

**IN UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE PATENT TRIAL AND APPEAL BOARD**

SAMSUNG ELECTRONICS CO., LTD. AND
SAMSUNG ELECTRONICS AMERICA, INC.

Petitioners,

v.

MAXELL, LTD.,
Patent Owner

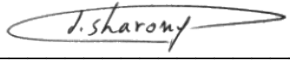
Case: IPR2024-00777

U.S. Patent No. 11,017,815

DECLARATION OF JACOB SHARONY, PH.D.

I hereby declare that all statements made herein of my own knowledge are true, and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine and/or imprisonment under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the patent which is under review in this proceeding.

Dated: August 9, 2024

By: _____

Jacob Sharony, Ph.D.

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I. INTRODUCTION

1. My name is Jacob Sharony, and I have prepared this declaration at the request of Maxell, Ltd. (“Maxell”). This declaration provides my opinions with respect to various aspects of the Petition filed by Petitioner relating to U.S. Patent No. 11,017,815 (“the ’815 Patent”).

2. Depending on new information learned including positions taken by Petitioner or Petitioner’s expert, I reserve the rights to supplement my opinions included herein.

3. I am being compensated at my usual consulting rate of \$600 per hour for my time reviewing materials and preparing this declaration. My opinions expressed here are my own. My compensation is not dependent on the outcome of this case and I have no other financial interest in this matter or the parties thereto.

4. In forming my opinions, I have relied on my knowledge and experience, as well as the documents and information referenced in this report.

II. QUALIFICATIONS AND EXPERIENCE

5. My qualifications can be found in my Curriculum Vitae, which includes a complete list of my publications, and is attached as **Appendix A**. Some of my background and experience that qualifies me to offer the opinions offered in this Declaration set forth as an expert in the technical issues in this case are as follows.

6. I have over 35 years of experience working in the fields of information

communication technologies (ICT), wireless networks, mobile devices and applications, and data capture and sensing, which has resulted in over 50 issued patents and numerous publications in scientific journals and conferences. I am a senior member of the Institute of Electrical and Electronic Engineers (IEEE). I have also served on various government expert panels, including for the National Science Foundation (NSF) and National Institutes of Health (NIH).

7. Since 2010, I have been an Adjunct Professor of Electrical Engineering at Columbia University, teaching graduate level courses on advanced wireless technologies including in the areas of wireless sensing and Auto ID technologies, mmWave communications, and applications for 5G wireless networks and systems.

8. I received a Bachelor's Degree (1979) and Master's Degree (1984) in Electrical Engineering from Tel Aviv University. I have M.Phil. (1991) and Ph.D. (1993) Degrees in Electrical Engineering from Columbia University. I also have an MBA Degree (1989) from Tel Aviv University.

9. I have been involved with mobile and wireless networking technologies since the mid-1990s working as a researcher, developer and educator on wireless wide, local and personal area networks (WWAN, WLAN and WPAN), infrastructure and mobile devices. Over these two and a half decades I have witnessed the change from voice-centric to data-centric networks, and have worked on enterprise mobility products and solutions as early as the late 1990s.

10. After obtaining my Ph.D., I led the advanced mobile networking group at BAE Systems, developing tactical mesh-based wireless network systems for the U.S. Department of Defense. I also conducted research and development in advanced mobile and wireless networks. My work resulted in several issued patents including U.S. Patent No. 5,652,751, titled “Architecture For Mobile Radio Networks With Dynamically Changing Topology Using Virtual Subnets,” and U.S. Patent No. 5,742,593, titled “On-line Distributed TDMA/FDMA/CDMA Link Assignment in Mobile Radio Networks With Flexible Directivity.”

11. From 1997 to 2005, I held various positions at Symbol Technologies (acquired by Motorola Solutions). While working at Motorola/Symbol I gained substantial experience in application-specific and data-capture mobile devices, and wireless networking and architecture solutions in several vertical applications, e.g., transportation and logistics, healthcare, warehousing, retail, and education, among others. As Senior Director, Research and Development, I initiated and led several research and development programs in wireless LAN (local area network) technologies including mobile device management and security. As Senior Director, Technology Strategy and Development, I was responsible for the research and development of new mobile applications for delivering multimedia-rich content (video, audio, data) to mobile devices connected over heterogeneous networks. Additionally, I conducted research and development related to RFID systems

including RFID tags and readers. That work resulted in several U.S. patents, including U.S. Patent No. 7,019,663, titled “RF tracking system and method” related to RFID asset tracking, U.S. Patent No. 7,778,649, titled “System and Method for Asset Location in Wireless Networks,” U.S. Patent No. 6,853,293, titled “Wearable Communication System,” U.S. Patent No. 7,039,358 titled “Coexistence Techniques in Wireless Networks,” U.S. Patent No. 7,668,201 titled “Bandwidth Management in Wireless Networks,” and U.S. Patent No. 6,925,094, titled “System and Method for Wireless Network Channel Management.”

12. In 2004, I founded Mobius Consulting, a consulting firm providing professional services in mobile wireless strategy, technologies, systems, and applications, including enterprise mobility, wireless communication networks, mobile embedded devices, device management, and mobile applications and services. In this capacity, I have worked with many companies in the mobile and wireless ecosystem including service providers and operators, equipment vendors, and semiconductor companies. Since founding Mobius Consulting, I have worked with many enterprises interested in deploying mobile and wireless solutions in order to become more productive, efficient, and cost effective. These solutions spanned numerous industry sectors and involved various mobile and wireless technologies including 3G/4G/5G Cellular, Wi-Fi, Bluetooth, ZigBee, and RFID (radio frequency identification). I developed and designed RFID identification and tracking solutions

in the healthcare industry (including WO2009146082A2 “RFID monitoring of drug regimen compliance”) and taught Auto ID (RFID) graduate course at Stony Brook University and Wireless Sensing graduate course at Columbia University. The work described above resulted in several U.S. patents, including U.S. Patent No. 9,474,500, titled “Method and system for transfer of cardiac medical image data files,” U.S. Patent No. 9,014,702, titled “Location Processing in Small Cells Implementing Multiple Air Interfaces,” U.S. Patent No. 9,088,923, titled “Small Cells Implementing Multiple Air Interfaces,” and U.S. Patent No. 10,080,177, titled “Unlicensed Spectrum Offload Architecture for Small-Cell Base Stations.”

III. METHODOLOGY AND MATERIALS CONSIDERED

13. I have relied upon my education, knowledge, and experience with networked and backend computing systems, as well as other materials discussed in this declaration in forming my opinions.

14. For this work, I have been asked to review the '815 Patent including the specification and claims, the '815 Patent's prosecution history (file history). In developing my opinions related to the '815 Patent, I have considered the materials cited herein, including those items itemized in the Exhibit Table below.

Exhibit	Description
1001	U.S. Patent No. 11,017,815
1002	File History of U.S. Patent No. 11,017,815
1003	Declaration of Benjamin Bederson
1005	U.S. Patent No. 7,275,063 (Horn)

1006	U.S. Patent No. 7,970,240 (Chao)
1007	U.S. Patent No. 7,650,361 (Wong)
1010	WinTV Installation and Reference Manual
1013	U.S. Patent Application Publication No. 2003/0174844A1 (Candelore)
1014	U.S. Patent Application Publication No. 2001/0056434 (Kaplan)
1015	U.S. Patent Application No. 2004/0201691 (Bryant)
1016	U.S. Patent Publication No. 2015/0160458 (Baumgartner)
2020	certification of accuracy for Translation of JP2004-378767
2022	August 2003 Hauppauge Computer Works web site
2023	September 2003 Hauppauge Computer Works web site
2024	http://www.bricklin.com/homenetwork.htm
2025	https://www.itprotoday.com/it-infrastructure/mixing-wired-and-wireless-networking-in-your-home
2026	Marshall Breeding, <i>The Benefits of Wireless Technologies</i> , Information Today, Vol. 19, Number 3 [March 2022] (https://librarytechnology.org/document/9643).
2027	https://web.archive.org/web/20031001191953/http://www.hauppauge.com:80/html/tech.htm
2028	https://web.archive.org/web/20031001185005/http://www.hauppauge.com:80/html/specs.htm
2029	https://web.archive.org/web/20031011045622/http://www.hauppauge.com:80/manuals/
2030	ETSI TS 101 197 V1.2.1 (2002-02)
2031	Scrambling (Conditional Access System)
2032	Conditional Access

IV. LEGAL UNDERSTANDING

15. I am not an attorney. I have been informed about legal standards of patent law, which I have used in developing my opinions expressed herein.

16. I understand that a patent may include two types of claims: independent claims and dependent claims. An independent claim stands alone and includes only the limitations it recites. A dependent claim can depend from an independent claim or another dependent claim and includes all the limitations that it recites in addition

to all of the limitations recited in the claim or claims from which it depends.

A. Claim Construction

17. I understand that the claim construction exercise begins with the language of the claims themselves, and that the general rule is that claim terms are given their plain and ordinary meaning to a person of ordinary skill in the art, in view of the specification of the patent, at the time of the invention. I also understand that the intrinsic evidence (i.e., the claims, written description, and prosecution history) are the primary sources used in interpreting claim language.

18. I understand that if disputed claim language is clear on its face, the intrinsic evidence should be consulted to determine whether some deviation from the ordinary meaning of the claim language is warranted.

19. When the disputed claim language is not clear on its face, I understand that the intrinsic evidence should be used to resolve, if possible, the lack of clarity. I also understand that the specification is the best evidence of what the patentee intended the term to mean when there is no clear meaning of a claim term, and that the prosecution history may also shed light on the meaning of ambiguous terms. However, I understand that it is improper to import limitations from the specification into a patent claim through claim construction.

20. I have been informed that sometimes the ordinary meaning of claim language as understood by a person of ordinary skill in the art may be readily

apparent even to lay persons. I understand that claim construction in such cases involves little more than the application of the widely accepted meaning of commonly understood words.

21. I further understand that a patentee may act as his own lexicographer by giving a definition for a particular claim term. I understand that, in order for this principle to apply, the patentee must clearly set forth a definition and clearly express an intent to define that term. Simply disclosing a single embodiment is not sufficient.

22. I understand that if the intrinsic evidence fails to clearly disclose the meaning of a claim term, the court may look to extrinsic evidence outside the patent and prosecution history, such as expert testimony, treatises, and dictionaries.

B. Obviousness

23. I understand that when determining whether a claim is “obvious,” the analysis is based on underlying factual issues including the content of the prior art and the level of ordinary skill in the art. I further understand that for a single reference or a combination of references to render the claimed invention obvious, a POSITA must have been able to arrive at the claims by modifying or combining the references.

24. I have further been informed and understand that a claim is unpatentable as obvious if the difference between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have

been obvious at the time the invention was made to a POSITA.

25. I understand that to obtain a patent, the claims must have, as of the effective filing date, been nonobvious in view of the prior art in the field. I understand that a claim is obvious when the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious to a POSITA at the time the invention was made.

26. I understand that obviousness can be established by combining multiple prior art references to meet each and every claim element, but I also understand that a proposed combination of references can be susceptible to hindsight bias. This means that even if all of the requirements of the claim cannot be found in a single prior art reference that would anticipate the claim, the claim can still be invalid.

27. As part of this inquiry, I have been asked to consider the level of ordinary skill in the field that someone would have had at the time the claimed invention was made. In determining the level of ordinary skill, I considered the following: (1) the levels of education and experience of persons working in the field; (2) the types of problems encountered in the field; and (3) the sophistication of the technology

28. I understand that an invention is obvious when the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a

POSITA.

29. I understand that to prove that prior art or a combination of prior art renders a patent obvious, it is necessary to: (1) identify the particular references that, individually or in combination, make the patent obvious; (2) specifically identify which elements of the patent claim appear in each of the asserted references; and (3) explain how the prior art references could have been combined or modified to create the invention claimed. I understand that, to support a conclusion of obviousness, there must be an apparent reason for a skilled artisan to combine or modify the prior art references as recited in the claims

V. OVERVIEW OF THE '815 PATENT

30. The '815 Patent has a priority date of December 2, 2004, issued on May 25, 2021 and is entitled, "Editing Method And Recording And Reproducing Device." The '815 Patent is directed to an information processing apparatus, and related methods, that manages digital data and reproduces video content associated with user profiles in a specific manner that enables improved video management, storage, and the presentation of groups of video information. '815 Patent at 2:63-3:6.

31. At the time of invention, content systems allowed users to group media into "playlists," but those playlists were not optimized for multiple users. *Id.* at 2:28-47. Different members of the same household, for instance, could not customize their

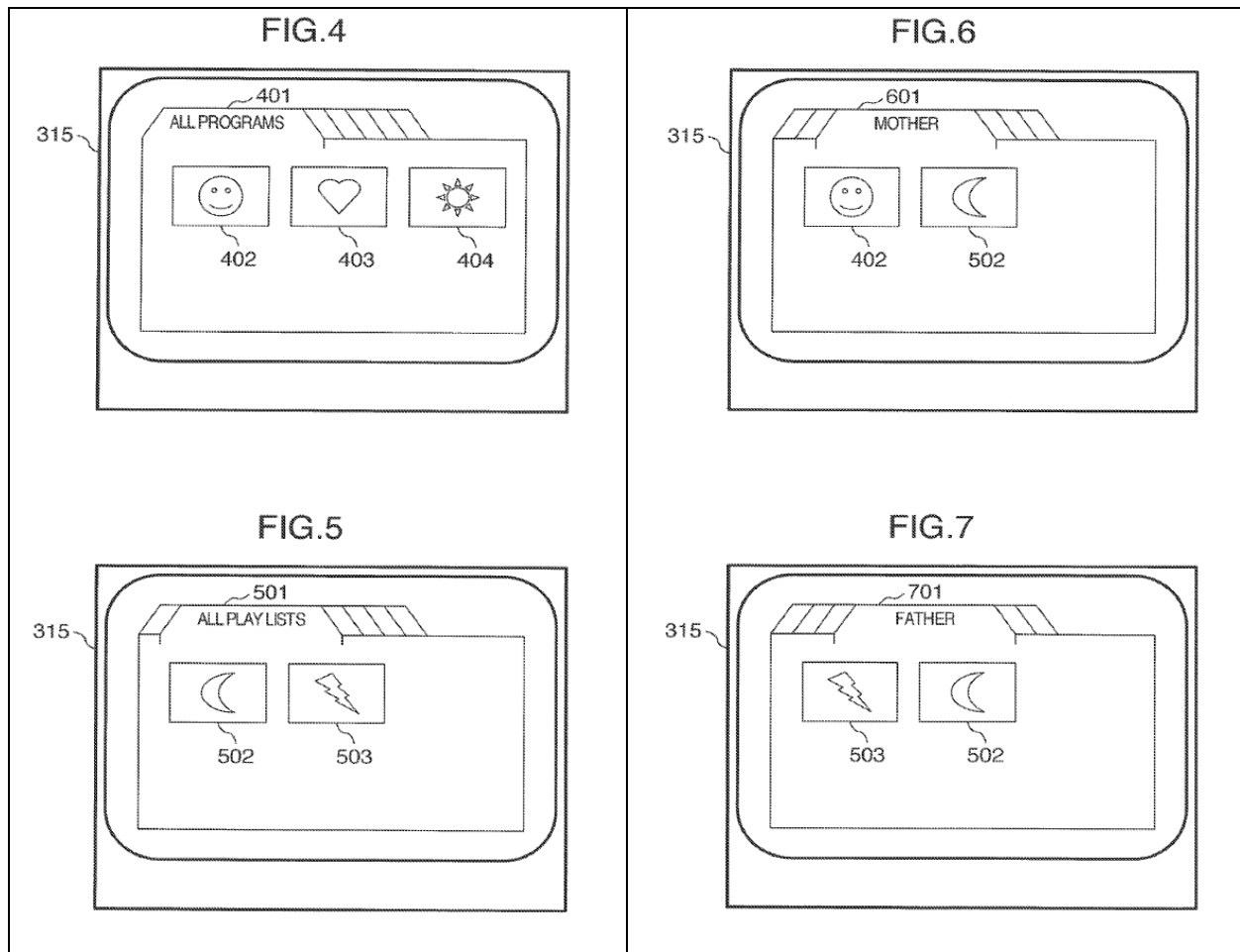
views with select playlists and programs.

32. The '815 Patent solved this problem by providing a recording and reproducing device in which the user can select and manage arbitrary playlists in a particular manner using hierarchical levels of information management and also using folders “dedicated” to the user. *Id.* at 6:25-40.

33. More specifically, the claimed inventions are directed to a hierarchical management interface with different areas and classifications associated with different user information, association, and/or tastes. *Id.* at 2: 35-29. Using such a hierarchical data structure and user dedicated folders, a plurality of users can use playlists that include some of the same videos stored on a data storage medium without interfering with each other. Thus, the invention provides an improved user experience for accessing content.

34. For example, one of the claimed inventions contains a “first area” and a “second area.” The first area includes a “first character” associated with a “first group” of video information for a “first classification” and a “second character” that is associated with a “second group” of video information for a “second classification.” *Id.* at Figs. 4-7. The second area displays a first or second group of thumbnails configured upon user selection of the first and second characters. Both groups of video information are stored as part of the plurality of stored video information, and the first group of video information is configured to allow a user to edit. Finally,

when one video information is deleted from the first group it continues to be included in the second group and a thumbnail corresponding to the video information is displayed as one of the second group of thumbnails. Examples of display output of an information processing apparatus that are capable of implementing the invention of the '815 Patent are shown below:



Id. at Figs. 4-7.

35. As a result, it becomes possible for the user to select arbitrary playlists or reproduction ranges and conduct management. Even in the case where a plurality of users share a single recording medium, therefore, each user can manage their

favorite reproduction content, resulting in improved usage. *Id.* at 4:35-39.

A. '815 Patent's Priority Date

36. To support its use of Wong for Grounds 9 and 10, Petitioner contends that none of the applications to which the '815 Patent claims priority that were filed prior to 11/9/2017 “satisfy the requirements of 35 U.S.C. §112 for at least the following terms found in each independent claims of the Challenged Claims”:

- “receiving . . . first video information wirelessly from a device external to the information processing apparatus, the first video information being received including second video information that is encrypted” (“Term 1”);
- “upon the one video being removed from the first group of video information, the one video information continues to be included in the second group of video information for the second user profile and the second group of thumbnails continues to display a thumbnail corresponding to the one video information when the second character is selected” (“Term 2”);
- “user profile” or “user profiles” (“Term 3”).

Pet. at 9-12. However, it is my opinion that each of Terms 1-3 has written support in several applications prior to 11/9/2017. In fact, each term has support in the priority application JP2004-378767. *See* Ex. 2019 (Translation of JP2004-378767); Ex. 2020 (certification of accuracy).

37. With respect to Term 1, it is my opinion that the “encryption” limitation is disclosed in the priority application at least in the following:

331 is an encryption circuit for encrypting recorded data, 304 is a

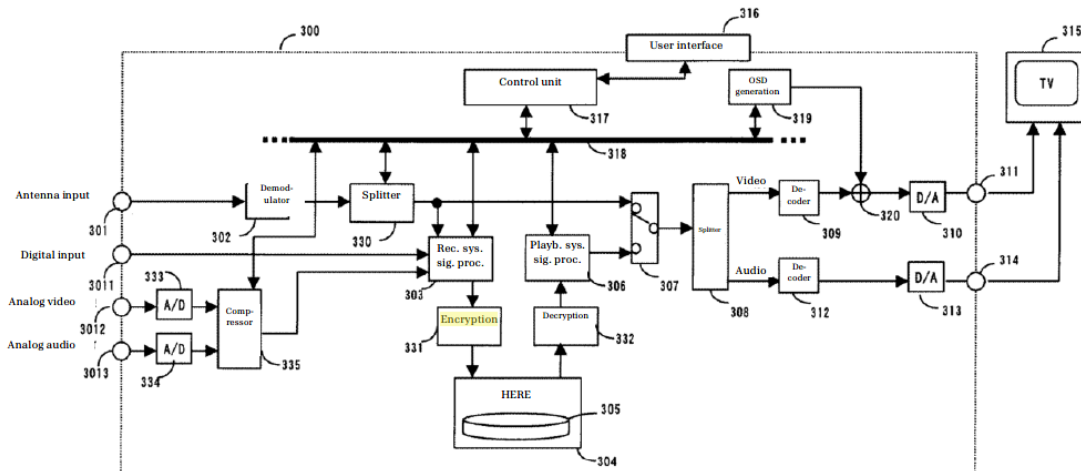
recording and playback system including drive functionality for the recording medium, 305 is a recording medium, 332 is a decryption circuit for decrypting data which has been encrypted and recorded on the recording medium, 306 is a playback system signal processing circuit....

During recording, a signal transmitted by digital broadcast, for example, and received is demodulated using a predetermined method in the demodulation circuit 302 and then subjected to any requisite signal processing such as modulation or addition of data for timing adjustment in the recording system signal processing circuit 303 before being encrypted in the encryption circuit 331 and recorded on the recording medium 305 by the recording and playback system 304. The digital signal input by the digital input terminal 3011 is subjected to any requisite signal processing such as modulation and addition of data for timing adjustment in the recording system signal processing circuit 303 before being encrypted in the encryption circuit 331 and recorded to the recording medium 305 by the recording and playback system 304. The analog video signal input by the analog video input terminal 3012 and the analog audio signal input by the analog audio input terminal 3013 are compressed in the compression circuit 335, pass through the recording system signal processing circuit 303, and are encrypted by the encryption circuit 331 before being recorded on the recording medium 305 by the recording and playback system 304.

During playback, encrypted digital data read via the recording and playback system 304 from the recording medium 305 in response to a user command is decrypted by the decryption circuit 332, subjected to any requisite signal processing for playback such as demodulation in a

manner consistent with a predetermined modulation method in the playback system signal processing circuit 103 and sent to the splitter circuit 308 via the switching circuit 307.

FIG. 3



Ex. 2019, ¶¶[0017]-[0019]; Fig. 3.

38. A POSITA at the time would also recognize that wireless signals were known to be transmitted and encrypted to ensure secure transmission and/or digital rights management. *See, e.g.,* Ex. 2030; *see also* Ex. 2031 and Ex. 2032.

39. With respect to Term 2, it is my opinion the “upon the one video being removed” is disclosed in the priority application at least in the following:

402 and 502 are the thumbnails showing program information #1 and playlist information #1, as can be seen from FIG. 1. "Mom" can freely register and delete data to be played back, using the mom menu display tag 601 as her own folder.

503 and 502 are the thumbnails for playlist information #2 and playlist

information #1, as can be seen from FIG. 1. In this case, "dad" has selected two playlists and can change the playback order. As with "mom" above, "dad" can freely register and delete data to be played back, using the dad menu display tag 701 as his own folder.

Thus, in this embodiment of the present invention a configuration is used in which management units and an upper management level are added for managing all registered playlist information, which is therefore handled on the same level as the integrated information indicating playback ranges for all audiovisual data, integrated information using user definitions is handled in the added management level, and the playback ranges included in lower levels can be registered in the integrated information, all of which improves ease-of-use since each user can manage his or her own desired playback content individually, even when multiple users share the same recording medium, as users can select and manage their own playlists and/or playback ranges.

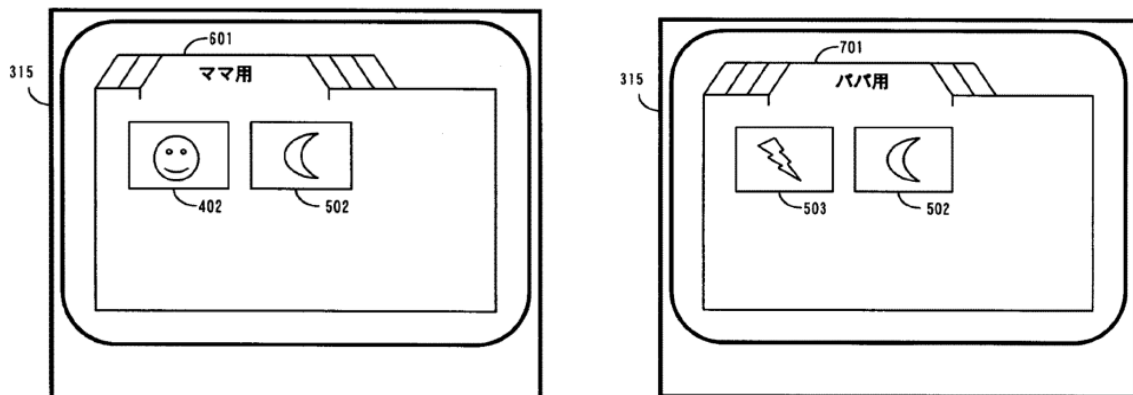
Ex. 2019, at ¶¶[0024]-[0026].

40. With respect to Term 3, the “user profile” limitation is disclosed in the priority application:

Next, FIG. 6 is an example of a menu display using integrated user defined information #1 in FIG. 1. 601 is a user #1 (here being "mom") menu display tag, and 402 and 502 are the thumbnails showing program information #1 and playlist information #1, as can be seen from FIG. 1. "Mom" can freely register and delete data to be played back, using the mom menu display tag 601 as her own folder.

Similarly, FIG. 7 is an example of a menu display using integrated user defined information #2 in FIG. 1. 701 is a user #2 (here being "dad") menu display tag, and 503 and 502 are the thumbnails for playlist information #2 and playlist information #1, as can be seen from FIG. 1. In this case, "dad" has selected two playlists and can change the playback order. As with "mom" above, "dad" can freely register and delete data to be played back, using the dad menu display tag 701 as his own folder.

For example, if multiple users are using one recording medium, playback content matching the preferences of each user can be managed by using one instance of the integrated user defined information for each user.



Ex. 2019, at ¶¶[0024]-[0025]; [0016]; Figs. 6-7.

FIG. 8

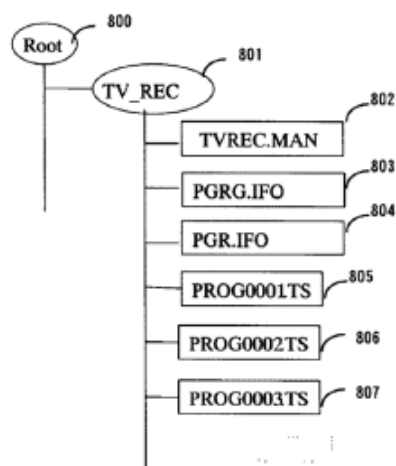
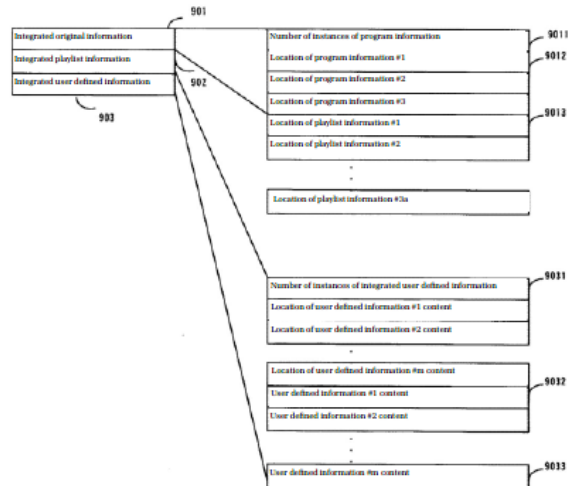


FIG. 9



Id., Figs. 8 and 9, showing “user unified information” per user being used to associate specific program information and location of programs with the each user’s folders.

41. It is my opinion that in view of the foregoing, Terms 1-3 are well supported in the priority application, and certainly by December 2, 2004.

VI. LEVEL OF ORDINARY SKILL IN THE ART

42. I understand that claim construction and definiteness are examined through the eyes of a person of ordinary skill in the art (POSITA). I am informed that the factors to be considered in determining the level of ordinary skill in the art are: (1) the education level of active workers in the field, (2) the type of problems encountered in the art, (3) prior art solutions to those problems, (4) the speed with which innovations are made; and (5) the sophistication of the technology in the art.

43. I have also been asked to assume that the relevant time period for determining the level of skill in the art for the ’815 Patent is its earliest claimed

priority date, December 2, 2004.

44. In my opinion, at the time of the '815 Patent, a POSITA would have a Bachelor of Science degree in Electrical Engineering, Computer Engineering, Computer Science, Human Computer Interaction, or a related technical field, with at least one year of experience working in the field of user interfaces and/or content management. More education (*e.g.*, a Master's degree) or work experience may compensate for a deficit in one of the relevant qualifications stated above.

45. As a result of my education and experience, I was at least a POSITA at the time of the invention of the '815 Patent, and am still a person of at least ordinary skill in the art and have applied the perspective of a POSITA in my analysis.

VII. SUMMARY OF PETITIONER'S PROPOSED GROUNDS

46. The Petition raises five grounds of alleged obviousness based on the following six references. U.S. Patent No. 7,275,063 ("Horn") (Ex. 1005), U.S. Patent Publication No. 2015/0160458 ("Baumgartner") (Ex. 1016), WinTV Manual ("WinTV") (Ex. 1010), U.S. Patent No. 7,970,240 ("Chao") (Ex. 1006), U.S. Patent No. 7,650,361 ("Wong") (Ex. 1007), U.S. Patent Application Publication No. 2003/0174844 ("Canderlore") (Ex. 1013), U.S. Patent Application Publication No. 2001/0056434 ("Kaplan") (Ex. 1014), and U.S. Patent Application No. 2004/0201691 ("Bryant") (Ex. 1015).

Ground	'815 Patent Claim(s)	Type of Challenge	Primary Reference	Secondary Reference(s)
6	16-19, 21-25	§ 103	Horn	(1) Baumgartner (2) Candelore
7	20, 26, 27	§ 103	Horn	(1) Baumgartner (2) Candelore (3) WinTV
8	16-27	§ 103	Horn	(1) Baumgartner (2) Candelore (3) WinTV (4) Chao
9	16-19, 21-25	§ 103	Kaplan	(1) Bryant (2) Wong (3) Candelore
10	20, 26, 27	§ 103	Kaplan	(1) Bryant (2) Wong (3) Candelore (4) WinTV

47. My opinions in this declaration are focused on the motivation to combine Horn and Baumgartner, and Horn and Baumgartner and WinTV and Chao, and what a POSITA would understand at the time with respect to those proposed combinations. As such, I have not considered the Kaplan and Bryant references for purposes of this declaration. Nevertheless, because Wong is not prior art, as further described below, it is my opinion that the Kaplan and Bryant grounds (Grounds 9-10) fail.

A. Horn

48. Horn, titled “Computer System for Automatic Organization Indexing and Viewing of Information from Multiple Sources,” was filed on July 16, 2003 and issued on September 25, 2007.

49. Horn discloses a computer data processing system including a central processing unit configured with an integrated computer control software system for the management of data objects including dynamic and automatic organization, linking, finding, cross-referencing, viewing and retrieval of multiple objects regardless of nature or source. Ex. 1005, Abstract.

50. Horn does not expressly mention handling video files but rather other types of data including images, music, and documents by storing their properties as metadata. Horn does not specifically mention that users of its system do not interfere with each other when handling the same media file (e.g., deleting a specific thumbnail of video file from one user's playlist does not affect another user's playlist). Horn is also silent on wireless connectivity or networks and includes a network interface to data communication networks (LAN, WAN, and/or Internet) for the exchange of data among local network users, site computers, routers, and other computing devices. At the time of the '815 Patent, wireless networks were significantly slower than wired networks and had reliability issues that could affect user experience.

B. Baumgartner

51. Baumgartner, titled "Interactive Television System with Custom Video-On -Demand Menus Based on Personal Profiles," was filed on January 21, 2004 and published on July 21, 2005.

52. Baumgartner discloses an interactive television system in which a user can use an interactive television application to access and request media-on-demand programming. The interactive television application may display customized interface display screens that include video-on-demand programs and categories that may be of particular interest to the user. These programs and categories of interest may be based on the user's personal profile. Once a list of programs and categories based on a user's personal profile is generated, one or more of these programs may be incorporated in a menu interface template to generate a video-on-demand menu customized for the user. Ex. 1016, Abstract.

53. Baumgartner's list of programs (video-on-demand) is generated by the interactive television system based on a user's personal profile and viewing habits. This contrasts with Horn where the user could generate a video playlist (*i.e.*, not only by the computer data processing system). Further, Baumgartner discloses that the recorded programs are stored on a server or at a service provider's facility ("Video-on-demand content and Video recorded using a network-based Video recorder arrangement may be stored on server 56 or server 36 or at service provider 50 and may be provided to the user equipment when requested by users.") Baumgartner at [0057].

C. WinTV

54. WinTV purports to be an "Installation and Reference Manual" for the

WinTV product. Petitioner contends that WinTV “was a product offered for sale/sold in the U.S. by Hauppauge Computer Works, Inc. at least by 11/10/1999.” As evidence of this, Petitioner includes Exhibit 1011, which purports to be a pdf specification web page for WinTV PCI boards at the path <https://web.archive.org/web/20030914203323/http://www.hauppauge.com:80/manuals/wintvpci.pdf>. Ex. 1008 at 2.

55. Other than being presented with the WinTV manual, and by accessing the link provided by Petitioner, I could not myself find the manual as set forth by Petitioner after considerable attempts through use of the Internet Archive around 2003. In my opinion, Petitioner has not shown that the link provided to the manual was publicly accessible to POSITA before the critical date.

56. For example, I navigated within the Internet Archive to the Hauppauge web site around the time Petitioner contends the WinTV manual was available (in August or September 2003) (*see, e.g.*, Exs. 2022 and 2023). I explored some links present at the time within those web pages, for example:

Exhibit	Link
2027	https://web.archive.org/web/20031001191953/http://www.hauppauge.com:80/html/tech.htm
2028	https://web.archive.org/web/20031001185005/http://www.hauppauge.com:80/html/specs.htm
2029	https://web.archive.org/web/20031011045622/http://www.hauppauge.com:80/html/specs.htm

com:80/manuals/
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With respect to the link at Exhibit 2029, it is the next higher level directory where one would expect the manuals to be accessible. However, as can be seen from Exhibit 2029, that access was denied.

The Wayback Machine - <https://web.archive.org/web/20031011045622/http://www.hauppauge.com:80/manuals/>

Directory Listing Denied

This Virtual Directory does not allow contents to be listed.

This leads me to conclude that the general public, or a POSITA at the time, did not have access to the various WinTV manuals, at least through the Hauppauge web site at the time. I could find no link to current or archived manuals. Even further exploring some of the links on the home page failed to provide accessibility to product manuals.

57. In my opinion, there is no evidence that the various WinTV manuals were indexed or catalogued such that POSITA would have had access to them in 2003. Rather, it appears that only Hauppauge employees would know where to access the manuals in 2003.

D. Chao

58. Chao, titled “Method and Apparatus for Archiving and Visualizing Digital Images,” was filed on December 17, 2002 and issued on June 28, 2011. Chao discloses a computer-based, digital image management system that visually presents

an entire archive in a manner that facilitates easy, non-textual, searching for specific images. Ex. 1006, Abstract.

E. Candelore

59. U.S. Patent Application Publication No. 2003/0174844 to Candelore describes a method for scrambling and descrambling program data comprising the receipt of a mating key generator message including a manufacturer identifier. The mating key generator message is transmitted to a first remote source identified by the manufacturer identifier. In response, a mating key is received from the first remote source. Then, the mating key is supplied to a second remote source, the mating key being subsequently used to encrypt a service key used for scrambling program data. Ex. 1013, Abstract.

F. Wong

60. U.S. Patent No. 7,650,361 to Wong titled “Media content modification and access system for interactive access of media content across disparate network platforms” was filed July 21, 2005 and issued on January 19, 2010. As set forth above in Section V.A., all limitations of Claims 16-27 are fully supported prior to the filing of Wong. As such, Wong is not prior art.

VIII. GROUNDS 6-8: HORN IN VIEW OF BAUMGARTNER

61. Grounds 6-8 all rely on the purported combination of Horn and Baumgartner. It is my opinion that Petitioner has not shown a likelihood of prevailing with respect to Grounds 6-8 because a POSITA would not have been

motivated to combine Horn and Baumgartner at the time of the invention of the '815 Patent.

62. It is also my opinion that a POSITA would not combine WinTV with Horn and/or Baumgartner, nor would a POSITA combine Chao with any of the foregoing references.

63. While I may develop additional opinions as to the merits of a Horn/Baumgartner combination or other Grounds presented in the Petition, for purposes of this declaration I focus on a POSITA's motivation, or lack thereof, to combine Horn and Baumgartner (and WinTV and Chao) because failure of a motivation to combine is fatal to Grounds 6-8.

64. Petitioner's expert, Dr. Bederson, alleges that "it would have been obvious to a POSITA to combine Horn with Baumgartner by configuring a personal computer with functionality such as a Metadata Filing System (MFS) and associated content management software for managing information including movies, photos and music as taught by Horn to receive, locally store, and manage video information including video on demand content and television programs via a wireless connection to the Internet and associate such information with user profiles as taught by Baumgartner." Ex. 1003, ¶131. I disagree.

65. A POSITA would not be motivated to combine Horn with Baumgartner because they are two different systems. The problem solved by Horn is unrelated to

the technical problems addressed by Baumgartner. Horn discloses a “truly **open computer system** having data structures, input interfaces, displays and operational systems that permits the organization of information, as data objects” and permit a “**faster archiving**, retrieval and viewing of the information.” Ex. 1005, 3:10-17 (emphasis added).

66. Moreover, Horn proposes a computer data processing system that has a “**simple-to-use** data structure and operating mechanism to link information together in a dynamic, memory-and- space-efficient manner.” Ex. 1005, 3:19-22 (emphasis added). Additionally, Horn discloses that “[a] primary use of computer information systems is the **creation, organization, transmission** and **storage** of information.” Ex. 1005, 1:34-36 (emphasis added).

67. In contrast, Baumgartner discloses an “interactive television system” that uses a set-top box to access and request video-on-demand programming. Ex. 1016, Abstract. Moreover, Baumgartner describes that a “[p]ersonal computer unit 98 may contain one or more processors (e.g., microprocessors) that are used to run the interactive television application or a portion of the interactive television application.” Ex. 1016, ¶84.

68. A POSITA would not be motivated to combine the components from Baumgartner’s set-top box system to Horn’s simple-to-use computer file system, because Horn is directed to making “collections” based on keywords in documents,

and is not directed to making any video-on-demand collections based on a user watch history. In addition, Baumgartner's list of programs or video-on-demand collections is generated solely by the interactive television system based on the user's personal preferences or profile. This contrasts with Horn, where the "collections" are made specifically by user actions (like dragging/grouping objects into collections) in addition to automatically by the system based on metadata common properties. Horn at 4:1-5.). In particular, a POSITA would not be motivated to combine Baumgartner's one or more microprocessors that are specifically configured to only receive video content and run the interactive TV application with Horn's **computer data processing system** that uses data structures and operating mechanism to create, organize, and transmit information. The microprocessors used by set-top boxes are specialized for set-top boxes that include specialized interfaces to be able to recognize and process video signals and interface with specialized components like tuners.

69. Additionally, Dr. Bederson fails to provide any rationale as to why a POSITA would substitute the hardwired LAN of Horn with the wireless modem of Baumgartner. Petitioner and its expert simply provide a conclusory statement that "a POSITA would have found it obvious to implement Horn's LAN with a wireless LAN because they were often cheaper and easier to install than a wired LAN due to elimination of the need to run wires to all of the endpoint computers in the network."

Ex. 1003, ¶143; Pet. at 29-30. These conclusory statements demonstrate a lack of understanding of wireless networks and its state at the relevant time period.

70. In fact, Dr. Bederson's assertion (Ex. 1003, ¶143) that wireless LAN was cheaper at the time of '815 Patent's invention is also incorrect. Publicly available information shows that at the time of the '815 Patent's invention the price of wireless PC card and wireless access point was more than \$300,¹ as compared to the wired LAN card that cost on average less than \$50² This is consistent with my experience in designing such wireless equipment. We at Symbol Technologies sold, in the early 2000's, WiFi AP for ~\$1000 and a wireless card for at least \$100 or few \$100's. Dr. Bederson's assertion regarding the costs involved is true maybe today but not around the early 2000's. Today of course a wireless solution is more cost effective but not at the time of the '815 invention (Dec. 2004).

71. Importantly, a POSITA would not be motivated to combine components from Baumgartner to Horn because that would defeat Horn's intended use. Petitioner states that a POSITA would have considered obvious to include the wireless communication from Baumgartner in Horn. Pet. at 25-26; Ex. 1003, ¶136. This is incorrect. As discussed above, Horn discloses a distributed computer system

¹ Ex. 2024 (<http://www.bricklin.com/homenetwork.htm>)

² Ex. 2025 (<https://www.itprotoday.com/it-infrastructure/mixing-wired-and-wireless-networking-in-your-home>)

having data structures that permits **faster** archiving, retrieval and viewing information as well as exchanging data among networked users. Horn at 6:59-63. In December 2004 the wired links (LAN) were faster than wireless (WLAN).

72. Horn further discloses “[a] network interface is coupled to the bus to provide an interface to the data communication network (LAN, WAN, and/or Internet) for exchange of data among the various local network users, site computers, routers, and other computing devices.” Ex. 1005, 6:59-63.

73. In addition, Horn further explains that “[i]n a net-worked environment, the program modules may be distributed among several computing devices coupled to the network, and used as needed.” Ex. 1005, 7:7-10.

74. A POSITA would have understood that at the time of ’815 Patent the speed and bandwidth of wireless communication was much slower than that of the cable LAN, and hence Baumgartner’s wireless communication would not be appropriate for Horn’s distributed computer system that **requires** higher speed and bandwidth to “**faster**” retrieve and view information on a communication network. In particular, at the time of ’815 Patent invention, the wireless communication protocols (802.11a/b/g) offered communication speed much slower than that of wired Ethernet:³

³ At the time of the ’815 Patent, 100 Mbps LAN was widespread in homes and businesses. For WLAN (Wi-Fi), 802.11b offered up to 11 Mbps, 802.11g up to 54

The current standard: 802.11b

Standards insure that wireless networks that consist of components from several different vendors will work properly. Theoretically, cards manufactured by one company will work with an access point from another company. The current standard for wireless networks is known as 802.11b. This standard is in the same family as Ethernet, generally known by the designation 802.3.

Equipment that follows 802.11b standard will be capable of a theoretical data throughput rate of 11 mb/sec. This level of bandwidth is quite respectable, given that many wired networks continue to operate at 10mb/sec. The actual usable bandwidth averages about half the theoretical, though.

The previous generation of wireless networks operated at 2-3 mb/sec. Not surprisingly, wireless networks did not become popular until the emergence of the 802.11b standard that increased the data flow to 11 mb/sec. The emerging 802.11a standard, expected to find more common use in the next 1-2 years, will deliver data at 54MB/sec.

Still a Niche product

Despite the steadily increasing speed of wireless technology, wired networks will always outperform them by long strides. Today 100mb/sec Ethernet cards prevail in most business LANs, with Gigabit Ethernet (1024 mb/sec) finding common use as network backbones and for connecting high-performance servers. 10 GB/sec Ethernet for fibre-based networks is already on the horizon.

Ex. 2026, Marshall Breeding, *The Benefits of Wireless Technologies*, Information Today, Vol. 19, Number 3 [March 2022].

75. In addition, by reviewing Horn, a POSITA would have understood that network security is important to Horn's system as it stores user data and could host websites. Ex. 1005, 19:25-60, 5:47-60. Therefore, a POSITA would not have been motivated to include Baumgartner's wireless communication in Horn, as wireless communication has additional security vulnerabilities than a wired network:

Security problems remain

Organizations that implement wireless networks have to consider the security implications. Wireless networks suffer from the same basic weakness as wired networks, where some unknown party might be listening in on the network conversation. Any information transported across a network must be encrypted to ensure that it remains private. The problem is amplified in wireless networks since anyone with the right equipment in physical proximity might be able to capture your network traffic, gain unprotected passwords, and launch an attack on your computers.

The 802.11b standard includes provision for protecting data transmissions through the use of encryption. The standard includes a security layer called Wired Equivalency Privacy (WEP) that uses a private key in its encryption. Many wireless networks have been installed without implementing this security feature. The security available on encrypted wireless LANs should be considered as weak, since it has recently been demonstrated that any third party capturing network packets off an access point can fairly easily determine the keys needed to decrypt network traffic.

The basic lesson for wireless networks is to avoid their use by computers with highly confidential or proprietary information. Assume that an unknown third party can intercept any information that isn't separately protected with strong encryption. As with wired network, never transmit a password that provides root or administrative access unless it is protected through strong encryption.

Mbps, and 802.11a up to 54 Mbps but less common than 802.11g due to higher cost and shorter range. Further, the actual usable wireless rates are lower than the radio bitrate due to high overhead (up to 50%).

Ex. 2026 (<https://librarytechnology.org/document/9643> (annotated))

76. Further, at the time of the '815 Patent invention the reliability of wired LAN was greater than wireless LAN (WLAN) that could suffer from coverage holes and/or dropped connections. In sum, Petitioner's statements are conclusory and are unsupported by sufficient evidence and analysis as to why Baumgartner and Horn should be combined.

77. Additionally, Petitioner and Dr. Bederson attempt to utilize WinTV and its TV tuner card. However, Petitioner and Dr. Bederson have not shown how a POSITA would have combined the teachings of WinTV with at least the teachings of Horn in addition to Baumgartner with any expectation of success. The WinTV card could be used to capture/record video and store it, but Horn does not point to video files, and there is no explanation by Dr. Bederson whether the UI of WinTV was even compatible with Horn/Baumgartner. Petitioner and Dr. Bederson have made no effort to show that WinTV is compatible with Horn/Baumgartner, so they have not shown that this could be an obvious modification.

78. A POSITA wouldn't be motivated to combine Horn with WinTV because they are two different systems. The problem solved by Horn is unrelated to the technical solutions addressed by WinTV. As discussed above, Horn discloses a "truly **open computer system** having data structures, input interfaces, displays and operational systems that permits the organization of information, as data objects"

and permit a “**faster archiving** , retrieval and viewing of the information.” Ex. 1005, 3:10-17 (emphasis added). Moreover, Horn proposes a computer data processing system that has a “**simple-to-use** data structure and operating mechanism to link information together in a dynamic, memory-and- space-efficient manner.” Ex. 1005, 3:19-22 (emphasis added).

79. In contrast, WinTV discloses a “Plug and Play” device installed to receive, playback and record video. Ex. 1010, 3-4, 4-1. A POSITA would not be motivated to combine the TV tuner card from WinTV to Horn’s simple-to-use computer file system, because Horn is directed to making “collections” based on keywords in documents, and is not directed to receiving, playing and recording of video. Moreover, the user interface in WinTV for handling captured/recorded video files might not be compatible with the Horn’s computer file system. In any event, the WinTV Installation and Reference Guide does not provide any information or guidance regarding how to integrate its code into Horn’s OS and/or application software code or which lines of code in Horn’s need to be modified to implement the changes.

80. Petitioner and Dr. Bederson state that Baumgartner suggests including a television tuner card for decoding TV channels. Ex. 1003, ¶194; Pet. at 54. However, Horn does not suggest or teach incorporating a TV tuner card in its system. In particular, a POSITA may be motivated in modifying a set-top box system of

Baumgartner with a TV tuner card, however, a POSITA would not be motivated to include a TV tuner card in a “truly open system” with an MFS system as disclosed in Horn that is directed to collection of various documents.

81. Regarding Chao, Dr. Bederson and Petitioner fail to state why a POSITA would be motivated to modify Horn to add thumbnails for folders of content data as disclosed in Chao. Horn discloses a **simple-to-use** data structure system that provides interfaces for organization of data objects in a memory-and-space-efficient manner. *See* Ex. 1005, 3:10-22. Horn teaches away from adding further complexity to its system, because its goal is to organize and display data in a space efficient manner.

82. In particular, Petitioner and Dr. Bederson fail to disclose why a POSITA would be motivated to modify the operating system (OS) and/or application software code of Horn’s computer to include the thumbnail features from Chao. Additionally, the Petition and Dr. Bederson do not provide any information regarding how a POSITA would get access to OS and/or application software code running on the Horn computer, and even if access to the code was possible, Chao does not provide the guidance regarding how to integrate its code into Horn’s code or which lines of code in Horn’s need to be modified to implement the changes.

IX. CONCLUSION

83. In addition to the opinions and evidence expressed herein, I reserve the right to rebut any arguments made or evidence presented in response to this report. I also reserve the right to supplement this report based on further investigation or analysis. I also plan to use graphic exhibits and/or demonstratives to help illustrate the facts and opinions I express herein.

Seasoned professional with over 35 years experience and expertise in information communications technologies (ICT), wireless networks, mobile devices/applications, data capture and sensing; visionary, creative and innovative with strong technology and business skills.

EXPERIENCE

MOBIUS CONSULTING, Huntington Station, NY

2004 –

Founder, Principal Consultant

- Professional consulting services in mobile wireless strategy, technologies, systems and applications.
- “Trusted Advisor” role facing large clients in telecom, vertical enterprises and government, building trust and relationships.
- Expertise includes WiFi, 4G LTE and 5G, WiMAX, picocell/femtocell, DAS, mesh networking, Internet of Things (IoT), M2M, RFID, RTLS, smart antennas, MIMO/beamforming, cloud computing, mobile crowd sourcing/sensing, enterprise mobility, security protocols, mobile embedded devices, device management, mobile applications/services, LBS, VoIP, video streaming, Zigbee, Bluetooth, sensor networks, RTLS, smart grid, m-health, m-learning, smart home networking.
- System and network protocol analysis, modeling and simulations of wireless systems (e.g., WiFi, LTE) for network performance assessment and optimization.
- Participated in a lead role in several medium-large projects in various vertical, enterprise and government/military markets, e.g., smart grid, mobile health, WiFi and 4G deployments.
- Selected consulting engagements are listed below: Lattice Semiconductor, SiBEAM, Powerwave Technologies, Time Warner Cable, and Corning-MobileAccess.

COLUMBIA UNIVERSITY, New York, NY

2010 –

Adjunct Professor

- Professor of Electrical Engineering. Teaching graduate courses on advanced wireless technologies: mmWave Wireless Communications and Applications for 5G, Wireless Sensing (RFID, RTLS, M2M communications, smart grid/energy, smart infrastructure, intelligent transportation, m-health).

LATTICE SEMICONDUCTOR, Sunnyvale, CA

2014 – 2016

CTO Office Senior Advisor

Developing 5G solutions using mmWave and Phased Array Antenna technologies. Applications include ‘wireless fiber’ backhaul/front-haul, connected cars, in-home connectivity.

SIBEAM, Silicon Valley

2014 – 2016

Technology Strategy Senior Consultant

Developing intelligent millimeter wave (60 GHz) technologies for wireless communications (802.11ad) and fixed access solutions for 5G.

POWERWAVE TECHNOLOGIES, Santa Ana, CA

2011 – 2013

CTO Office Senior Principal Consultant / VP Innovation

- Leading innovation, strategy and development of HetNets, DAS and small cells (picocell) solutions using 4G LTE and WiFi technologies to enhance coverage and capacity of wireless network infrastructure.

CENTER OF EXCELLENCE IN WIRELESS & IT, SUNY, Stony Brook, NY

2006 – 2010

Director, Network Technologies Research Division

- Leading network technologies research, development and commercialization efforts
- Industry liaison, working on smart energy, wireless healthcare and intelligent transportation solutions.
- Deployed mobile WiMAX pico/femto solution as part of the 4G-campus initiative.
- Key contributor to the Long Island Broadband Wireless Access Initiative using WiFi and 4G.

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- TIME WARNER CABLE**, Stamford, CT **2007 – 2008**
Wireless Strategy & Development Senior Consultant
- Worked on a large wireless project involving WiFi, WiMAX and 3G with advanced mobile devices.
 - Developed concept and product requirements documents, architecture and RF design, and test plans.
 - Supported the business development group on femtocells models, MVNO's models and services, etc.
- MOBILE-ACCESS (Acquired by Corning)**, Vienna, VA **2006 – 2008**
CTO Office DAS Strategy & Development Senior Consultant
- Worked with the CTO and senior engineers to develop WiFi DAS systems.
 - Developed detailed analysis and novel method to support MIMO (802.11n) in DAS systems.
- MOTOROLA (formerly Symbol Technologies)**, Holtsville, NY **1997 – 2005**
Senior Director, Technology Strategy and Development **2003 – 2005**
- Served as “the eyes of the company” – Charter was to identify and evaluate emerging/disruptive technologies, and conduct technology/business due diligence of possible partners/acquisitions. Team leader.
 - Guided the company technology roadmap by generating Technology Position Statements (TPS). Selected topics include: 802.11a/b/g migration strategy, 802.11e (QoS), Broadband Wireless Access - 802.16d/e fixed and mobile WiMAX, mesh networks, RFID, RTLS, and MIMO. These TPS were fact based and relied on results obtained through modeling, analysis and simulations.
 - Explored a new family of products based on multi-point MIMO architecture in mesh wireless networks.
 - Investigated VoIP capacity in 802.11a/b/g networks and initiated work on admission control algorithms/policies.
 - Researched and developed new mobile applications delivering multimedia-rich content to heterogeneous networked mobile devices.
 - Developed strategic alliances and led technology initiatives with technology/business partners.
 - Participated actively in IEEE 802.11, 802.15 and 802.16 standards meetings.
 - Awarded several patents.
- Senior Director, Research and Development** **1997 – 2003**
- Initiated and led several R&D programs in wireless LAN technologies: intelligent access point, reliable multicast video streaming, mobile device management/security and spatial wireless switching.
 - Conceived, investigated and developed a novel wireless switching architecture based on MIMO technology.
 - Conducted innovative research in WLAN QoS, Bluetooth interference mitigation, multicast video streaming, mobile security, RFID, RTLS - location tracking (RSSI/TDOA), VoIP and smart antennas.
 - Participated in strategic planning and impacted the technology/business direction of the company.
 - Awarded several patents.
- BAE SYSTEMS**, Greenlawn, NY **1994 – 1997**
Research Scientist
- Led the advanced mobile networking group.
 - Developed tactical mesh-based wireless network systems for DoD.
 - Worked on advanced antenna techniques including beam steering/switching.
 - Awarded several patents.
- NEC RESEARCH INSTITUTE**, Princeton, NJ **1992 – 1994**
Research Fellow
- Worked on optical interconnects for parallel processing.
 - Investigated multi-dimensional switches using wavelength, space and time.
 - Designed a wavelength router/switch using free-space optics.
- IBM RESEARCH CENTER**, Hawthorne, NY **1990 – 1992**
Research Associate
- Developed and prototyped a gigabit switch.
 - Built a testbed of multi-wavelength optical network.
 - Developed algorithms for WDMA using AO tunable filters.

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Head of Fiber-optics Systems Engineering

- Pioneered security products using fiber optic sensors.
- Conducted research & development in fiber optic sensors.
- Co-developed and deployed a large fiber optic data communications network.

EDUCATION

COLUMBIA UNIVERSITY, New York, NY

- Ph.D., Electrical Engineering, 1993.
- M.Phil, Electrical Engineering, 1991.

TEL AVIV UNIVERSITY, Tel Aviv, Israel

- MBA, Recanati Business School, 1989.
- MSc., Electrical Engineering, 1984.
- BSc., magna cum laude, Electrical Engineering, 1979.

PUBLICATIONS / PATENTS / OTHER

- Numerous publications in proceedings and conference papers.
- Numerous US and international patents issued.
- Served on several government agencies expert panels (NSF, NIH).
- IEEE Senior Member.
- Featured speaker on several industry sponsored webinars.
- Served as an expert witness/consultant in District Court, IPR, PGR, ITC, FRAND, PCA, AAA cases.

COURSES TAUGHT

- Introduction to Auto ID and Data Capture (AIDC) Technologies (State University NY, Stony Brook)
- Wireless Sensing Networks (Columbia University)
- mmWave Communications and Applications for 5G (Columbia University)

RECENT EXPERT WITNESS CONSULTING¹

- 2023: Varia Holdings v. Apple (Litigation)
- 2023: Maxell Ltd. v. Samsung Electronics (Litigation)
- 2023: Ericsson Inc. and Oracle Corporation v. Telecom Network Solutions (IPR)
- 2023: OZMO Licensing v. Dell Technologies (Litigation/IPR)
- 2022: Howlink Global v. AT&T (Litigation)
- 2022: Cleveland Medical Devices v. ResMed Corp (Litigation/IPR)
- 2022: Lone Star Systems v. Zebra Technologies (Litigation/IPR)
- 2022: Telecom Network Solutions v. AT&T, Verizon, and T-Mobile (Litigation/IPR)
- 2021: BillJCo v. Apple (Litigation/IPR)
- 2021: BillJCo v. Cisco Systems et al. (Litigation)
- 2021: Zebra Technologies v. OnAsset Intelligence (ITC)
- 2021: CellSpin Soft v. Under Armour (Litigation)
- 2021: CellSpin Soft v. Nike (Litigation)
- 2021: Intellectual Ventures v. Hewlett Packard Enterprise (Litigation/IPR)
- 2021: AEGIS v. Hisense (Litigation)
- 2020: Soter Technologies v. IP Video Corp. et al (Litigation)
- 2020: Intellectual Tech v. Zebra Technologies (Litigation)
- 2020: Uniloc v. Apple (Litigation)
- 2020: American Patents v. Juniper Networks (Litigation)

¹ Represented parties are underlined.

- 2020: Proxicom Wireless v. Target Corporation (Litigation)
- 2020: Sol IP v. AT&T et al. (Litigation)
- 2019: Cellular Evolution v. AT&T et al. (Litigation)
- 2019: Philips v. HTC (Litigation, UK)
- 2019: Ericsson v. Tishman Interiors (AAA Arbitration)
- 2019: Uniloc v. Samsung, Huawei (Litigation)
- 2018: Intel et al. v. Hera Wireless (IPR)
- 2018: Deutsche Telecom v. The Republic of India (UNCITRAL Arbitration, Paris Tribunal)
- 2017: Devas v. The Republic of India (UNCITRAL Arbitration, The Hague Tribunal)
- 2017: RPX Corp. et al. v. Iridescent Networks (IPR)
- 2017: Intellectual Ventures v. FedEx (Litigation)
- 2017: FedEx v. Intellectual Ventures (IPR)

PREVIOUS TESTIMONY

- *Deutsche Telekom AG v. The Republic of India*, PCA Case No. 2014-10 (UNCITRAL) Expert Reports + Arbitration Hearing.
- *Devas (Mauritius) Ltd. et al v. The Republic of India*, PCA Case No. 2013-09 (UNCITRAL) Expert Reports + Arbitration Hearing.
- *Philips v. HTC*, Claim HP-2015-000063 (UK) Expert Report.
- *Ruckus Wireless, Inc. et al v. Hera Wireless S.A.*, Case IPR2018-01419 (PTAB) Expert Declaration.
- *Ruckus Wireless, Inc. et al v. Hera Wireless S.A.*, Case IPR2018-01736 (PTAB) Expert Declaration.
- *Intel Corporation v. Hera Wireless S.A.*, Case IPR2018-01702 (PTAB) Expert Declaration.
- *Ruckus Wireless, Inc. et al v. Hera Wireless S.A.*, Case IPR2018-01418 (PTAB) Expert Declaration.
- *Ruckus Wireless, Inc. et al v. Hera Wireless S.A.*, Case IPR2018-01739 (PTAB) Expert Declaration.
- *Intel Corporation et al v. Hera Wireless S.A.*, Case IPR2018-01700 (PTAB) Expert Declaration.
- *Intel Corporation et al v. Hera Wireless S.A.*, Case IPR2018-01701 (PTAB) Expert Declaration.
- *Ruckus Wireless, Inc. et al v. Hera Wireless S.A.*, Case IPR2018-01732 (PTAB) Expert Declaration.
- *Ruckus Wireless, Inc. et al v. Hera Wireless S.A.*, Case IPR2018-01737 (PTAB) Expert Declaration.
- *Intel Corporation et al v. Hera Wireless S.A.*, Case IPR2018-01686 (PTAB) Expert Declaration.
- *Ruckus Wireless, Inc. et al v. Hera Wireless S.A.*, Case IPR2018-01420 (PTAB) Expert Declaration.
- *Intel Corporation et al v. Hera Wireless S.A.*, Case IPR2018-01687 (PTAB) Expert Declaration.
- *Ruckus Wireless, Inc. et al v. Hera Wireless S.A.*, Case IPR2018-01738 (PTAB) Expert Declaration.
- *RPX Corporation et al v. Iridescent Networks, Inc. (McEwen, Kathy, inventor)*, Case IPR2018-00254 (PTAB) Expert Declaration.
- *RPX Corporation et al v. Iridescent Networks, Inc. (McEwen, Kathy, inventor)*, Case IPR2017-01661 (PTAB) Expert Declaration.
- *RPX Corporation et al v. Iridescent Networks, Inc.*, Case IPR2017-01662 (PTAB) Expert Declaration.
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- *FedEx Corp. v. Intellectual Ventures II LLC*, Case IPR2017-00729 (PTAB) Expert Declaration.
- *FedEx Corp. v. Intellectual Ventures II LLC*, Case IPR2017-02030 (PTAB) Expert Declaration.
- *FedEx Corp. v. Intellectual Ventures II LLC*, Case IPR2017-00741 (PTAB) Expert Declaration.
- *Uniloc USA, Inc., Uniloc Luxembourg, S.A., and Uniloc 2017 LLC (Uniloc) v. Samsung*, (2:18-cv-00042) Expert Report + Deposition.
- *Uniloc USA, Inc., Uniloc Luxembourg, S.A., and Uniloc 2017 LLC (Uniloc) v. Samsung*, (2:18-cv-00044) Expert Report + Deposition.
- *SoL IP v. AT&T et al.*, (2:18-cv-00526), Expert Report + Deposition.
- *Juniper Networks v. American Patents*, Case IPR2020-01114 (PTAB) Expert Declaration.
- *Juniper Networks v. American Patents*, Case IPR2020-01115 (PTAB) Expert Declaration.
- *Intellectual Tech v. Zebra Technologies*, (6:19-cv-00628) Expert Declaration.
- *Aegis 11 S.A. v. Belkin Int'l, Inc.*, Civ. Nos. 19-1161-RGA, -1162-RGA, and 1163-RGA Expert Declaration.
- *Aegis 11 S.A. v. TTE Tech., Inc.*, Civ. No. 19-1165-RGA Expert Declaration
- *Aegis 11 S.A. v. Funai Electric Co.*, Civ. No. 20-03890

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- *AEGIS v. Hisense*, (1:20-cv-03891) Expert Declaration.
- *Soter Technologies, LLC v. IP Video Corp. et al*, SDNY 20-cv-05007(LJL) Expert Declaration.
- *Soter Technologies, LLC v. IP Video Corp. et al*, EDNY 2:20-cv-02989(GRB)(AKT) Expert Declaration + Deposition.
- *Cellspin Soft, Inc. v. Nike, Inc.*, NDCA 4:17-cv-05931YGR Expert Report.
- *Cellspin Soft, Inc. v. Under Armour, Inc.*, NDCA 4:17-cv-05932YGR Expert Report.
- *BillJCo, LLC v. Cisco Systems, Inc. et al.*, EDTX 2:21-cv-181, 183-JRG Expert Reports + Deposition.
- *BillJCo, LLC v. Apple, Inc.*, WDTX 6:21-cv-528-ADA Expert Declaration.
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