

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
TEXARKANA DIVISION**

MAXELL, LTD.,

Plaintiff,

v.

SAMSUNG ELECTRONICS CO., LTD. and
SAMSUNG ELECTRONIC AMERICA,
INC.,

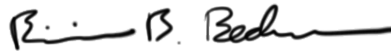
Defendants.

Case No. 5:23-cv-00092-RWS

DECLARATION OF DR. BENJAMIN B. BEDERSON

I declare under penalty of perjury that the following is true and correct.

Executed on May 30, 2024



Benjamin B. Bederson, Ph.D.

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I. INTRODUCTION

A. SCOPE

1. I have been retained by counsel for Defendants Samsung Electronics Co. Ltd. and Samsung Electronics America, Inc. (collectively, “Defendants” or “Samsung”) to offer my opinion as to certain claim terms of U.S. Patent No. 11,017,815 (“the ’815 patent”). I am familiar with the ’815 patent because I previously provided my opinion as to the lack of patentability of the claims of the ’815 patent in two IPRs naming Samsung as petitioner: IPR2024-00735 and IPR2024-00777. I also provided an opinion in an earlier IPR concerning one of the patents to which the ’815 patent claims priority, U.S. Pat. No. 9,384,783.

2. The facts and opinions expressed herein are true and accurate to the best of my knowledge and understanding based on the information I have reviewed to date.

3. I am being compensated at my customary rate of \$600 per hour for my time spent on this case. No part of my compensation is dependent on my opinions or on the outcome of this proceeding. I have no direct financial interest, beneficial or otherwise, in any of the parties to this litigation.

B. QUALIFICATIONS

4. Attached as Exhibit W is my *curriculum vitae* detailing my educational background and professional experience. Exhibit W also includes a list of my publications. Below is a brief summary of relevant portions of Exhibit W.

5. I received a Bachelor of Science degree in Computer Science with a minor in Electrical Engineering from Rensselaer Polytechnic Institute (“RPI”) in 1986. I received a Master of Science degree and a Ph.D. in Computer Science from New York University (“NYU”) in 1989 and 1992, respectively.

6. Since 1998, I have been a Professor of Computer Science at the University of Maryland (“UMD”), where I have joint appointments at the Institute for Advanced Computer Studies and the College of Information Studies (Maryland’s “iSchool”). I was also Associate Provost of Learning Initiatives and Executive Director of the Teaching and Learning Transformation Center from 2014–2018. I am a member and previous director of the Human-Computer Interaction Lab (“HCIL”), the oldest and one of the best known Human-Computer Interaction research groups in the country. I am co-founder and Chief Executive Officer of the J.S. Bryant School, a therapeutic high school to open in Fall 2025. I was also co-founder and Chief Scientist of Zumobi, Inc. from 2006 to 2014, a Seattle-based startup that is a publisher of content applications and advertising platforms for smartphones. I am also co-founder and co-director of the International Children’s Digital Library (“ICDL”), a website launched in 2002 that provides the world’s largest collection of freely available online children’s books from around the world with an interface aimed to make it easy for children and adults to search and read children’s books online. I was also co-founder and Chief Technology Officer of Hazel Analytics from 2014 - 2023, a data analytics company. In addition, I have for more than 15 years consulted for numerous companies in the area of user interfaces, including Logitech, Microsoft, the Palo Alto Research Center, Sony, Lockheed Martin, and NASA Goddard Space Flight Center.

7. For more than 30 years, I have studied, designed, and worked in the field of computer science and human-computer interaction. My experience includes 30 years of teaching and research, with research interests in human-computer interaction and the software and technology underlying today’s interactive computing systems. This includes the design and

implementation of software applications on mobile devices, including smart phones and PDAs, such as my work on DateLens, LaunchTile, and StoryKit described below.

8. At UMD, my research is in the area of Human-Computer Interaction (“HCI”), a field that relates to the development and understanding of computing systems to serve users’ needs. Researchers in this field are focused on making universally usable, useful, efficient, and appealing systems to support people in their wide range of activities. My approach is to balance the development of innovative technology that serves people’s practical needs. Example systems following this approach that I have built include PadPrints (1998 software that provided a visual map of an end user’s web browsing history), PhotoMesa (2001 software for end users to browse personal photos, including an interface that included animated zooming of image thumbnails), DateLens (2002 software for end users to use their mobile devices to efficiently access their calendar information), LaunchTile (2005 “home screen” software for mobile devices to allow users to navigate apps in a zoomable environment), SpaceTree (2001 software for end users to efficiently browse very large hierarchies), ICDL (as described above), and StoryKit (a 2009 iPhone app for children to create stories).

9. In 2001, I built CounterPoint as a plug-in for PowerPoint. CounterPoint was software that provided paths through PowerPoint slides that were laid out in a zoomable two-dimensional space. As I explained in a 2002 paper (Lance Good and Benjamin B. Bederson, “Zoomable user interfaces as a medium for slide show presentations,” *Information Visualization* 1, 1 (March 2002), 35–49), this decoupling of paths from content avoids duplication of data wherein a single slide can be accessed through multiple paths.

10. LaunchTile led to my creation of Zumobi in 2006, where I was responsible for investigating new software platforms and developing new user interface designs that provided

efficient and engaging interfaces to permit end users to access a wide range of content on mobile platforms (including the iPhone and Android-based devices). For example, I designed and implemented software called “Ziibii,” a “river” of news for iPhone, software called “ZoomCanvas,” a zoomable user interface for several iPhone apps, and iPhone apps, including “Inside Xbox” for Microsoft and Snow Report for REI. At the International Children’s Digital Library (ICDL), I have since 2002 been the technical director responsible for the design and implementation of the website, www.childrenslibrary.org, (originally at www.icdlbooks.org). In particular, I have been closely involved in designing the user interface as well as the software architecture for the website since its inception in 2002. In 2007 and 2008, I wrote an app for Apple iOS called “ICDL on iPhone,” which provided a zoomable interface for reading children’s picture books from my International Children’s Digital Library on iPhones. At the time, this was the only effort of its kind to provide the ability to read children’s picture books on phones

11. My work has been published extensively in more than 140 technical publications, and I have given about 100 invited talks, including 9 keynote lectures. I have won a number of awards, including the Brian Shackel Award for “outstanding contribution with international impact in the field of HCI” in 2007, and the Social Impact Award in 2010 from Association for Computing Machinery’s (“ACM”) Special Interest Group on Computer Human Interaction (“SIGCHI”). ACM is the primary international professional community of computer scientists, and SIGCHI is the primary international professional HCI community. I have been honored by both professional organizations. I am an “ACM Distinguished Scientist,” which “recognizes those ACM members with at least 15 years of professional experience and 5 years of continuous Professional Membership who have achieved significant accomplishments or have made a significant impact on the computing field.” I am a member of the “CHI Academy,” which is

described as follows: “The CHI Academy is an honorary group of individuals who have made substantial contributions to the field of human-computer interaction. These are the principal leaders of the field, whose efforts have shaped the disciplines and/or industry, and led the research and/or innovation in human-computer interaction.” The criteria for election to the CHI Academy are: (1) cumulative contributions to the field; (2) impact on the field through development of new research directions and/or innovations; and (3) influence on the work of others.

12. I have appeared on radio shows numerous times to discuss issues relating to user interface design and people’s use and frustration with common technologies, websites, and mobile devices. My work has been discussed and I have been quoted by mainstream media around the world over 120 times, including by the New York Times, the Wall Street Journal, the Washington Post, Newsweek, the Seattle Post-Intelligencer, the Independent, Le Monde, NPR’s All Things Considered, New Scientist Magazine, and MIT’s Technology Review.

13. I have designed, programmed, and publicly deployed dozens of user-facing software products that have cumulatively had millions of users.

14. I am the co-inventor of 14 U.S. patents and 20 U.S. patent applications. The patents are generally directed to user interfaces/experience with some directed to zooming and thumbnail images, including U.S. Patent No. 7,707,503 (issued 2010), entitled “Methods and systems for supporting presentation tools using zoomable user interfaces.”

II. LEGAL STANDARDS

15. The legal principles set forth in this section were provided to me by counsel for Defendants. My understanding of these legal principles is summarized below. I applied these principles when forming my opinions as discussed below.

16. I understand from Defendants' counsel that claim terms are generally interpreted in accordance with the ordinary and customary meaning they would have to a person of ordinary skill in the art (POSITA) at the time of the alleged invention of the asserted patent.

17. I also understand from Defendants' counsel that a POSITA would read the claim term in the context of the claim as a whole, as well as the entire patent, including the patent specification and figures.

18. I further understand from Defendants' counsel that it is appropriate to look at the prosecution file history, which contains the record of communications with the patent office during prosecution, to understand the claims.

19. I understand from Defendants' counsel that one can also consult extrinsic sources, such as dictionaries, prior art, and treatises, that shed light on the proper meaning of a particular claim term. However, these extrinsic sources cannot be used to contradict or vary the intrinsic evidence, which includes the patent, its file history, and any post-issuance proceedings before the patent office, such as reexaminations and *inter partes* reviews.

20. I also understand from Defendants' counsel that two instances where a claim term is given a different meaning than it otherwise would have are: (1) when a patentee sets out a definition and acts as his own lexicographer; and (2) when the patentee disavows the scope of a claim term either in the specification or during prosecution or reexamination proceedings.

21. I understand from Defendants' counsel that a claim is indefinite when read in light of the specification and the prosecution history it fails to inform, with reasonable certainty, a POSITA about the scope of the invention.

22. I also understand from Defendants’ counsel that when there is more than one plausible interpretation of a claim limitation, the claim term may be indefinite if there is nothing in the intrinsic evidence that would inform a POSITA as to which of the meanings apply.

23. I understand from Defendants’ counsel that claims may also be indefinite when they contradict each other or when properly construed they are nonsensical.

24. I understand from Defendants’ counsel that courts may not redraft claims, whether to make them operable or to sustain their validity, and that instead the claims must be construed based on the patentee’s version of the claim as he or she drafted it.

25. I further understand from Defendants’ counsel that when claims are susceptible to only one reasonable interpretation and that interpretation results in a nonsensical construction, the Court will still not redraft the claim language to avoid a nonsensical result.

III. OPINIONS

A. “receiving . . . first video information . . . including second video information that is encrypted” (’815 patent: claims 16, 21)

Defendants	Plaintiff
Plain and ordinary meaning, which is that the second video information is in encrypted form at the time it is received	Plain and ordinary meaning

26. The term “receiving, via a network, 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” should be construed according to its plain and ordinary meaning, which is that the second video information is encrypted, i.e., is in encrypted form, when it is received.

27. These are simple words. The use of the present tense and the grammatical structure indicate encryption is already in place at the time of reception. This understanding aligns with technical expectations and publications in the field, and with Plaintiff’s infringement

contentions. Plaintiff's attempt to twist the plain and ordinary meaning of "second video information that is encrypted" to include second video information will be unencrypted later must be rejected as contrary to this plain meaning. This is because I understand the Court cannot rewrite the claims, whether to make them operable or to sustain their validity, no matter how tempting, but rather must construe the claims as Plaintiff has drafted them.

28. The understanding of the term "receiving, via a network, 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" is supported by several key points.

29. First, the temporal clarity provided by the present tense in the phrase "that is encrypted" indicates the state of the second video information at the time it is being received. This use of the present tense signals that the encryption is already in place while the information is received, not that it will be encrypted at a later stage or point in time after receipt. In other words, such use of the present tense signals that the encryption of the second video information occurs prior to reception so that the second video information "is encrypted" when it is received.

30. Second, the grammatical structure of the clause "the first video information being received including second video information that is encrypted" uses the present participle "being" to describe an ongoing action. The use of the term "being" in conjunction with "received" indicates that the reception of the first video information and the state of the second video information (i.e., being encrypted) are concurrent. This signals that the first video information is in the process of being received and that the included second video information is in the encrypted state during this process. Moreover, the use of the present participle "being" in the phrase "the first video information being received" further supports Defendants'

construction. In everyday English, we often use the present participle to describe an action that is happening at the same time as the action of the main verb. Here, as a native English speaker, it is my opinion that the main action is the receiving of the first video information, and the word “being” suggests that the second video information is already in an encrypted form at the same time, rather than at some point after the reception process. This interpretation is further supported by the facts that the encryption is associated with the second video information that is part of the first video information being received, and the claims do not specify any action taken on the second video information after it has been received.

31. Third, from a technical perspective, a person of ordinary skill in the art would understand that encryption is a process typically (but, as discussed below, not always) applied to data before transmission to a receiving device in order to protect the data during transit. This can be seen, for example, in the documents cited by Plaintiff in the parties’ P.R. 4-3 chart, which discuss encryption of pay television content. *See, e.g.*, Broadcast Encryption, Dave Lassalle, January 12, 2005¹ (Ex. A). It would be technically logical to a POSITA that the second video information is already in an encrypted state when it is received. This understanding of the plain meaning of this term aligns with Plaintiff’s infringement contentions, which point to Netflix movies that are transmitted and received in encrypted form, not received in unencrypted form and encrypted later. Plaintiff’s May 24, 2024 Supplemental Invalidity Contentions, Appendix 5, 434-441 (Ex. B).

32. Despite the clear and straightforward plain meaning of this term, it is my understanding from counsel for Defendants that Plaintiff argues for a broader scope that includes not just the receipt of second video information that is in encrypted form when it is received, but

¹ Available at: <https://www.giac.org/paper/gsec/4295/broadcast-encryption/106954>.

also includes the receipt of information that is unencrypted when it is received and encrypted only later. In other words, it is my understanding that Plaintiff contends that “second video information that is encrypted” can include “second video information that is not encrypted.” I disagree. Plaintiff’s construction is not the plain and ordinary meaning of this limitation. The claim does not contain any language suggesting that the second video information is not encrypted when received and then encrypted at a later time. If the patentee intended for the claim to cover such a scenario, they could have used language to that effect, such as reciting a step of encrypting the second video information after its receipt. However, they did not.

33. Plaintiff’s assertion that the scope of this term should be construed to include receiving unencrypted video information that will be encrypted only after it is received may be a reaction to my declaration in IPR2024-00777, in which I demonstrated that claims 16-27 of the ’815 patent are not entitled to priority to certain previously-filed applications because none of those prior applications includes a written description of receiving second video information in encrypted form. IPR2024-00777, Exhibit 1003, ¶¶83-94 (Ex. C).

34. For the sake of clarity, I note that nothing in my IPR declaration contradicts the statement above that the plain meaning of this limitation is that the second video information is received in encrypted form. This is because, while it is true that encryption is **typically** performed prior to transmission when used in connection with video information that transmitted, there is no **express, implied or inherent** disclosure in any of these prior applications of receiving video information in encrypted form. This lack of written description means that none of these prior applications can provide written description support for the full scope of claims 16-27 and, as a result claims 16-27 are not entitled to priority to any of these earlier-filed applications. This does

not mean, however, that the plain meaning of claimed “second video information that *is* encrypted” in the ’815 patent includes receiving second video information that is not encrypted.

35. To the extent that Plaintiff asserts that the disclosure in the ’815 patent of receiving video information wirelessly either expressly, impliedly or inherently discloses receiving second video information in encrypted form, I disagree. There is no express disclosure of wirelessly receiving video information in encrypted form anywhere in these priority applications. Not only is there no *implied* disclosure of receiving unencrypted video information, a POSITA would have understood the disclosure in the ’815 patent to imply the opposite, i.e., that the video information being received wirelessly was not encrypted. This is because, as explained in further detail in my IPR declaration, the only discussion of decrypting video information in the ’815 patent applies to video information that was encrypted by an encryption circuit 331 after it was received and then stored and decrypted in a decryption circuit 332. IPR2024-00777, Exhibit 1003, ¶¶91-93 (Ex. C), *see also* ’815 patent, 5:7-46 and Fig. 3.

36. There is also no inherent disclosure of receiving encrypted video information in the ’815 patent. A POSITA at the time of the ’815 patent would have been well aware of the existence of unencrypted transmissions of video information in the United States and elsewhere. For example, unencrypted satellite broadcasts were prevalent in the United States in the early 2000s and even before then. *See, e.g.*, Reitz, K. (1995). ‘Getting Started in TVRO Cheaply.’ Satellite Times, Volume 1, Number 6, pp. 82-83. Grove Enterprises. July/August 1995² (Ex. D) (SAM-MAX-00335536) (“There are roughly 40 satellites transmitting in the C-band and/or Ku-band which are visible from most of North America. This gives us potentially 600 channels of programming, about half of which are unencrypted and in the clear.”). For instance, around

² Available at: <https://www.worldradiohistory.com/Archive-Satellite-Times/Satellite-Times-1995-07-08.pdf>

2002, it was not uncommon for viewers to access live transmissions from various sources. This was a time when the technology and infrastructure for widespread encryption were not as developed or adopted as they are today. Fast forward to the present day, while many satellite broadcasts have moved towards encryption for enhanced security, there are still some that remain unencrypted. A prime example is NASA TV. NASA TV is a free-to-air broadcast network that offers live events and original content, such as launches, mission events, and the latest news briefings. *See, e.g.*, Liston, E. E. (2013), Chronology of KSC and KSC Related Events for 2012 (NASA/TM-2013-217914). NASA.³ P. 75 (Ex. E) (SAM-MAX-00335297) (“Live NASA TV coverage beginning at 2:30 a.m. [‘SpaceX Launches NASA Demonstration Mission to Space Station,’ NASA News Release #12-161, May 20, 2012]”); *id.*, p. 129 (“A public memorial service will be held today for Neil Armstrong at the Washington National Cathedral. [...] The memorial service begins at 10 a.m. and will be broadcast live on NASA Television.”); *id.*, p. 152 (“A grand opening of Atlantis’ new home at the Kennedy Space Center Visitor Complex is planned for July 2013. [‘NASA Television Airs Space Shuttle Atlantis’ Final Move,’ Media Advisory #M12-210, October 30, 2012.]”).

37. The existence of unencrypted digital broadcasting of video information, including satellite and terrestrial broadcasting, is also well-documented in patent publications. *See, e.g.*, U.S. Patent Publication No. 2002/0146234 (“Mizuno”) (Ex. F) (SAM-MAX-00335668) [0191] (“There are two types of digital broadcastings, one of which is unencrypted digital broadcasting and the other is encrypted digital broadcasting. Typically, the former is a free broadcast that everyone who owns a receiver therefor can watch. An [sic] the latter is a pay-broadcast, and a key for decoding codes attached thereto is provided to the user on condition that payment of the

³ Available at: <https://ntrs.nasa.gov/api/citations/20130011640/downloads/20130011640.pdf>.

fee is paid.”); U.S. Patent No. 9,100,547 (“Lavender”) (Ex. G) (SAM-MAX-00335849), 45:40-42 (“News content is stored on video servers as 50i MPEG2 files but will be delivered to the ODPS as packaged unencrypted 500 Kbps files for encryption and distribution.”) 56:15-16 (“The preview appears in a pop-up window and typically comprises unencrypted multimedia streamed data.”) (same disclosures in WIPO Pub. No. WO 2005/125200 (Ex. H) (SAM-MAX-00335989)); U.S. Patent No. 6,154,206 (Ex. I) (SAM-MAX-00335762), 9:13-17 (“In contrast, when the user is accessing an unscrambled free-to-air program, only the selected unscrambled portion of the DBS, but not the OOB data, flows from receiver unit 210 to CA control unit 220.”); European Patent Publication No. EP1813035B1 (Ex. J) (SAM-MAX-00335486), [0023] (“As desired, the television programming content 210’ can include “free-to-air” (or unencrypted) content and/or premium (or encrypted) content. “Free-to-air” content is television programming content 210’ that is not encrypted and that is broadcast free of charge to viewers within selected geographical regions, such as Europe and Middle East; whereas, premium content is encrypted content that is available for viewing upon payment of a fee to the television source 230.”).

38. Also known in the art were systems which, like the system disclosed in the ’815 patent, wirelessly received unencrypted video information and then, only after receipt, encrypted and stored the video information. U.S. Patent No. 9,100,547 (“Lavender”) (Ex. G) (SAM-MAX-00335849) describes an end-user system that receives unencrypted “free-to-air” broadcast television program content, and encrypts and stores it for later “on-demand” viewing. Lavendar discloses that the system comprises a “communication device” that enables a user to “download the content”. Lavender, 11:47-67. Lavender details that the downloaded content can be opened and played using a “processor” that is adapted to process “audio-visual files”. *Id.* Lavender discloses that the system restricts access to the content through an “encryption device”, which

could be a “processor on which encryption software is installed”, or a device operable to apply “digital rights management processes”. *Id.* This ensures that the downloaded unencrypted content is subsequently encrypted. *See also, e.g., id.*, 22:41-43 (“Thus, an ‘on-demand’ content service may be provided as an adjunct to a “free-to-air” service, which may provide improved service and flexibility to users.”); *id.*, 34:49-56 (“For example, FIG. 1 shows an example of a prior art terrestrial television broadcaster 1000, which broadcasts a television channel on a free-to-air basis via signal 1010. This signal 1010 is then received by the receiver 1020 of a user’s television 1030, which demodulates the signal and enables the user to view any content broadcast as part of the channel.”).

39. Similarly, U.S. Patent No. 7,757,300 (“Nonaka”) (Ex. K) (SAM-MAX-00336201) which lists the original assignee as Hitachi, Ltd. (the original assignee of the ’815 patent family), discloses a digital information recording and reproducing apparatus for recording and reproducing apparatus that encrypts and records input digital information and for controlling the recording and reproduction of the digital information based on the detected copy control information. Nonaka, Claim 1. For example, in Fig. 3 Nonaka discloses an encryption control unit 13. Nonaka, 5:31-52. Nonaka states: “The numeral 206 [of the encryption control unit 13] is an input terminal that is directly coupled to the switching unit 3 corresponding to the plaintext of data.” *Id.*, 5:47-49. This means that the input data, referred to as “plaintext”, is not encrypted. It is received in its original, unencrypted form. Nonaka discloses this plaintext data is then processed by an encryptor (207), which encrypts the data. *Id.* Nonaka discusses the resulting encrypted signal is then output from terminal (208) to the recording control unit (4). *Id.*, 5:47-52. This process ensures the secure handling of the data from its original plaintext form to its encrypted state.

40. U.S. Patent Publication No. 2002/0146234 (“Mizuno”) (Ex. F) (SAM-MAX-00335668) discloses a system that selectively stores portions of the TV programs. Mizuno discloses that there are “two types of digital broadcastings,” namely “unencrypted digital broadcasting” and “encrypted digital broadcasting.” Mizuno, [0191]. Mizuno details that the latter, the encrypted digital broadcasting, is a “pay-broadcast,” where a “key for decoding codes” is provided to the user upon payment. *Id.*, [0191]. Furthermore, Mizuno states that there are “two kinds of pay-broadcasts,” one of which operates under a “general contract” and the other is “pay-per-view.” *Id.*, [0192]. The general contract service is described as a “broadcasting service, which can provide the user a comprehensive service that allows the user to watch a predetermined program(s).” *Id.*, [0192]. Once a contract for this service is concluded, it is “stored into the IC card and the user automatically acquires a key for decoding the codes.” *Id.*, [0192]. This suggests that a POSITA would recognize the IC card as the well-known smart card in systems such as Dish Network and DirecTV, for the encrypted broadcasts. The absence of any mention of a smart card in the ’815 patent further reinforces that the ’815 patent describes receipt of only unencrypted broadcasts of video information.

41. For all the reasons discussed above, there is no express, implied or inherent disclosure in the applications to which the ’815 patent claim priority of receiving second video information in encrypted form. Nonetheless, the plain meaning of this term requires exactly that, and nothing in the ’815 patent dictates a construction that is contrary to this plain and ordinary meaning. If the patentee had wanted to claim something different, they could have attempted to do so, but they did not.

42. Thus, in my opinion, the term “receiving . . . first video information . . . including second video information that is encrypted” should be construed according to its plain and

ordinary meaning, which includes that the second video information is in encrypted form at the time it is received.

B. “character” (’815 patent: claims 1, 9, 16, 21)

Defendants	Plaintiff
A letter, number, punctuation mark, or other symbol or control code that is represented to a computer by one unit of information.	Plain and ordinary meaning

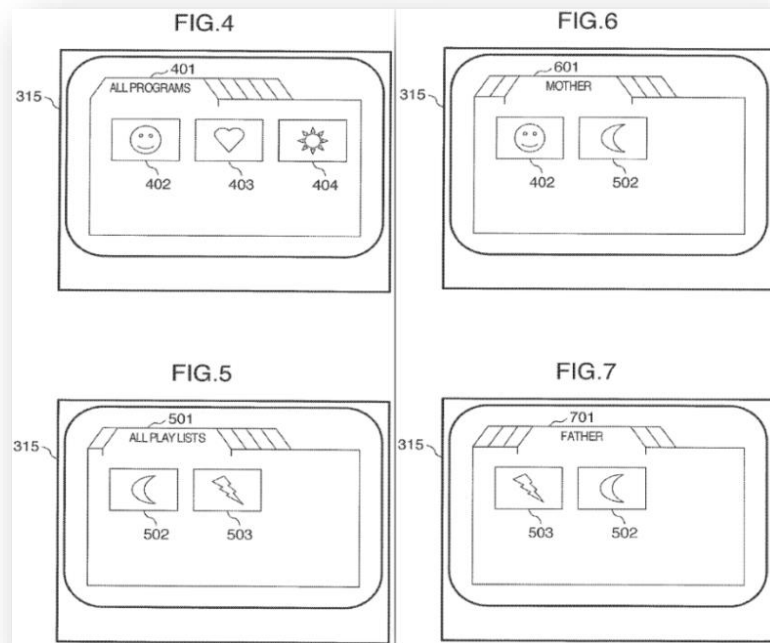
43. The term “character” is a term of art in the field of computer science, and is understood by a person of ordinary skill in the art to refer to a letter, number, punctuation mark, or other like symbol that is represented to a computer by one unit of information.

44. I note that the term “character” is frequently used in the claims of the ’815 patent. However, it is mentioned only once in the ’815 patent specification. The subsequent text presents the specific portion where the term is used:

can reproduce arbitrary play lists or all play lists. By the way, display switching from the all program display tag **401** to all play list display tag can be implemented by, for example, movement of the cursor in tag **character** positions conducted by the user.

’815 patent, 6:14-18.

45. To understand this use of character, some context is necessary. The ’815 patent discloses a system in which menus of video information (i.e., programs and playlists) are displayed using a “menu display tag” and thumbnails indicating various program information such as shown in Figs. 4-7 shown below. ’815 patent, 5:61-6:40.

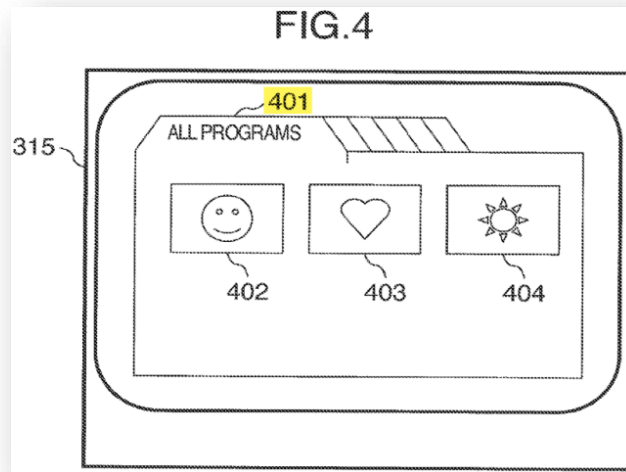


46. These “menu display tags,” also referred to in the ’815 patent as simply “tags,” are graphical images of a file folder with a tab on which appear textual labels such as “ALL PROGRAM INFORMATION” or “MOTHER.”

47. The only passage of the ’815 patent that uses the term “character” discloses that a user can move the cursor across the parts of these tags – i.e., the file folder tabs – on which the characters that make up the labels are located to select a desired folder. ’815 patent, 6:14-18 (“By the way, display switching from the all program display tag 401 to all play list display tag can be implemented by, for example, movement of the cursor in tag character positions conducted by the user.”). This action of moving the cursor across the portions of the tags/file folders on which characters are positioned allows each user to select a desired one of the file folders/tags.

48. For example, 401, annotated in yellow below, is a “tag for displaying all programs.” The file folder tab is the trapezoidal area surrounding the labels with the characters

“ALL PROGRAMS.” By moving the cursor across the tab portions of the tags/file folders, a different tag/file folder can be selected. For example, moving the cursor to immediately to the right of the first tab on which the label “ALL PROGRAMS” appears allows the user to select the tab for second tag/file folder “ALL PLAYLISTS,” as shown in Fig. 5 above.



49. Thus, the '815 patent uses the term “tag” or “menu display tag” to refer to the graphical image of a file folder, and uses the term “character” to refer to the letters (each a “tag character”) on the tab part of the graphical tag/file folder.

50. Accordingly, in the context of the '815 patent, “character” refers to the letters in the “ALL PROGRAMS” “ALL PLAY LISTS” “MOTHER” and “FATHER” labels that appear on the tags/file folders. Nowhere does the '815 patent use the term “character” to refer to the tag itself or to any other arbitrary graphical image. If “tag” and “character” were synonymous, the term “tag character” would be non-sensical.

51. In contrast, in the '815 patent, graphical images are consistently represented by thumbnails. Thumbnail 402 is represented by a smiley face image, thumbnail 403 is represented by a heart image, thumbnail 404 is represented by a sun image, thumbnail 502 is represented by

a moon image, and thumbnail 503 is represented by a lightning bolt image. '815 patent, Figs. 4-7; 5:61-6:18. These are complex visual elements that, in order to construct a thumbnail, require a multitude of bytes to illustrate their shapes, shades, and additional visual characteristics, all without having specific representations in the standard systems used for text representation in computers.

52. This usage in the '815 patent corresponds to the plain meaning of “character” in the computer science art. A “character” in the context of UI design and computer science is fundamentally different from an arbitrary image such as an image of a cartoon character. A character, in this context, especially at the time of filing of the '815 patent, is a unit of information that is represented to a computer by one unit, often 1 byte, of information. This includes letters, numbers, punctuation marks, and other symbols of a similar nature rather than arbitrary images. Examples of these kinds of symbols are well-known: *, #, &, @ and \$.

53. A text character is a basic unit of information in computing and digital communications. It is often times represented by an ASCII code or Unicode, which is a standard that assigns a unique identifier to each character used in written languages, allowing these characters to be represented consistently across different digital platforms. For instance, an asterisk (“*”) or a pound sign (“#”) are considered characters because they can be represented by a simple code in a computer system. They are not random or arbitrary; they have specific representations in standards such as Unicode or ASCII. On the other hand, arbitrary images such as a character like Batman do not have specific representations in standard systems for representing text in computers. These are complex graphical elements that require multiple bytes to represent their shapes, colors, and other visual properties.

54. In my opinion, Defendants’ construction is the plain meaning reflected in the four dictionary definitions of character provided by Defendants: (1) Microsoft Computer Dictionary (5th ed. 2002) (Ex. L) (SAM-MAX-00327344)’s “A letter, number, punctuation mark, or other symbol or control code that is represented to a computer by one unit –1 byte –of information.”; (2) Wiley Electrical and Electronics Engineering Dictionary (2004) (Ex. M) (SAM-MAX-00327355 at SAM-MAX-00327357)’s “A letter, number, punctuation mark, control code or other symbol that occupies one byte of computer memory. An example is an ASCII character.”; (3) Webster’s Computer Dictionary (10th ed. 2003) (Ex. N) (SAM-MAX-00327351)’s “Any letter, number, punctuation mark or symbol that one can produce on-screen by pressing a key on the keyboard, or (for certain little-used characters) a key combination. A character uses 1 byte of memory.”; and (4) American Heritage Science Dictionary (2005) (Ex. O) (SAM-MAX-00327348)’s “2. Computer Science. A symbol, such as a letter, number, or punctuation mark, that occupies one byte of memory. See more at ASCII.” All four dictionaries consistently define a “character” as a letter, number, punctuation mark, or other symbol or control code. This consistency across different sources supports Defendants’ construction. The definitions from all four dictionaries support that a character is represented to a computer by one unit of information. Specifically, the Microsoft Computer Dictionary (Ex. L) (SAM-MAX-00327344), Wiley Electrical and Electronics Engineering Dictionary (Ex. M) (SAM-MAX-00327355 at SAM-MAX-00327357), and Webster’s Computer Dictionary (Ex. N) (SAM-MAX-00327351) expressly state that a character uses 1 byte of memory. The American Heritage Science Dictionary (Ex. O) (SAM-MAX-00327348) also implies this by stating that a character occupies one byte of memory. The definitions also align with Defendants’ construction that a character is represented to a computer. The Microsoft Computer Dictionary (Ex. L) (SAM-MAX-00327344)

and Webster's Computer Dictionary (Ex. N) (SAM-MAX-00327351) mention that a character is represented to a computer or produced on-screen by pressing a key on the keyboard.

55. Defendants' construction also includes control codes as part of the definition of a character. This is supported by the definitions from the Microsoft Computer Dictionary (Ex. L) (SAM-MAX-00327344) and the Wiley Electrical and Electronics Engineering Dictionary (Ex. M) (SAM-MAX-00327355 at SAM-MAX-00327357), which explicitly include control codes in their definitions of a character.

56. Each of Plaintiff's three dictionary definitions also, in my opinion, supports Defendants' construction and is inconsistent with the notion that "character" includes arbitrary graphical images.

57. First, Plaintiff cites the McGraw-Hill Dictionary of Scientific and Technical Terms (6th ed.; 2003) at page 368 (Ex. P) (MAXELL_SAMSUNG_0112374). Here, the dictionary provides a definition that aligns with Defendants' proposed construction. The dictionary defines "character" as: "1. An elementary mark used to represent data, usually in the form of a graphic spatial arrangement of connected or adjacent strokes, such as a letter or a digit. 2. A small collection of adjacent bits used to represent a piece of data, addressed and handled as a unit, often corresponding to a digit or letter." The first part of Plaintiff's McGraw-Hill definition refers to an "elementary mark used to represent data, usually in the form of a graphic spatial arrangement of connected or adjacent strokes, such as a letter or a digit." This directly corresponds to the Defendant's construction's reference to a "letter, number, punctuation mark, or other symbol," and an "elementary mark" is inconsistent with an arbitrary graphical image. Both definitions acknowledge that these elements are fundamental units used to represent data. The second part of Plaintiff's McGraw-Hill definition describes a "small collection of adjacent

bits used to represent a piece of data, addressed and handled as a unit, often corresponding to a digit or letter.” This aligns with Defendants’ description of these elements being “represented to a computer by one unit of information.” Both definitions recognize that these symbols correspond to a specific unit of information within a computer system.

58. Second, Plaintiff cites a definition in the Dictionary of Multimedia (3rd ed.; 2002) at page 49 (Ex. Q) (MAXELL_SAMSUNG_0112348) of a “character” as a “letter or number that is displayed or printed. The shape of each character is determined by the typeface and font that’s used: each font includes 256 different characters normally with letters a to z and A to Z together with foreign characters, symbols and punctuation marks.” This definition also supports Defendants’ proposed construction, “A letter, number, punctuation mark, or other symbol or control code that is represented to a computer by one unit of information,” in the following ways. Both definitions refer to a “letter or number” as a fundamental unit of data. This commonality suggests that Defendants’ construction aligns with Plaintiff’s cited definition. Plaintiff’s definition mentions that these characters are “displayed or printed,” which implies that they are represented in some form to a computer system. This aligns with Defendants’ construction that these symbols are “represented to a computer by one unit of information.” Plaintiff’s definition includes “symbols and punctuation marks” in its list of characters, which matches Defendants’ inclusion of “punctuation mark, or other symbol” in their construction.

59. Third, Plaintiff cites the definition in Newton’s Telecom Dictionary (2005) at page 178 (Ex. R) (MAXELL_SAMSUNG_0109457) of a character as “A letter number or a symbol. A character is sometimes described by the digit represented by the bit pattern that makes up the Character, i.e., the letter A is ASCII code 65, a carriage return is ASCII code 13.” This definition also supports Defendants’ proposed construction in the following ways. Both

definitions refer to a “letter, number, or symbol” as a fundamental unit of data. This commonality suggests that Defendants’ construction aligns with Plaintiff’s cited definition. Plaintiff’s definition mentions that a character is “sometimes described by the digit represented by the bit pattern that makes up the Character.” This aligns with Defendants’ construction that these symbols are “represented to a computer by one unit of information.” Both definitions recognize that these symbols correspond to a specific unit of information within a computer system, often represented by a unique bit pattern. Plaintiff’s definition provides examples of ASCII codes, such as “the letter A is ASCII code 65, a carriage return is ASCII code 13.” This supports Defendants’ construction that each symbol is “represented to a computer by one unit of information.” ASCII codes are a standard way of representing characters as units of information in computer systems.

60. Therefore, in my opinion, when a person of ordinary skill in the art uses the term “character” in the context of UI design or computer science, the person is referring to a letter, number, punctuation mark, or other symbol that can be represented to a computer by one unit of information. The person of ordinary skill in the art would exclude cartoon characters and arbitrary images, which are more complex and cannot be represented by a single unit of information. This distinction is easily understood by a person of ordinary skill in the art of UI design and computer science.

61. In conclusion, in my opinion, a “character” should be construed as “a letter, number, punctuation mark, or other symbol or control code that is represented to a computer by one unit of information.” This definition aligns with the standard understanding in the field and helps differentiate a character from more complex graphical elements like cartoon characters and arbitrary images.

C. “the first group of video information being configured to allow a user to edit”
(’815 patent: claims 1, 9, 16, 21)

Defendants	Plaintiff
Indefinite	Plain and ordinary meaning

62. The meaning of the “configured to edit” limitation cannot be reasonably determined by a POSITA and is therefore indefinite. First, this limitation is oddly structured, and grammatically it is not even clear whether the group of video information or the video information is configured to edit something else, or whether the group of video information is itself to be edited. In context, it seems reasonably certain that the latter is intended, and I have assumed that this is the case for the purpose of my opinion.

63. Even with this understanding, the claim is ambiguous for two separate and independent reasons. First, this limitation is ambiguous because it is not clear what is “configured to edit”: an individual item of the “video information” in the group, or the group of video information itself, or both. In other words, with reference to Figure 6 of the ’815 patent, does the claim require that what is “configured to edit” be (i) an individual program 402 or a playlist 502 (each an item of video information), the (ii) the contents of the menu display tag 601 (a group of video information), or (iii) both of these possibilities? The patent does not provide the answer to this question to a POSITA.

64. The ’815 patent describes editing both individual items of program information and groups of program information. Editing an individual item of video information such as a playlist is discussed at, *e.g.*, 1:55-59: “the user can conduct editing work on the recording and reproducing device by rewriting the management information and generating and manipulating a list indicating the reproduction sequence (hereinafter referred to as a playlist) . . .” ; *see also*

1:63-2:27 (“user defined information for managing the playlist obtained by the user’s editing manipulation”).

65. Additionally, as discussed in detail in the PTAB’s Final Written Description in the *inter partes* review of an ancestor patent, the ’815 patent discloses storing only a single copy of a piece of video information. *See, e.g.*, IPR2018-01432, Paper 32, 12-13 (Ex. S); ’815 patent, 3:55-4:13 and Fig. 1 (showing only a single copy of Program #1-3 with multiple program information such as Program Information #2 and Program Information #2a pointing to a single copy of Program #2). A POSITA would therefore consider that creating playlists that identify one or more parts of one of the Programs #1-#3 in Fig. 1 arbitrarily specified by a user as discussed at 3:61-63 as a form of editing a program.

66. Modifying groups of video information, such as by adding and deleting items of video information 402, 502 from the group, is also disclosed in the ’815 patent at 6:21-28: “Reference numeral 601 designates a menu display tag for user #1 (who is supposed to be ‘mother’ here). As appreciated from Fig. 1, reference numerals 402 and 502 designate thumbnails indicating the program information #1 and the play list information #1, respectively. The “mother” can use the menu display tag for mother 601 as a folder dedicated to herself, and freely register and delete data to be reproduced.”

67. A POSITA would understand this passage to mean the group of video information in the menu display tag 601 can be modified by adding additional programs and playlists to the menu display tag 601, and by deleting programs and playlists from the menu display tag 601. A POSITA would further understand such modification of membership in the group of video information to constitute editing the group of video information.

68. Because editing of both individual items of video information and groups of video information are disclosed in the '815 patent, the scope of "the first group of video information being configured to allow a user to edit" is not clear to a POSITA.

69. I have been informed by counsel for Defendants that a rule known as the "doctrine of last antecedent," which courts have used to construe statutes, has sometimes been used to construe patent claim terms. My understanding is that this doctrine states that referential and qualifying words and phrases, where no contrary intention appears, refer solely to the last antecedent, which consists of the last word, phrase or clause that can be made an antecedent without impairing the meaning of the sentence for purposes of statutory construction. I have also been informed that this doctrine is more of a guideline than an absolute rule.

70. Applying the doctrine of last antecedent to this limitation would result in a construction that what the claim requires be "configured to allow a user to edit" is the "video information" – i.e., the individual items such as the program 402 and the playlists 502 of Fig. 6. This result is consistent with the '815 patent because it discloses editing video information as discussed above.

71. However, the ability to edit a group of video information is described as an object of the invention at 2:35-41: "An object of the present invention is to provide a recording scheme and device in which the user can conduct manipulation of arbitrarily rearranging the display sequence of the play lists in the play list catalog on the user interface."

72. It appears that "play list catalog" in this sentence refers to a group of playlists, and rearranging the display sequence appears to refer to the order in which the play lists will appear in the "menu display tag" and be "played." However, I am informed by counsel for Defendants that there is no rule that requires a claim to include every object of an invention, and the '815

patent lists another object of the invention at 2:48-51 that does not necessarily require such functionality.

73. The file history sheds no light on this issue. The “configured to edit” limitation was present in the as-filed claims in the application for the ’815 patent, and this limitation first appeared during prosecution of the parent, U.S. Pat. No. 10,679,674, where it was added in response to a rejection without any discussion as to where support in the specification could be found for the application, or whether (and if so how) this limitation distinguished the claims over the prior art. I also note that claim 1 of another ancestor patent, U.S. Pat. No. 10,199,072, recites “the [first/second] group of video data is displayed in a state that an order of the [first/second] group of thumbnails is editable,” which is limited to editing of the order in which the displays are listed in a group of video information such as that shown in Fig. 6. This language is narrower than the “configured to edit” language of claims 1 and 9 of the ’815 patent, but what scope the additional breadth is intended to encompass is not clear. Claim 1 of a still earlier ancestor patent, U.S. Pat. No. 8,644,684, recites “the video information or the playlist information associated with both of the first tags and the second tags are independently editable,” which is a different concept that is directed toward editing either video information or playlist information, but not groups of them. These various formulations of editing limitations do nothing to clarify the meaning of the “configured to edit” limitation here.

74. In light of the foregoing, a POSITA cannot be reasonably certain whether the “configured to edit” limitation requires that the video information itself be configured to edit, the group of video information be configured to edit, or both the group of video information and the individual items of video information in the group be configured to edit.

75. Second, and perhaps more fundamentally, it is not clear what being “configured to allow a user to edit” means with respect to either an individual item of video information or a group of video information. The concept of video information being configured to edit is distinct from the concept of a user interface configured to allow a user to edit such video information. The latter would be readily understood by a POSITA, but the former would not. Simply put, this poorly written term has no plain and ordinary meaning, and nothing in the specification of the ’815 patent sheds any light on this question.

76. The ’815 patent discloses receiving video information such as a television program and storing it as compressed digital information in a file. ’815 patent, Fig. 3. That file would necessarily be organized in some format that so that the “information processing apparatus” of claims 1 and 9 can reproduce it. For example, while the ’815 patent does not discuss any particular compression technique, a well-known technique for compressing video at the time of the ’815 patent was MPEG-2, which could be stored as an “.mpeg” file. However, what it means for such an MPEG file or any other file to be configured to allow a user to edit is not clear. A user can edit any video information whose format is known using, for example, a simple editor that can display data in binary or hexadecimal form. Nowhere does the ’815 patent indicate that any particular feature, arrangement, or other aspect of a compressed video file that renders it “configured to edit.”

77. Similarly, the ’815 patent discloses storing a playlist in the format shown in Fig. 9, but any playlist will necessarily have some format. And again, there is no discussion in the ’815 patent about what if anything about the format of the playlists in Fig. 9 renders those playlists “configured to edit.”

78. Without any plain meaning, and without any guidance in the specification, a POSITA cannot reasonably determine whether any video information or group of video information is “configured to allow a user edit.” Thus, this term is indefinite for this second reason.

D. “user profile”/“user profiles” (’815 Patent: claims 1, 9, 16, 17, 21, 23)

Defendants	Plaintiff
Indefinite	Plain and ordinary meaning

79. As I stated in my IPR declarations in IPR2024-00735 (Ex. 1003, para. 97-98) (Ex. T) and IPR2024-00777 (Ex. 1003, para. 97-98) (Ex. C), there is also no written description support for this term of claims 16- 21 in any of the four applications. “Profile” (let alone the claim term “user profile”) does not appear anywhere in the specification of these applications. This term was first added during prosecution in an amendment on January 9, 2020, nearly 15 years after the filing of the first application to which the ’815 application claims priority. File History of U.S. Pat. No. 10,679,674, 56. While the ’815 patent discusses terms such as “Mother” and “Father” that appear on the file tabs in Figs. 6 and 7, these terms are simply usernames, and a POSITA would understand a profile to include more than a username. Additionally, claim 16 recites “a first user profile associated with a first character” and further recites “the first group of video information associated with the first user profile.” ’815 patent, 12:1-2 and 12:27-28. Thus, the first user profile, whatever it may be, must be something more and different from both the “first character” and the identity of the videos associated with the “first character.” To find otherwise renders the “user profile” limitations superfluous, and I am informed by counsel for Defendants that constructions that render claim terms superfluous are disfavored. There is no written description support for the term “user profile(s)” of claims 16 and 21.

80. This lack of support becomes even more apparent when the definitions of “user profile” from various authoritative dictionaries are considered. Various dictionary definitions of “user profile” support the conclusion that the term is indefinite.

81. The American Heritage Dictionary (4th ed. 2000) (Ex. U) (SAM-MAX-00327341) defines “profile” as a “formal summary of analysis of data, often in the form of a graph or table, representing distinctive features or characteristics.” This suggests that a “user profile” should be a comprehensive representation of a user’s distinctive features or characteristics, which goes beyond just a username or a character.

82. The Microsoft Computer Dictionary (5th ed. 2002) (Ex. V) (MAXELL_SAMSUNG_0112359) defines “user profile” as a “computer-based record maintained about an authorized user of a multi-user computer system”, which can contain information such as the person’s access restrictions, mailbox location, type of terminal, and so on. This definition further emphasizes that a “user profile” is a comprehensive record of a user’s information and settings.

83. The Wiley Electrical and Electronics Engineering Dictionary (2004) (Ex. M) (SAM-MAX-00327355 at SAM-MAX-00327359) defines “user profile” as “a set of preferences, settings, authorizations, email addresses, and the like, which is stored for each user of a multi-user system.” This definition underscores that a “user profile” is a collection of various data points related to a user, including their preferences, settings, authorizations, and email addresses.

84. In fact, all of the extrinsic evidence that Plaintiff cites, rather than contradicting Defendants’ position, actually supports it. This is because every definition or information of “user profile” that Plaintiff references includes more than just a username or a character. It

encompasses a wide range of information about a user, further underscoring the lack of written description support for such a comprehensive concept in the applications.

85. Given these definitions, it is clear that the term “user profile” encompasses a wide range of information about a user, not just a username or a character. However, the specification of the applications does not provide any written description support for such a comprehensive concept. This lack of support could render claims 16 and 21 invalid for lack of written description.