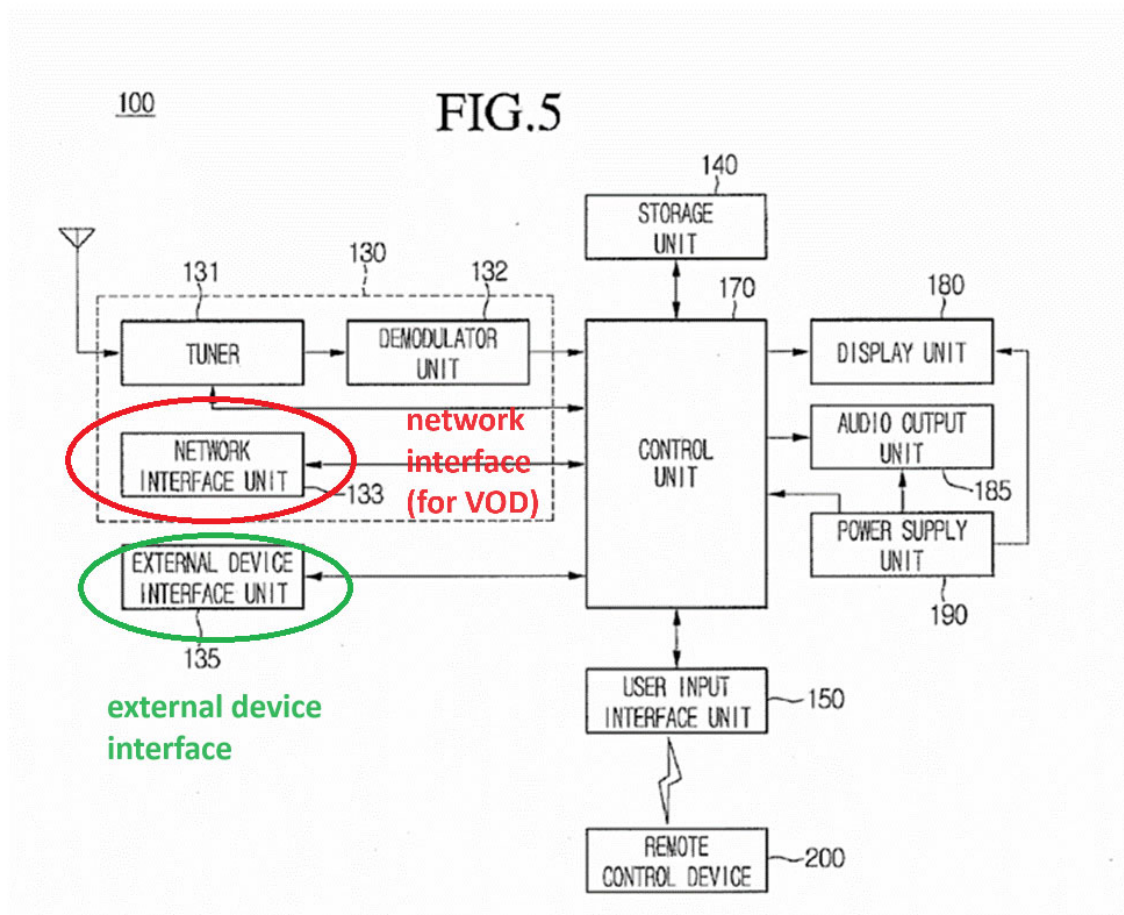
Ex.1006, Fig. 19 (partial, modified in view of Choi).

See Pet., 87.

149. As I explained above, however, “media sources of the TV” are the subservice sources recited in independent claims 1 and 10 respectively. A media player does not read on claims 6 and 10 merely because it provides an icon of an external device such as a DVD player. Rather, based on claim 6 and 14’s dependency from claims 1 and 10 respectively, a media player must provide a real-time view of at least a VOD source, an EPG source, and a media source (and must maintain a list of these connected subservices) to satisfy all of claims 6 and 10’s limitations. In other words, the provided real-time view must include all three of VOD, EPG, and media sources.

150. Neither Choi nor Kim discloses a real-time view of VOD or EPG sources because they are directed to icons of (removable) external devices, not VOD or EPG. None of the external device icons correspond to a VOD source (or an EPG source), as required by the claims.

151. Based on the description of Choi's image display device, a POSITA would understand that Choi's device is not designed to provide a real-time view of VOD or EPG media sources as required by claims 6 and 14. Specifically, as shown by Fig. 4, Choi employs a separate **network interface 133** for VOD services and **external device interface 135** for external devices:

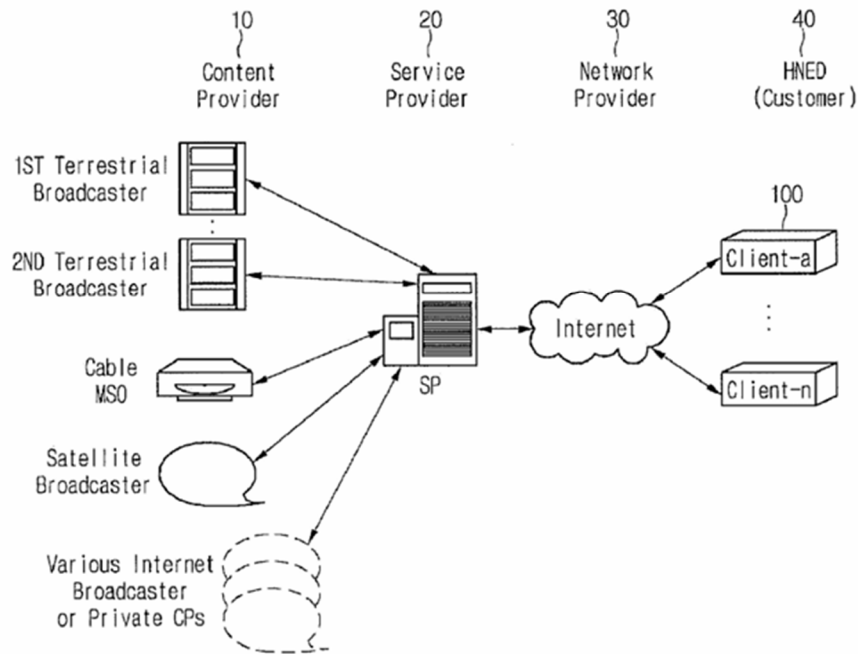


Ex. 1011, Fig. 5 (annotated).

152. Choi states that the network interface receives VOD services: “That is, the network interface unit 133 may receive contents such as movies, advertisings, games, **VODs**, and broadcast signals and information thereon, which are provided from a CP or an NP via a network.” Ex. 1011, [0107]. By contrast, the external device interface connects to non-network external devices: “The external device interface unit 135 may be used for wire/wireless connection of an external device such as a Digital Versatile Disk (DVD) player, a Bluray player, a game console, a camera, a camcorder, and a computer (such as a notebook computer).” Ex. 1011, [0097].

153. Fig. 1 of Choi confirms that Customers 40 receive VOD content from Content Providers 10 (*i.e.*, Terrestrial Broadcaster, Cable, Satellite, and Internet Broadcaster content providers) through Network Provider 30 (*i.e.*, the Internet):

FIG. 1



Ex. 1011, Fig. 1, *see also* Ex. 1011, [0026].

154. Choi states that control unit 170 determines which external devices are connected to display device 100: “[T]he control unit 170 determines which external device icons 820 are connected to the image display device 100 in order to display specific symbols 830a, 830b, and 830c on the external device icons that are being connected to the image display device 100...[C]ontrol unit 170 determines which one of the plurality of external device icons displayed on the display unit 180 has a pointer thereon in operation S710.” Ex. 1011, [0250]-[0251]. Choi further describes how control unit 170 utilizes data signals inputted from external device interface unit 135 as follows: “[T]he external device interface unit 135 may

deliver an image, sound, or data signal inputted from a connected external into the control unit 170 of the image display device 100.” Ex. 1011, [0098]. A POSITA would understand from these disclosures that control unit 170 utilizes data signals provided by external device interface unit 135 to determine whether external devices are connected to display device 100.

155. Choi however does not describe analogous data signals from network interface unit 133 that would permit control unit 170 to determine whether VODs are connected to display device 100. Based on these disclosures, a POSITA would not understand Choi’s device to be designed to provide a real-time view of VOD or EPG media sources as required by claims 6 and 14 for two reasons. First, Choi explicitly describes separate network and external device interface units 133 and 135—a POSITA could not assume that operations described for one interface unit are applicable to another interface unit. Second, Choi explicitly describes how control unit 170 determines whether an external device is connected to display device 100 but does not contemplate or describe how control unit 170 would determine whether a VOD service is connected via network interface unit 133—a POSITA would understand from Choi’s silence with respect to the network interface unit 133 that network interface unit 133 does not have the functionality to determine connected VOD services.

156. For these reasons, the prior art does not suggest providing a real-time view of media sources of the TV comprising VOD subservice sources, EPG subservice sources, and media subservice sources as required by claims 6 and 14.

XII. GROUND 2: CLAIMS 3 AND 12 ARE PATENTABLE OVER MELNYCHENKO, CHEN, KIM, AND LEE-1

A. Melnychenko, Chen, Kim, and Lee-1 do not suggest serving “EPG information in a read-only format”

157. Both claims 3 and 12 recite “the EPG data provider is configured to serve one or more applications of the TV with EPG information in a read-only format.” I have reviewed Melnychenko, Chen, Kim, and Lee-1, and it is my opinion that none of these references teach or suggest EPG information in a read-only format.

158. I understand that the Petition alleges Kim discloses this element because it teaches that the user may receive EPG comprising broadcasting information. *See* Pet., 72 (*citing* Ex. 1006, [0142] (controller 170 receives “encoded signal such as an EPG which includes broadcasting information”)). The Petition does not appear to rely on any other disclosure in any of Melnychenko, Chen, Kim, or Lee-1 for this limitation. Paragraph 142 of Kim however does not state that the EPG information is read-only.

159. Based on paragraph 142 of Kim, Dr. Lippman asserts that “Kim renders obvious” EPG information in a read-only format because the “purpose [of

EPG information] is to provide information to the user about the broadcast program currently displayed and therefore may not be edited.” *See* Ex. 1003 [Lippman Decl.], ¶ 281. I disagree.

160. First, I note that Dr. Lippman does not provide any evidence or reasoning to support his conclusion that EPG information cannot be edited because it displays information about a broadcast program. Instead, a POSITA at the time of invention would have known that EPG information could be edited. Indeed, the POSITA would have had multiple reasons to edit EPG information even though EPG information provides broadcast program information to the user.

161. For example, U.S. Patent No. 8,776,101 to Donoghue et al. (“Donoghue”) discloses a “personal media channel” having multiple content sources including “DVR, broadcast, nPVR, and VOD.” *See* Ex. 2013, abstract. One of Donoghue’s embodiments describes a program guide comprising a “personalized EPG” populated by program content recommended to or selected by the user. Ex. 2013, 33:33-39. A “recommendation engine” permits modifying metadata related to the content: “portions of the metadata can be added by multiple entities, and/or editing of another entity’s metadata performed. Various permutations and mechanisms for generating, adding and editing metadata will be recognized by those of ordinary skill, and hence are not described in greater detail herein.” Ex. 2013, 37:5-25. Thus, a POSITA would understand that a data service

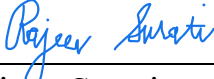
providing content to a TV from multiple sources can be modified. Indeed, Donoghue suggests that editable EPG information is desirable. Furthermore, I note that claim 3 further limits claim 1 – thus, the scope of claim 1 obviously encompasses EPG information in a modifiable format.

162. For these reasons, a POSITA would not and cannot conclude that EPG data providers inherently provide applications of the TV with EPG information in a read-only format. As I explained, a POSITA at the time of invention would have known that EPG information can be edited by the user and that a user would have had multiple reasons to edit EPG information.

XIII. CONCLUSION

163. I hereby declare that all statements made herein of my own knowledge are true and all statements made herein on information and belief were and are believed by me to be true, and that all statements herein were and are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code and that any such willful false statements may jeopardize the validity of the application or any patents issued thereon.

Respectfully submitted,



Rajeev Surati

Dated: August 23, 2024