UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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TCL Electronics Holdings Ltd.
(f/k/a TCL Multimedia Technology Holdings, Ltd.)

Petitioner,

v.

MAXELL, LTD.

Patent Owner.

_____

Case No. IPR2025-00134

U.S. Patent No. 10,650,780

Title: Display apparatus

Petition for *Inter Partes* Review of U.S. Patent No. 10,650,780
Under U.S.C. §§ 311-319 and 37 C.F.R. §§ 42.1-.8, 42.100-.123

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EXHIBIT LIST

Exhibit No.	Document Description
EX1001	United States Patent 10,650,780
EX1002	Prosecution History of United States Patent 10,650,780
EX1003	Declaration of Andrew Wolfe
EX1004	U.S. Patent Application Publication No. 2008/0165081 ("Lawther")
EX1005	The JPEG Still Picture Compression Standard, Gregory K. Wallace
EX1006	Curriculum Vitae of Andrew Wolfe
EX1007	***Intentionally Omitted***
EX1008	USB 1.1
EX1009	Universal Serial Bus Still Image Capture Device Definition
EX1010	PHOTOGRAPHIC AND IMAGING MANUFACTURERS ASSOCIATION, INC. PIMA 15740:2000 Standard
EX1011	How JPEG, released in 1992 gained Emmy fame in 2019
EX1012	***Intentionally Omitted***
EX1013	***Intentionally Omitted***
EX1014	The HDMI Specification 1.1

EX1015	A/53: Advanced Television Systems Committee, Inc.'s Digital Television Standard

I. INTRODUCTION

Petitioner respectfully requests that the Board institute *inter partes* review of claims 1-11, 13, and 15-20 of U.S. Patent No. 10,650,780 ("the '780 Patent"). EX1001.

The '780 Patent is directed to a technique for displaying picture information from an image apparatus (e.g., a digital camera) connected to a display apparatus (e.g., a television) through a Universal Serial Bus (USB) port and over the wireless local area network (LAN). The alleged novelty of this patent over prior art references lies in its method for displaying a slide show on the display apparatus using still pictures from the image apparatus, such as a digital camera. This method involves both wired (i.e., USB) and wireless connections (i.e., LAN) for transmitting and receiving still pictures from an image apparatus, which are then resized and displayed as a slide show on a display apparatus. In some embodiments, the '780 Patent also includes the use of wireless LAN interface circuitry for Internet connectivity and receiving Internet content. This disclosed approach allegedly enables a seamless and flexible method for presenting digital images on a display apparatus, such as a television, enhancing user experience by incorporating both wired and wireless data transmission.

Similarly, prior art reference Lawther, as discussed in detail below, also discloses methods of presenting digital images from an external device, such as a

digital camera, on one or more displays, including displaying a slide show of digital images on the display through a USB port and over the wireless LAN. It specifically deals with solving issues related to arranging multiple digital media frames (i.e., multiple displays) to create visually continuous and thematically connected displaying contents. Further, although Lawther does not explicitly disclose a compressed image format, the person of ordinary skill in the art (POSITA) would have readily understood and appreciated that any number of prior art compressed image formats would have been used in the Lawther invention. The petition ground is supported by the expert declaration of Dr. Andrew Wolfe. EX1003.

Thus, and for reasons explained in more detail below, Petitioner respectfully requests that the Board institute *inter partes* review of the challenged claims and find them unpatentable under 35 U.S.C. § 103 (Pre-AIA).

II. MANDATORY NOTICES

A. Real Parties-in-Interest (37 C.F.R. § 42.8(b)(1))

In addition to the Petitioner, the real parties-in-interest for this proceeding are TCL Industries Holdings Co., Ltd.; T.C.L. Industries Holdings (H.K.) Limited; TTE Corporation; TCL Moka International Limited; TCL Moka Manufacturing S.A. De C.V.; TCL King Electrical Appliances (Huizhou) Co., Ltd.; Manufacturas Avanzadas S.A. De C.V.; TCL Smart Device (Vietnam) Co., Ltd.; Shenzhen TCL New Technology Co., Ltd.; TCL Optoelectronics Technology (Huizhou) Co., Ltd.;

TCL Overseas Marketing Ltd.; TCL Technology Group Corporation (F/K/A TCL Corp.)

B. Related Matters (37 C.F.R. § 42.8(b)(2))

The '780 Patent was filed on September 20, 2019, claiming priority to application No. 16/424,804, filed May 29, 2019 which is a continuation of application No. 16/021,246, filed on Jun. 28, 2018, now U.S. No. 10,339,893, which is a continuation of application No. 15/287,403, filed on Oct. 6, 2016, now U.S. No. 10,037,744, which is a continuation of application No. 14/941,666, filed on Nov. 16, 2015, now U.S. No. 9,858,888, which is a continuation of application No. 14/521,282, filed on Oct. 22, 2014, now U.S. No. 9,218,783, which is a continuation of application No. 13/868,840, filed on Apr. 23, 2013, now U.S. No. 8,908,095, which is a continuation of application No. 12/252,422, filed on Oct. 16, 2008, now U.S. No. 8,446,528. Pre-AIA 35 U.S.C. §§ 102-13 governs this patent. All references asserted herein are pursuant to pre-AIA statutes. See MPEP § 21.59.01; Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284, 293 § 3(n)(1) (2011).

Petitioner is contemporaneously filing Petitions for *Inter Partes* Review of U.S. Patent No. 10,375,341 (IPR2025-00120) and U.S. Patent No. 10,219,020 (IPR2025-00135). Other than this proceeding, Petitioner is not aware of any other *inter partes* review petition regarding the '020 Patent.

The '780 Patent is presently the subject of a patent infringement lawsuit filed against Petitioner in the United States District Court for the Eastern District of Texas (Texarkana Division). *Maxell, Ltd. v. TCL Electronics Holdings Ltd., et al*., Case No. 5:23-cv-00108-RWS-JBB. This is the first case in which the '780 Patent was litigated. However, a patent in the chain of priority of '780 Patent, U.S. Patent No. 10,339,893 (the '893 patent), was involved in prior litigation. Maxell asserted the '893 patent against Hisense in the Eastern District of Texas in Case No. 5:19-cv-00156 and against Vizio in the Central District of California in Case No. 2:21-cv-06758. The '780 Patent has not been subjected to post-grant review by the Patent Trial & Appeal Board.

C. Lead and Back-Up Counsel (37 C.F.R. § 42.8(b)(3))

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D. Service Information (37 C.F.R. § 42.8(b)(4))

Please address all correspondence to lead counsel and back-up counsel at the addresses shown above. Petitioner consents to electronic service by email.

III. STANDING

Petitioner certifies that the '780 Patent is available for *inter partes* review and Petitioner is not barred or estoppel from seeking *inter partes* review. Petitioner files this Petition within one year of service of the complaint filed by Patent Owner against Petitioner in the related district court litigation.

IV. PRECISE RELIEF REQUESTED FOR EACH CHALLENGED CLAIM

Under 35 U.S.C. § 311, Petitioner requests review of and cancellation of Claims 1-11, 13, and 15-20 of the '780 Patent. These claims are unpatentable in view of the following prior art and Ground:

Prior Art Reference	
Ref. 1:	U.S. Patent Application Publication No. 2008/0165081 ("Lawther") (EX1004).

GROUNDS			
Ground	Challenged Claims	Asserted Prior Art	Statutory Grounds
1	1-11, 13, and 15-20	Lawther in view of the knowledge of the POSITA	Pre-AIA 35 U.S.C. § 103

V. GROUNDS OF UNPATENTABILITY ON PRIOR ART REFERENCES NOT APPLIED DURING PROSECUTION

Petitioner has not challenged the '780 Patent's claims in any prior AIA trial. Lawther is not included amongst the references listed on the face of the '780 Patent. Lawther was not applied by the Examiner during prosecution of the '780 Patent. Further, the Examiner did not have access to the expert analysis of Dr. Wolfe.

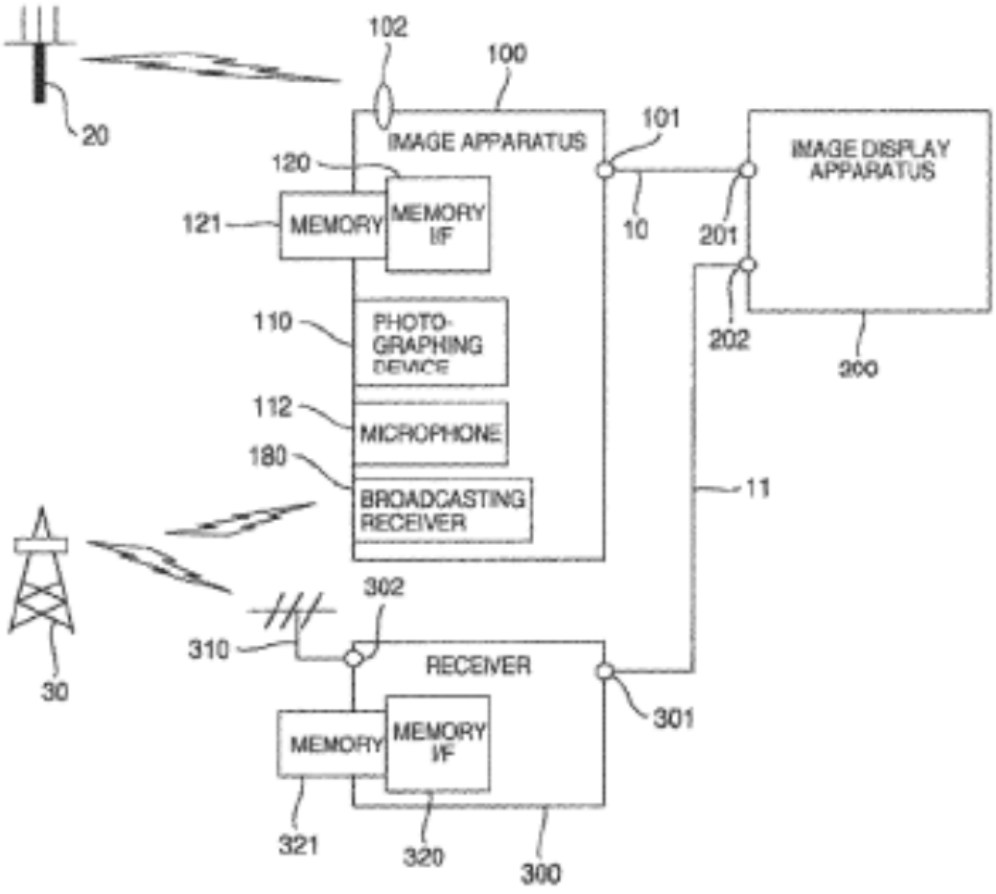
VI. THE '780 PATENT

A. Overview

The '780 Patent is generally directed to an image display apparatus (e.g., a television, a monitor, etc.) that transmits a picture acquisition request to an external portable image apparatus (e.g., a digital camera, video camera, mobile telephone, game machine, personal media player, etc.), receives picture information from the external portable image apparatus, and displays pictures in a slide show manner. EX1001, Abstract. More specifically, it describes an image display apparatus that displays a slide show of images "at predetermined time intervals" "based on an operation on the input device of the image display apparatus for conducting a slide show." *Id*, at 2:12-26. In some embodiments, the image display apparatus, such as a television, may include a USB interface circuitry and wireless LAN interface circuitry for communicating information between the image display apparatus itself and a portable image apparatus, such as a digital camera, as described in the

FIG. 1 as reproduced below. *Id*, at 3:29-4:4. For example, the operation may cause a first signal to be transmitted from the USB interface circuitry while a second signal to be transmitted from the wireless LAN interface circuitry to the digital camera. *Id*, at 10:35-11:47. In response, the digital camera may output, over the respective interfaces, compressed image information, which is decoded by a decoder of the television. *Id*, at 15:56-16:25. It should be noticed that the image apparatus is specifically claimed as digital cameras in the asserted claim 1 of the '780 Patent. *Id*, claim 1. See generally EX1003, ¶42.

FIG.1



EX1001, FIG. 1

In its asserted dependent claims, the '780 Patent discloses that the predetermined time intervals for the slide show may be changed by an operation on the input device (e.g., a remote controller) of the image display apparatus (e.g., a television). *Id*, claims 2 and 3. The '780 Patent also discloses that the image information received by the USB interface and the wireless LAN interface circuitry from the digital camera may be compressed in JPEG format. *Id*, claim 4. Such

claimed combination(s) would have been an obvious combination of prior art elements according to known methods to yield predictable results and well within the scope of capability of a POSITA. EX1003, ¶43.

In summary, the '780 Patent discusses a general idea of improving user convenience by allowing display of images from portable devices on larger screens through both USB and wireless LAN connections. EX1003, ¶43. In some embodiments, displaying images on the display apparatus may be accomplished by decoding and resizing compressed still pictures received from the image apparatus and presenting them in a slideshow format at predetermined intervals. EX1003, ¶44.

B. The Prosecution History

Applicant filed the application from which the '780 Patent issued on September 20, 2019, and the Examiner then issued a Notice of Allowance on November 4, 2019. EX1002. The Applicant submitted additional references for consideration and a Request for Continued Examination (RCE) on December 12, 2019. *Id*. Merely 28 days (including the holidays therebetween) after the RCE was requested, the Examiner issued a second Notice of Allowance, by re-using the same discussion of prior art that the Examiner had included in other Notice of Allowances for previous patents in the same patent family, including the Notice Allowance issued on November 4, 2019. *Id*. Although additional prior art was

submitted in the RCE, the Examiner did not mention these additional references. *Id*.

The '780 Patent was the sixth in a series of continuation patents allowed by the same Examiner. *Id*. The '780 Patent claims a priority date of October 17, 2007, and Petitioner assumes that date is correct for purposes of this Petition. The '780 Patent, like many of its ancestor patents, was allowed without any discussion of the prior art. *Id*. Further, the Examiner did not have the Lawther reference during the prosecution of the '780 Patent. Thus, the Board should institute this request for *inter partes* review of the '780 Patent to evaluate the patentability of the challenged claims in light of the previously unapplied Lawther reference.

VII. THE LEVEL OF ORDINARY SKILL IN THE ART

The person of ordinary skill in the art ("POSITA") with respect to this patent would have an educational background, such as a Bachelor of Science degree, in Electrical Engineering or Computer Engineering, as well as some understanding of wireless and serial protocols and image compression. Additionally, a POSITA would have 2 years of practical experience in consumer electronic product development. Additional practical or work experience could result in a lower level of education being necessary, and vice versa. EX1003, ¶48.

VIII. CLAIM CONSTRUCTION

Claims only need to be construed to resolve a controversy. *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017). During claim construction in the parallel district court proceeding, *Maxell, Ltd. v. TCL Elecs. Holdings Ltd.*, 5:23-cv-00108-RWS-JBB, the parties adopted the Court's tentative construction of *image information* and *the display screen displays a slide show at predetermined time intervals with the [first/second] still pictures, as the [first/second] images, based on the decoded [first/second] image information obtained by the decoder* ("the Displaying term"). The Court construed *image information* to mean "information describing the pixels that make up an image" and construed the Displaying term in accordance with its own language (e.g., plain and ordinary). The discussion that follows applies these constructions.

Here, no terms require express construction because the patent claims encompass the below prior-art mappings under any construction consistent with the *Phillips* standard. Further, the ordinary and customary meaning of the challenged claims' terms would be readily understood by the POSITA. The claims should be given "their ordinary and customary meaning" as understood by a POSITA at the time of the claimed invention. *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005); EX1003, ¶51.

This interpretation is applicable to the *inter partes* review sought herein and should not be construed as constituting, in whole or in part, Petitioner's interpretation for any other purposes, including any litigation. Accordingly, for purposes of this *inter partes* review, Petitioner proposes that each claim term in the Challenged Claims be given its plain and ordinary meaning. The prior art cited in this Petition meets each of the claim terms under any reasonable construction.

IX. BACKGROUND OF THE ART

A basic description of the background of the digital display industry and technologies is set forth in the Declaration of Andrew Wolfe. EX1003, ¶¶32–40.

X. DESCRIPTION OF THE ASSERTED PRIOR ART

A. Lawther (EX1004)

Lawther was filed on January 5, 2007, and published on July 10, 2008, therefore it is prior art at least under 35 U.S.C. § 102(e). EX. 1004. Lawther was filed by Eastman Kodak Company and currently assigned to Kodak Alaris Inc,

focusing on the digital display systems, particularly focusing on controlling multiple pixelated displays to show digital images within a presentation area. *Id,* Abstract. It emphasizes improving how clusters of inexpensive displays, such as LCDs, OLEDs, and plasmas, are arranged and managed to create seamless or thematic visual experiences for various applications, including personal media viewing and immersive gaming. *Id,* at [0003]-[0004]. The application outlines a method for managing visual content across these displays interactively and semantically, enhancing user interaction with multimedia content. *Id,* at [0215]. It also introduces a system setup for organizing digital media frames in an aesthetic and functional array, facilitating dynamic content presentation across multiple frames, and considers environmental factors through sensors to adjust display properties. *Id,* at [0063]. This approach addresses shortcomings in prior art references by offering a more engaging and versatile way to manage and display digital images over multiple screens. *Id,* at [0007]-[0011]. More specifically, Lawther discloses an innovative approach of managing and displaying digital content across multiple display devices, such as digital media frames, in a visually contiguous or semantically meaningful array. *Id.* Unlike prior systems that are limited to fixed patterns or single display presentations, this invention allows for dynamic arrangement and management of content across various display formats and resolutions. *Id.* It uniquely supports presenting content in sequences, forms, or

formats that capitalize on user-selected arrangements of digital picture frames, facilitating aesthetically pleasing, contextually relevant, and storytelling applications without user intervention. *Id.* This system significantly enhances the user's ability to create personalized, interactive, and immersive display environments. *Id.*

Particularly, in its background section, Lawther discloses that displaying a slide show of images on a single display was well-known in the art and commonly used before the '780 Patent ("Furthermore digital 'transitions' used in movies and digital slide shows are designed to be viewed on a single display and indicate transitions from one digital multimedia content element to the next. They can include an almost unlimited variety of digital effects that 'temporally blend' the two sequential content elements so that the first content element disappears, and the second content element appears."). *Id*, at [0010].

FIG. 1 of Lawther as reproduced below illustrates an embodiment of a connection between external devices 100 and a digital media frame (DMF) 102. The DMF 102 may include a display unit and control system that allows a user to display at least one digital image with minimal user intervention. *Id*, at [0041]-[0042]. In FIG. 1, DMF 102 (i.e., an image display apparatus) is illustrated as being connected to a camera 110 via a cable connector 114 (i.e., a USB connector)

and an Internet connector 116 (i.e., a wireless LAN connector), which is very similar to the '780 Patent. *Id*; EX1003¶56.

Further, FIG. 2 of Lawther as reproduced below illustrates a block diagram of one embodiment of DMF 102 (i.e., an image display apparatus). EX. 1004, at [0048]- [0065]. In the illustrated embodiment, DMF 102 has an external device 202, an interface circuit 204 (i.e., a USB interface circuit and/or a wireless LAN interface circuit), a processing circuit 206, memory 208, a display controller 210, a display device 212, a user input system 214, optional sensors 216, and an audio system 218, which is also very similar to the '780 Patent. *Id*; EX1003, ¶57.

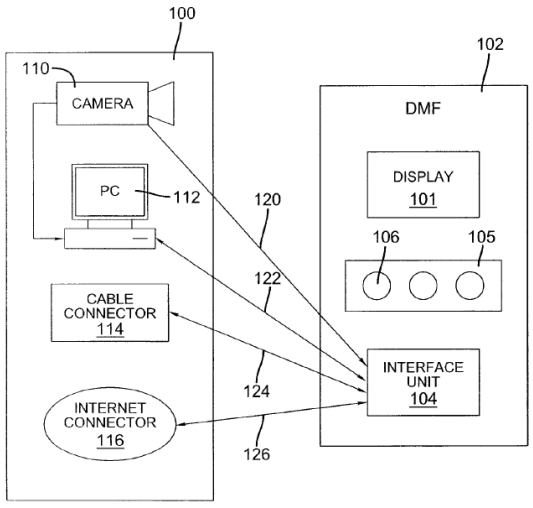


FIG. 1

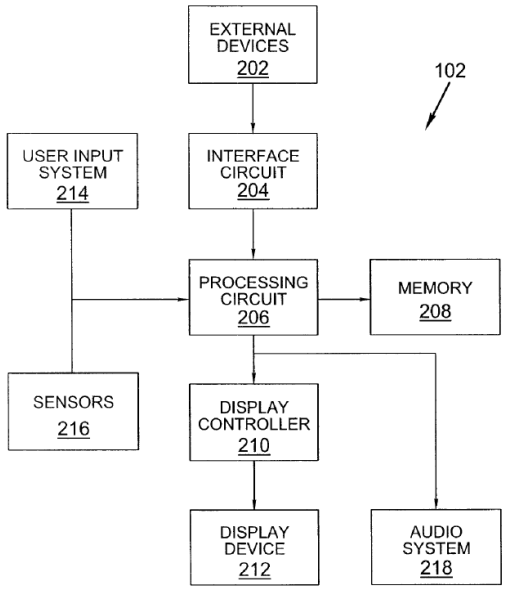


FIG. 2

Lawther also describes displaying a slide show of images on an image display apparatus "at predetermined time intervals," "based on an operation on the

input device of the image display apparatus for conducting a slide show" as claimed by the '780 Patent as discussed below. EX1003, ¶58; EX1004, at [0043], [0057], [0059], [0077], [0081], [0091], [0093].

In addition, Lawther also discloses that the image display apparatus may include processor(s) configured for different functions. EX1004, at [0075]. Specifically, Lawther teaches that a "processing circuit 206 generally controls the operation of DMF 300 which can involve to performing functions including image size scaling, color space conversion, image filtering, image decoding, image data compression/decompression, and so on." *Id*. EX1003, ¶59.

In summary, Lawther teaches the exact same operation flow, as discussed in the '780 Patent, of sending a request for image information from an external portable image apparatus (e.g., a digital camera), receiving the image information from the external portable image apparatus, decoding the image information, and displaying the image information on a display apparatus (e.g., a television) in a controlled manner (e.g., in a slide show manner). EX 1003, ¶60. For example, Lawther discusses that "[i]nterface circuit 204 enables digital media frame 20 to **receive** input data from external devices 202 and can optionally be used to **send** data to external devices 202. External devices 202 can comprise but are not limited to **digital still cameras**…. As will be discussed in greater detail below, interface unit 204 can also be adapted to **communicate with** one or more other types of

external devices including other DMFs and/or **a remote control**." EX1004, at [0049] (emphases added).

XI. DETAILED ANALYSIS OF GROUNDS

A. Ground 1: Claims 11, 13, and 15-20 Would Have Been Obvious to a POSITA in View of Lawther

1. Summary of Ground 1

Lawther either discloses or renders obvious each and every element of the challenged claims under Pre-AIA 35 U.S.C. § 103.

B. Lawther Discloses or Renders Obvious All Elements of Challenged Claims Under Ground 1

1. Independent Claim 1

i. Preamble: *"An image display apparatus, comprising:"*

The preamble to claim 1 is not limiting because claim 1's body defines a "structurally complete invention," and the preamble does not recite essential structure, nor is the preamble "necessary to give life, meaning, and vitality" to the claim. *Catalina Mktg. Int'l v. Coolsavings.com, Inc.*, 289 F.3d 801, 809 (Fed. Cir. 2002). EX1003, ¶62.

If the preamble is a limitation, Lawther teaches an image display apparatus. EX1003, ¶62; EX1004, at [0002], [0008], [0011], [0012], [0039], FIGS. 1, 2, 4 and claim 1. For example, Lawther indicates that the application relates to "display systems and methods for controlling display systems that use more than one pixilated display to display digital images to a presentation area" in its section of

field of the invention. EX1004, at [0002]. Further, FIG. 4 of Lawther as reproduced below clearly illustrates an image display apparatus 400 with a display unit 402 and an input system 410 including a plurality of control buttons. EX1003, ¶62.

Thus, Lawther discloses this preamble if the preamble is a limitation. EX1003, ¶63.

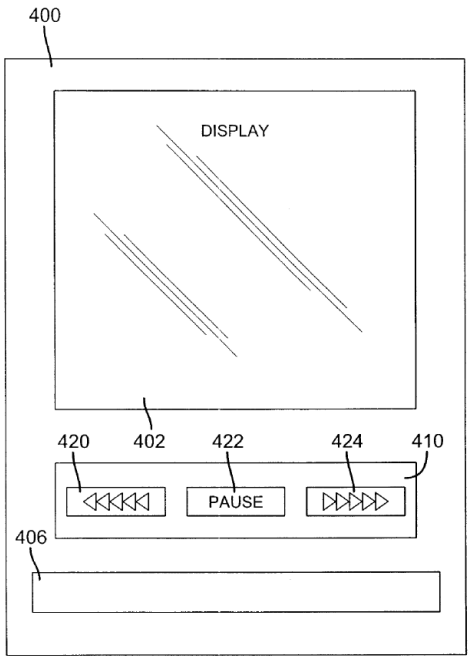


FIG. 4

ii. Element 1[A]: "Universal Serial Bus (USB) interface circuitry configured to receive compressed first image information from a digital camera over a USB cable;"

Lawther teaches a USB interface circuitry configured to receive image information from an external source (such as a digital camera) over a USB cable.

EX1003, ¶64, EX1004, at [0041], [0042], [0044], [0046], [0068]. For example, Lawther teaches" [i]n one embodiment, the digital receiver circuit may include a universal serial bus ("USB") port for receiving digital data from the interface block 314. Upon receipt of the digital data, the translation circuit determines whether a translation of the data is needed." EX1004, at [0068]; EX1003, ¶64.

To the extent that Lawther does not teach "compressed first image information", compressed images were well-known to the POSITA and commonly used by digital cameras and devices for displaying images taken by such digital cameras. EX1003, ¶65. The compressed image can be information describing the pixels that make up an image. EX1003, ¶65. In other words, the images may be received in encoded forms and are translated from pixel images to the images themselves. EX1003, ¶65. Indeed, even the '780 Patent admits in the background of the invention that compression techniques were a known requirement to protect the images from "deterioration in picture quality and protection of copyright." ("[i]n order to connect an image apparatus with an image display apparatus which is another image apparatus to make viewing and listening of picture, a method using analog connection to transmit picture and audio signals is used. However, with the spread of digital apparatuses, a method using digital connection to encrypt picture and audio signals to be transmitted is used from the viewpoint of prevention of deterioration in picture quality and protection of copyright.").

EX1001, 1:30-37. EX1003, ¶65; EX1004. For example, the JPEG standard (ISO/IEC 10918) (ISO/IEC 10918) had been known in the art since 1992. It would have been within the general knowledge of a POSITA that the JPEG standard is a "method for continuous-tone image compression." EX1003, ¶65, EX1005[1], p. 2 of 17. The JPEG standard (ISO/IEC 10918) recognizes that "there is no requirement that implementations must include both an encoder and a decoder. Many applications will have systems or devices which require only one or the other." EX1005, p. 3 of 17. JPEG recognized as early as 1992 that "many applications are 'stuck' … because of argument over which (nonstandard) compression method to use." EX1003, ¶65, EX1005, p. 15 of 17. Accordingly, JPEG yields "an approved international standard that will withstand the test of quality and time." *Id.* Indeed, JPEG was widely adopted. EX1003, ¶65. A POSITA would have desired to implement the ability to receive compressed JPEG-format images into the Lawther reference system, because it would have allowed the Lawther reference system to display images of a common, standard image compression method. EX1003, ¶65. Without the ability to receive and display compressed JPEG-format images, the Lawther reference system would have been one of the "stuck" applications described in the JPEG standard (ISO/IEC 10918). EX1003, ¶65.

[1] Exhibit 1005, the paper by Gregory K. Wallace entitled "The JPEG Still Picture Compression Standard," was published in February 1992 in volume 38, no. 1 of the IEEE Transactions on Consumer Electronics, and was thus available to the public as of February 1992.

Implementing the ability to receive compressed images would have also been desirable because it would allow the Lawther system to receive more visual information data at a higher rate of speed. Compressed images are a method of transferring more visual information in a smaller space than uncompressed images. EX1003, ¶66. A POSITA would have understood that by using compressed images, the Lawther reference system could put more visual information into a smaller space. EX1003, ¶66. A POSITA would have recognized this as an advantage because users could upload more pictures (or higher quality pictures) in less time. EX1003, ¶66. Indeed, at the time almost every digital camera used the JPEG standard. EX1003, ¶66.

Moreover, it would have been straightforward and predictable to implement the ability to receive compressed JPEG-format images in the Lawther reference system. EX1003, ¶66. First, as explained in the JPEG standard (ISO/IEC 10918), it is proper for implementations to include *only* a decoder. EX1003, ¶66. Thus, a POSITA would have understood that it is possible to implement a JPEG decoder in the Lawther reference to receive JPEG-format compressed image information. EX1003, ¶66. Accordingly, including the ability to decode JPEG images in Lawther would not have required removal of anything from Lawther or any other fundamental change that would remove functionality from Lawther. EX1003, ¶66. Second, a POSITA would have understood that it the Lawther reference discloses

various sources of image information. Lawther at [0068]. EX1003, ¶66. Thus, because the Lawther reference system already contains the components necessary to accommodate a wide variety of image sources, a POSITA would have understood that the Lawther reference system is readily capable of implementing the JPEG standard (ISO/IEC 10918) and would have desired to implement it for the reasons stated above. EX1003, ¶66.

Thus, implementing the ability to receive compressed JPEG-format images would have been obvious at least because it would combine prior art elements according to known methods to yield predictable results (i.e., inserting the known JPEG compression decoder in order to display JPEG compressed images) and/or uses a known technique to improve similar devices and methods in the same way. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 415-421 (2007). EX1003, ¶66.

Thus, Lawther renders this element 1[A] obvious. EX1003, ¶66.

iii. Element 1[B]: "wireless LAN interface circuitry configured to wirelessly receive compressed second image information from the digital camera over a network;"

Lawther teaches a wireless LAN interface circuitry configured to receive image information from an external source (such as a digital camera) over a network. EX1003, ¶70; EX1004, at [0041], [0042], [0044], [0046], [0047], [0068], [0071]. For example, Lawther teaches that its "digital picture frames can receive multimedia content wirelessly" and "the camera 110 can directly transfer the

captured image to the DMF using conventional transmission media, such as, for example, wireless, cable, or removable media." EX1004, at [0008] and [0044]; EX1003, ¶69. Further, Lawther discloses:

> "[w]ireless input circuit 305 comprises circuits and systems that enable DMF 20 to communicate with external devices 40 using wireless communication protocols. For example, wireless input circuit 305 can cooperate with wireless module 315 to provide circuits and systems that communicate in ways that that conform to wireless communication standards such as the so-called "Wi-Fi" standards established and described at Institute of Electrical and Electronic Engineers standards 802.11a, 802.11b, 102.11g and 802.11n, the so-called "Bluetooth" wireless standard including Version 1.2, adopted November, 2003 by the Bluetooth Special Interest Group, Bellevue, Wash., U.SA, or Version 2.0+Enhanced Data Rate (EDR), adopted November, 2004 by the same or any other such wireless communication standard developed by the Institute of Electrical and Electronic Engineers, the Bluetooth SIG or others in this field." *Id*, at [0071].

Further, it would have been obvious to the POSITA from the disclosure of Lawther to include both USB and wireless LAN connectivity capability in the same digital camera. Lawther describes both types of connections, as explained above, and the POSITA would have understood that a system such as Lawther's would include a digital camera capable of both wired (USB) and wireless connections because that would expand the camera's ability to connect to other devices. EX1003, ¶69.

To the extent that Lawther does not explicitly teach "compressed second image information," compressed images were well-known in the art and commonly used by digital cameras and devices for displaying images taken by such digital

cameras as illustrated in the discussion concerning the JPEG standard in the immediately preceding section. EX1003, ¶70.

Accordingly, Lawther renders this element 1[B] obvious. EX1003, ¶70.

iv. Element 1[C]: "a decoder configured to decode the compressed first image information received by the USB interface circuitry or the compressed second image information received by the wireless LAN interface circuitry; and"

Lawther teaches "a decoder configured to decode the compressed first image information received by the USB interface circuitry or the compressed second image information received by the wireless LAN interface circuitry". EX1003, ¶71; EX1004, at [0041], [0050], [0051], [0053], [0075]. For example, Lawther discloses "interface circuit 204 can simply provide appropriate structures to receive and make use of the properly formatted digital data." EX1004, at [0050]. Lawther further teaches that the interface circuit 204 can be adapted to exchange data with connected external devices 202 "using optical signals, radio frequency signals or other forms of signals that are specially adapted for data exchange using particular wireless or wired communication systems or standards." *Id.* Lawther teaches decoding compressed image information by teaching a "processing circuit 206 [that] is adapted to analyze data received from interface circuit 204 to determine whether the data comprises instructions, a digital image or other data and to determine appropriate steps for processing such data." *Id*, at [0053]. Lawther

further discloses that the "[p]rocessing circuit 206 can be adapted to edit, compress, modify or otherwise process and in this regard can be programmed for such use or can incorporate specific circuits such as signal processing circuits for this purpose." *Id*. The disclosed "processing circuit 206 generally controls the operation of DMF 300 which can involve to performing functions including image size scaling, color space conversion, image filtering, **image decoding**, **image data compression/decompression**, and so on." *Id*, at [0075] (emphases added); EX1003, ¶71.

To the extent that a decoder is not explicitly disclosed, the POSITA would have understood that a decoder is an inherent component of the Lawther reference. EX1003, ¶72. The Lawther reference discloses a DMF that can receive digital images. Lawther specifies that it receives data from other devices such as "scanners, Internet servers, or cameras 110." EX1003, ¶72; EX1004, at [0045]. Lawther explains that this data can arrive in various "type[s] of protocol[s] or data format[s] being used to encode the signal." EX1003, ¶72; EX1004, at [0051]. Thus, Lawther explains, "[t]he need for a conversion of received data is determined if DMF 102 is unable to make use of the data contained in a received signal in the form that the signal is received in." *Id*. To accomplish said conversion, Lawther discloses "interface circuit 204 [that] can provide signals to processing circuit 206 enabling control circuit to can [sic] perform an appropriate

conversion of the data into a data format that can be used by DMF 102." *Id*. EX1003, ¶72.

A POSITA reading Lawther would have understood that a control circuit capable of performing an appropriate conversion of the data into a data format that can be used is also known as a decoder. EX1003, ¶73. Since Lawther teaches receiving encoded digital data, the display device discussed in Lawther must have a decoder in order to decode and display the image information. EX1003, ¶73. For example, FIG. 3 reproduced below illustrates a detailed architecture of one embodiment of a DMF 300 (e.g., a television) with an interface block 301, a processing block 310 and a displaying block 340. EX1004, at [0066]. By reading Lawther, a POSITA would have known that the processing unit 320 must include a decoder. EX1003, ¶73. A decoder is a device used to read an encoded signal (and potentially convert it to a different type of signal). EX1003, ¶73. Therefore, a POSITA reading Lawther would have understood that Lawther at least suggests a decoder configured to decode image information received by the USB and LAN circuitry disclosed. EX1003, ¶73. However, to the extent devices other than decoders capable of reading encoded messages existed at the time of the '780 Patent, using a decoder would have been an obvious design choice among a list of finite options because it was the most common at the time. EX1003, ¶73.

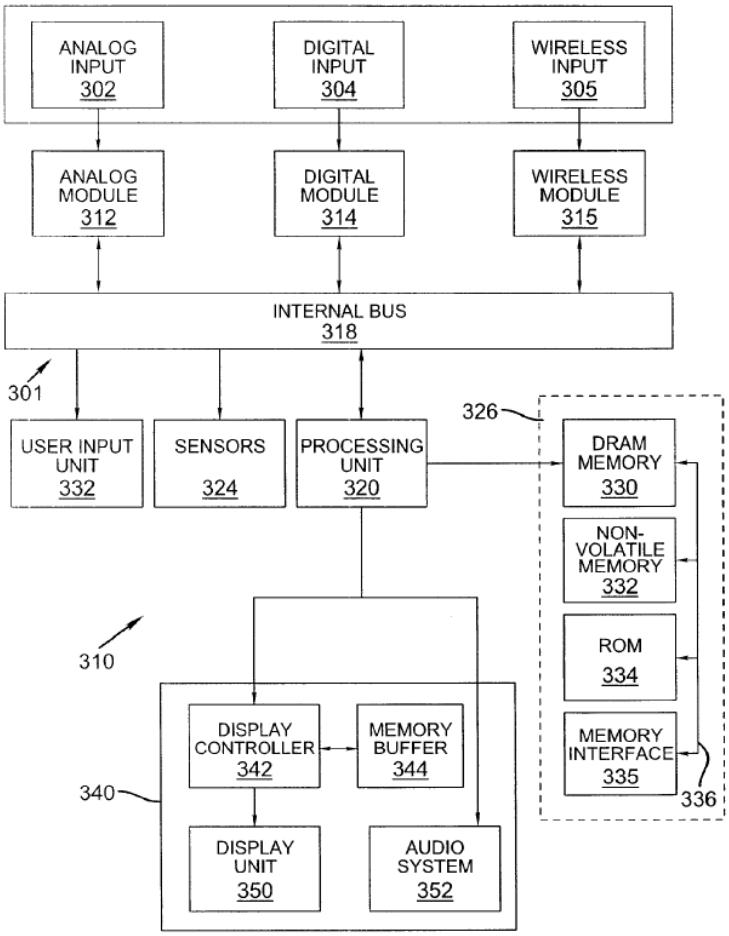


FIG. 3

Thus, Lawther renders this element 1[C] obvious. EX1003, ¶73.

v. Element 1[D]: "a display screen configured to display at least one of first images based on decoded the first image information and second images decoded the second information obtained by the decoder,"

Lawther teaches "a display screen configured to display at least one of first images based on decoded the first image information and second images decoded the second information obtained by the decoder". EX1003, ¶74; EX1004, at [0041], [0052], [0061]. For example, Lawther discloses:

> "[a] digital media frame (DMF) has a display unit and control system that allows a user to display at least one digital image with minimal user intervention. The DMF is capable of receiving digital images from various external input devices, such as, digital cameras, video cameras, computers, telephone lines, television cables, and Internet servers or other types of networks and in certain embodiments the DMF optionally can be made to capture digital images. Upon obtaining digital images, the DMF can generate auxiliary information relating to each digital image and store the digital images together with the auxiliary information in a memory. The DMF, subsequently retrieves the digital images from the memory with the auxiliary information and displays the digital images on a display." EX1004, at [0041].

As discussed in the immediately preceding section, a POSITA reading Lawther would have understood that Lawther discloses a display screen configured to display at least one of images based on a first and/or a second image information decoded by a decoder. EX1003, ¶75.

Thus, Lawther renders this element 1[D] obvious. EX1003, ¶75.

vi. Element 1[E]: "wherein if displaying the first images on the display screen, based on an operation on the input device of the image display apparatus for conducting a slide show,"

Lawther teaches "wherein if displaying the first images on the display screen, based on an operation on the input device of the image display apparatus for conducting a slide show". EX1003, ¶76; EX1004, at [0043], [0057], [0059], [0077], [0081], [0091], [0093]. For example, Lawther discloses "processing circuit 206 is configured to determine a manner for presenting images, a sequence images, video streams and other visual content on display unit 350." EX1004, at [0077].

Lawther further teaches that "[t]his can involve, for example, determining time intervals for presenting the visual content, time transition types between images. *Id*. Lawther also explains that "[t]he interval transition time indicates the time interval between the current image and the next image to be displayed" and "[t]he image transition is a mechanism of retiring the presentation of a current image while phasing in the next image." *Id*; EX1003, ¶76.

Further, Lawther discloses "[i]n yet another embodiment, processing circuit 320 is capable of receiving, from an external device 100, instruction data identifying a predetermined sequence for displaying digital images and where such instructions are received, processing circuit 320 can present the digital images in the [in the] predetermined sequence. Moreover, **a sequence of digital images** to be displayed may be altered by control signals from a user, such as a pause signal from the **user-input unit 332**." EX1004, at [0081] (emphases added); EX1003, ¶77.

Because the processing circuit 206 is a component of the DMF 102 (i.e., the image display apparatus), and the processing circuit 320 controls and identifies a predetermined sequence for displaying digital images by receiving instructions/input from an external device 100 (i.e., a digital camera), Lawther discusses both possible situations that either the image display apparatus or the

digital camera controls the slide show of the images (e.g., the timing of displaying the images) as discussed above. EX1004, at [0077] and [0081]; EX1003, ¶78.

Thus, Lawther disclose or renders this element 1[E] obvious. EX1003, ¶78.

vii. Element 1[F]: "the USB interface circuitry transmits, over the USB cable, a first signal to the digital camera for causing the digital camera to output compressed first image information corresponding to first still pictures, and receives, over the cable, the compressed first image information corresponding to first still pictures output from the digital camera,"

Lawther teaches "the USB interface circuitry transmits, over the USB cable, a first signal to the digital camera for causing the digital camera to output compressed first image information corresponding to first still pictures, and receives, over the cable, the compressed first image information corresponding to first still pictures output from the digital camera". EX1003, ¶79; EX1004, at [0041], [0042], [0044], [0050], [0052], [0121]. More specifically, Lawther describes that the "[p]rocessing circuit 206 causes interface circuit 204, local memory 208, a display controller 210 and a display device 212 **to display images in response to signals received from interface circuit 204**, a user input system 214, and/or optional sensors 216 and audio system 218", EX1004, at [0052] (emphasis added), and the "[i]nterface circuit 204 can also be adapted to enable exchange data with a connected external device 202 using optical signals, radio frequency signals or other forms of signals that are specially adapted for data

exchange using particular wireless or wired communication systems or standards. In this regard, interface circuit 204 can provide optical, radio frequency or other receiving and optionally transmitting circuits appropriate to enable such an exchange of data and interface circuit 204 can be adapted for communication with external devices 202 using a direct electrical or optical path and can comprise, for example, a serial or parallel port, or a networked interface to a computer network or the Internet." EX1004, at [0050]; EX1003, ¶79.

Further, and as discussed in § XI.B.1.ii. above, the POSITA would have understood to integrate compressed images with the Lawther system. EX1003, ¶80.

Thus, Lawther renders this element 1[F] obvious. EX1003, ¶80.

viii. Element 1[G]: "the decoder decodes the compressed first image information corresponding to first still pictures received by the USB interface circuitry, and"

Lawther teaches "the decoder decodes the compressed first image information corresponding to first still pictures received by the USB interface circuitry." EX1003, ¶81; EX1004, at [0041], [0050], [0051]. Since element 1[C] also claims that "a decoder configured to decode the compressed first image information received by the USB interface circuitry or the compressed second image information received by the wireless LAN interface circuitry," arguments and analysis regarding element 1[C] as indicated § XI.B.1.iv help to demonstrate that Lawther renders this element 1[G] obvious. EX1003, ¶81.

Accordingly, Lawther renders this element 1[G] obvious for the same reasons as discussed above. *See supra* Section for element 1[C]. EX1003, ¶81.

ix. Element 1[H]: "the display screen displays a slide show at predetermined time intervals with the first still pictures, as the first images, based on the decoded first image information obtained by the decoder, and"

Lawther teaches "the display screen displays a slide show at predetermined time intervals with the first still pictures, as the first images, based on the decoded first image information obtained by the decoder". EX1003, ¶82; EX1004, at [0041], [0052], [0061], [0077]. Specifically, Lawther discloses that "processing circuit 206 is configured to determine a manner for presenting images, a sequence of sequence of images, video streams and other visual content on display unit 350." EX1004, at [0077]. Lawther further teaches that "[t]his can involve, for example, **determining time intervals** for presenting the visual content, time transition types between images. *Id.* (emphasis added). Lawther also explains that "[t]he interval transition time indicates the time interval between the current image and the next image to be displayed" and "[t]he image transition is a mechanism of retiring the presentation of a current image while phasing in the next image." *Id*; EX1003, ¶82.

Further, element 1[D] claims, "based on decoded the first image information and second images decoded the second information obtained by the decoder," which is substantially the same to the limitation claimed in this element 1[H]: "based on the decoded first image information obtained by the decoder" Thus, the

arguments and analysis regarding element 1[D] as indicated above in § XI.B.1..v. help to demonstrate that Lawther renders this element 1[H] obvious. EX1003, ¶83.

Accordingly, Lawther renders this element 1[H] obvious for the same reasons as discussed above. See *supra* Section for element 1[D]. EX1003, ¶83.

x. Element 1[I]: "wherein if displaying the second images on the display screen, based on an operation on the input device of the image display apparatus for conducting a slide show,"

Lawther teaches "wherein if displaying the second images on the display screen, based on an operation on the input device of the image display apparatus for conducting a slide show". EX1003, ¶84; EX1004, at [0041], [0052], [0061]. Since element 1[E] claims similar limitations that "wherein if displaying the first images on the display screen, based on an operation on the input device of the image display apparatus for conducting a slide show," arguments and analysis regarding element 1[E] as indicated above in § XI.B.1.vi. help to demonstrate that Lawther renders this element 1[I] obvious. EX1003, ¶¶76–78, 84.

Accordingly, Lawther renders this element 1[I] obvious for the same reasons as discussed above. See *supra* Section for element 1[E]. EX1003, ¶84.

xi. Element 1[J]: "the wireless LAN interface circuitry wirelessly transmits, over the network, a second signal to the digital camera for causing the digital camera to output compressed second image information corresponding to second still pictures, and wirelessly receives, over the network, the compressed second image

information corresponding to second still pictures output from the digital camera,"

Lawther teaches "the wireless LAN interface circuitry wirelessly transmits, over the network, a second signal to the digital camera for causing the digital camera to output compressed second image information corresponding to second still pictures, and wirelessly receives, over the network, the compressed second image information corresponding to second still pictures output from the digital camera." EX1003, ¶85; EX1004, at [0041], [0052], [0061]. Element 1[F] claims "the USB interface circuitry transmits, over the USB cable, a first signal to the digital camera for causing the digital camera to output compressed first image information corresponding to first still pictures, and receives, over the cable, the compressed first image information corresponding to first still pictures output from the digital camera," which is substantially similar to this element 1[J]. EX1003, ¶85. In addition, it would have been obvious to the POSITA from the disclosure of Lawther to include both USB and wireless LAN connectivity capability in the same digital camera. EX1003, ¶85. Lawther describes both types of connections, as explained above, and the POSITA would have understood that a system such as Lawther's would include a digital camera capable of both wired (USB) and wireless connections because that would expand the camera's ability to connect to other devices. EX1003, ¶85. Thus, arguments and analysis regarding element 1[F]

in § XI.B.1.vii. as indicated above help to demonstrate that Lawther renders this element 1[J] obvious. EX1003, ¶¶79, 80, 85.

Accordingly, Lawther renders this element 1[J] obvious for the same reasons as discussed above. See *supra* Section for element 1[F]. EX1003, ¶85.

xii. Element 1[K]: "the decoder decodes the compressed second image information corresponding to second still pictures received by the wireless LAN interface circuitry, and"

Lawther teaches "the decoder decodes the compressed second image information corresponding to second still pictures received by the wireless LAN interface circuitry". EX1003, ¶86; EX1004, at [0041], [0050], [0051]. Element 1[G] claims that "the decoder decodes the compressed first image information corresponding to first still pictures received by the USB interface circuitry", which is substantially similar to this element 1[K]. In addition, it would have been obvious to the POSITA from the disclosure of Lawther to include both USB and wireless LAN connectivity capability in the same digital camera. EX1003, ¶¶56, 69, 85, 86. Lawther describes both types of connections, as explained above, and the POSITA would have understood that a system such as Lawther's would include a digital camera capable of both wired (USB) and wireless connections because that would expand the camera's ability to connect to other devices. EX1003, ¶85. Thus, arguments and analysis as indicated above in § XI.B.1.viii.

regarding element 1[G] as indicated above help to demonstrate that Lawther renders this element 1[K] obvious. EX1003, ¶86.

Accordingly, Lawther renders this element 1[K] obvious for the same reasons as discussed above. *See supra* Section for element 1[G]. EX1003, ¶86.

xiii. Element 1[L]: "the display screen displays a slide show at predetermined time intervals with the second still pictures, as the second images, based on the decoded second image information obtained by the decoder."

Lawther teaches "the display screen displays a slide show at predetermined time intervals with the second still pictures, as the second images, based on the decoded second image information obtained by the decoder." EX1003, ¶87; EX1004, at [0010], [0041], [0052], [0055], [0061] [0077], [0091], [0093]. For example, in the background section, Lawther discusses, "digital 'transitions' used in movies and digital slide shows are designed to be viewed on a single display and indicate transitions from one digital multimedia content element to the next. They can include an almost unlimited variety of digital effects that 'temporally blend' the two sequential content elements so that the first content element disappears, and the second content element appears." EX1004, at [0010]; EX1003, ¶87.

In addition, Lawther also teaches the "predetermined time intervals" limitation by disclosing a "processing circuit 206 [that] is configured to determine a manner for presenting images, a sequence of sequence of images, video streams and other visual content on display unit 350." EX1004, at [0077]. Lawther further

discusses that "[t]his can involve, for example, **determining time intervals** for presenting the visual content, time transition types between images. *Id.* (emphasis added). Lawther also explains that "[t]he interval transition time indicates the time interval between the current image and the next image to be displayed" and "[t]he image transition is a mechanism of retiring the presentation of a current image while phasing in the next image." *Id*; EX1003, ¶88.

As discussed in the preceding sections, a POSITA reading Lawther would have understood that Lawther discloses that the display screen displays a slide show at predetermined time intervals with the second still pictures, as the second images, based on the decoded second image information obtained by the decoder. EX1003, ¶89.

Accordingly, Lawther renders this element 1[L] obvious. EX1003, ¶89.

Lawther discloses or renders obvious all elements of the '780 Patent's claim 1. Further, based on the disclosure of Lawther, the POSITA would have been motivated to arrive at the invention claimed in the '780 Patent's claim 1 because Lawther teaches or suggests the same arrangement of elements as the '780 Patent's claim 1. Further, based on Lawther, the POSITA would have had a reasonable expectation that he or she would successfully create a system of the '780 Patent's claim 1. EX1003, ¶90. Thus, claim 1 should be found unpatentable as obvious under 35 U.S.C. § 103.

2. **Dependent Claim 2:** ***"The image display apparatus according to claim 1, wherein the predetermined time intervals for the slide show for the first still pictures or the predetermined time intervals for the slide show for the second still pictures can be changed by an operation on the input device of the image display apparatus."***

Lawther teaches "[t]he image display apparatus according to claim 1, wherein the predetermined time intervals for the slide show for the first still pictures or the predetermined time intervals for the slide show for the second still pictures can be changed by an operation on the input device of the image display apparatus." EX1003, ¶92; EX1004, at [0010], [0077], [0081], [0091], [0093]. For example, as described in the sections for elements 1[E] and 1[H], Lawther discloses that "processing circuit 206 is configured to determine a manner for presenting images, a sequence of sequence of images, video streams and other visual content on display unit 350." EX1004, at [0077]. Lawther further teaches that "[t]his can involve, for example, **determining time intervals** for presenting the visual content, time transition types between images." *Id.* (emphasis added). Lawther also explains that "[t]he interval transition time indicates the time interval between the current image and the next image to be displayed" and "[t]he image transition is a mechanism of retiring the presentation of a current image while phasing in the next image." *Id*; EX1003, ¶92. Further, Lawther discloses "[i]n yet another embodiment, processing circuit 320 is capable of receiving, from an external device 100, instruction data identifying a predetermined sequence for

displaying digital images and where such instructions are received, processing circuit 320 can present the digital images in the [in the] predetermined sequence. Moreover, **a sequence of digital images** to be displayed may be altered by control signals from a user, such as a pause signal from the **user-input unit 332**." EX1004, at [0081] (emphases added); EX1003, ¶92.

In addition, Lawther discusses both possible situations that either the input device of the image display apparatus or the digital camera controls the slide show of the images (e.g., the timing of displaying the images) as discussed in *supra* section for element 1[E]. EX1004, at [0077] and [0081]; EX1003, ¶¶93, 94.

Lawther discloses or renders obvious all elements of the '780 Patent's claim 2. EX1003, ¶¶92–94. Further, based on the disclosure of Lawther, the POSITA would have been motivated to arrive at the invention claimed in the '780 Patent's claim 2 because Lawther teaches or suggests the same arrangement of elements as the '780 Patent's claim 2. Further, based on Lawther, the POSITA would have had a reasonable expectation that he or she would successfully create a system of the '780 Patent's claim 2. EX1003, ¶95. Thus, claim 2 should be found unpatentable as obvious under 35 U.S.C. § 103.

3. Dependent Claim 3: *"The image display apparatus according to claim 1, wherein the input device of the image display apparatus is a remote controller of the image display apparatus."*

Lawther teaches "[t]he image display apparatus according to claim 1, wherein the input device of the image display apparatus is a remote controller of the image display." EX1003, ¶94; EX1004, at [0057]-[0058]. For example, Lawther discloses that:

"[u]ser input system 214 can comprise any form of transducer or other device capable of receiving an input from a user and converting this input into a signal that can be used by processing circuit 206 in operating DMF 102. For example, user input system 214 can comprise a push button, dial, rotatable controller, a touch screen input, a touch pad input, a 4-way switch, a 6-way switch, an 8-way switch, a stylus system, a trackball system, a joystick system, a voice recognition system, a gesture recognition system or other such systems." EX1004, at [0057].

Lawther also teaches that "[u]ser input system 214 can be in whole or in part fixedly incorporated into DMF 102 and alternatively some or all of the portions of user input system 34 **can be separable from DMF 102** so as to provide **a remote control** (as will be described in greater detail below.)" EX1004, at [0058] (emphases added); EX1003, ¶98.

Lawther discloses or renders obvious all elements of the '780 Patent's claim 3. EX1003, ¶98. Further, based on the disclosure of Lawther, the POSITA would have been motivated to arrive at the invention claimed in the '780 Patent's claim 3 because Lawther teaches or suggests the same arrangement of elements as the '780 Patent's claim 3. Further, based on Lawther, the POSITA would have had a

reasonable expectation that he or she would successfully create a system of the '780 Patent's claim 3. EX1003, ¶98. Thus, claim 3 should be found unpatentable as obvious under 35 U.S.C. § 103.

4. **Dependent Claim 4:** ***"The image display apparatus according to claim 1, wherein the first image information received by the USB interface circuitry from the digital camera and the second image information received by the wireless LAN interface circuitry from the digital camera are compressed in JPEG format."***

Lawther teaches "[t]he image display apparatus according to claim 1, wherein the first image information received by the USB interface circuitry from the digital camera and the second image information received by the wireless LAN interface circuitry from the digital camera are compressed in JPEG format." EX1003, ¶100; EX1004, at [0039], [0045], [0051]. As discussed above, the Lawther reference teaches a USB and/or LAN interface circuitry configured to receive image information from an external source (e.g., a digital camera). See *supra* Sections for elements 1[A] and 1[B]. Compressed images, like JPEG, were well-known in the art and commonly used by digital cameras and devices for displaying images taken by such digital cameras, which was discussed at length in § XI.B.1.ii. above. EX1003, ¶65, 66, 100. Thus, this limitation's requirement regarding the compressed JPEG format would have been obvious over the Lawther reference in view of the knowledge of a POSITA, because it is the "use of a known technique to improve similar devices (methods, or products) in the same way"

and/or "applying a known technique to a known device (method, or product) ready for improvement to yield predictable results." *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 415-421 (2007). EX1003, ¶¶65-66, 100. Further, using compressed JPEG format images in the Lawther system would have been an obvious combination of prior art elements according to known methods to yield predictable results and well within the scope of capability of a POSITA. EX1003, ¶¶65, 66, 100.

Lawther discloses or renders obvious all elements of the '780 Patent's claim 4. EX1003, ¶¶100. Further, based on the disclosure of Lawther, the POSITA would have been motivated to arrive at the invention claimed in the '780 Patent's claim 4 because Lawther teaches or suggests the same arrangement of elements as the '780 Patent's claim 4. Further, based on Lawther, the POSITA would have had a reasonable expectation that he or she would successfully create a system of the '780 Patent's claim 4. EX1003, ¶100. Thus, claim 4 should be found unpatentable as obvious under 35 U.S.C. § 103.

5. **Dependent Claim 5:** ***"The image display apparatus according to claim 1, further comprising: a decryptor, wherein the first image information from digital camera or the second image information from digital camera is encrypted, and the decryptor decrypts the encrypted first image information from digital camera or the encrypted second image information from digital camera."***

To the extent that Lawther does not teach this claim, a POSITA would have understood that the image display apparatus according to claim 1 may further comprise "a decryptor, wherein the first image information from digital camera or the second image information from digital camera is encrypted, and the decryptor decrypts the encrypted first image information from digital camera or the encrypted second image information from digital camera." EX1003, ¶102. In the '780 Patent itself, IEEE 1394 standard is mentioned as the standard that the digital transmission must conform to. EX1001, at 1:38-54. This claim 5 is basically claiming the existing HDCP encryption/decryption built into HDMI or the equivalent in 1394. EX1003, ¶102.

Lawther discloses or renders obvious all elements of the '780 Patent's claim 5. EX1003, ¶102. Further, based on the disclosure of Lawther, the POSITA would have been motivated to arrive at the invention claimed in the '780 Patent's claim 5 because Lawther teaches or suggests the same arrangement of elements as the '780 Patent's claim. Further, based on Lawther, the POSITA would have had a reasonable expectation that he or she would successfully create a system of the

'780 Patent's claim 5. EX1003, ¶103. Thus, claim 5 should be found unpatentable as obvious under 35 U.S.C. § 103. EX1003, ¶102.

6. **Dependent Claim 6:** ***"The image display apparatus according to claim 1 is a television display apparatus for receiving and displaying a digital television broadcast program."***

Lawther teaches "[t]he image display apparatus according to claim 1 is a television display apparatus for receiving and displaying a digital television broadcast program." EX1003, ¶105; EX1004, at [0042], [0043], [0046], [0061]. For example, Lawther discloses that "display device 214 can comprise **an analog television, a digital television,** computer monitor, projection system or other apparatus capable of receiving signals containing images or other visual content and converting the signals into such image modulated light." EX1004, at [0061]. Further, Lawther discloses a cable connector 114, including television and telephone lines. *Id*, at [0046]. EX1003, ¶106.

To the extent that the claimed "broadcast program" element is deemed not being disclosed, Lawther renders it obvious, because a POSITA would have understood that the Lawther reference system (i.e., a digital television) is readily capable of "displaying a digital television broadcast program" and would have desired to implement it. EX1003, ¶105.

Lawther discloses or renders obvious all elements of the '780 Patent's claim 6. EX1003, ¶106. Further, based on the disclosure of Lawther, the POSITA would

have been motivated to arrive at the invention claimed in the '780 Patent's claim 6 because Lawther teaches or suggests the same arrangement of elements as the '780 Patent's claim 6. Further, based on Lawther, the POSITA would have had a reasonable expectation that he or she would successfully create a system of the '780 Patent's claim 6. EX1003, ¶106. Thus, claim 6 should be found unpatentable as obvious under 35 U.S.C. § 103.

7. **Dependent Claim 7:** ***"The image display apparatus according to claim 1, further comprising: a resizing processor configured to change a number of horizontal pixels and/or a number of vertical lines of the first still pictures or the second still pictures to be displayed."***

Lawther teaches that the image display apparatus according to claim 1 may further comprise "a resizing processor configured to change a number of horizontal pixels and/or a number of vertical lines of the first still pictures or the second still pictures to be displayed." EX1003, ¶108; EX1004, at [0075]. Specifically, Lawther teaches that a "processing circuit 206 generally controls the operation of DMF 300 which can involve to performing functions including **image size scaling**, color space conversion, image filtering, image decoding, image data compression/decompression, and so on." *Id*. (emphasis added). EX1003, ¶108.

Lawther discloses or renders obvious all elements of the '780 Patent's claim 7. EX1003, ¶109. Further, based on the disclosure of Lawther, the POSITA would have been motivated to arrive at the invention claimed in the '780 Patent's claim 7

because Lawther teaches or suggests the same arrangement of elements as the '780 Patent's claim 7. Further, based on Lawther, the POSITA would have had a reasonable expectation that he or she would successfully create a system of the '780 Patent's claim 7. EX1003, ¶109. Thus, claim 7 should be found unpatentable as obvious under 35 U.S.C. § 103.

8. **Dependent Claim 8:** ***"The image display apparatus according to claim 1 further comprising: an effect addition processor configured to add a predetermined effect to the first still pictures or the second still pictures to be displayed."***

Lawther teaches that the image display apparatus according to claim 1 may further comprise "an effect addition processor configured to add a predetermined effect to the first still pictures or the second still pictures to be displayed." EX1003, ¶111, EX1004, at [0075]. Specifically, Lawther teaches that a "processing circuit 206 generally controls the operation of DMF 300 which can involve to performing functions including image size scaling, **color space conversion**, **image filtering**, image decoding, image data compression/decompression, and so on." *Id*. (emphases added). EX1003, ¶111.

Lawther discloses or renders obvious all elements of the '780 Patent's claim 8. EX1003, ¶112. Further, based on the disclosure of Lawther, the POSITA would have been motivated to arrive at the invention claimed in the '780 Patent's claim 8 because Lawther teaches or suggests the same arrangement of elements as the '780 Patent's claim 8. Further, based on Lawther, the POSITA would have had a

reasonable expectation that he or she would successfully create a system of the '780 Patent's claim 8. EX1003, ¶112. Thus, claim 8 should be found unpatentable as obvious under 35 U.S.C. § 103.

9. Dependent Claim 9: *"The image display apparatus according to claim 1, wherein the wireless LAN interface circuitry wirelessly transmits, over the network, second signal with address information of the digital camera on the network to the digital camera."*

Lawther teaches inherently that "the image display apparatus according to claim 1, wherein the wireless LAN interface circuitry wirelessly transmits, over the network, second signal with address information of the digital camera on the network to the digital camera." EX1003, ¶¶114–116, EX1004, at [0047]. Specifically, Lawther discloses that the image display apparatus (i.e., DMF 102) "is configured to be able to read ("HyperText Markup Language") HTML and to interface with Transmission Control Protocol ("TCP")/Internet protocol ("IP")." EX1004, at [0047]. It is obvious to a POSITA that the "address information of the digital camera" means the IP address of the digital camera. EX1003, ¶115. That the address information of claim 9 includes an IP address is confirmed by claim 10, which depends from claim 9 and specifies that the "address information" is the "IP address of the digital camera."

Lawther discloses or renders obvious all elements of the '780 Patent's claim 9. EX1003, ¶116. Further, based on the disclosure of Lawther, the POSITA would

have been motivated to arrive at the invention claimed in the '780 Patent's claim 9 because Lawther teaches or suggests the same arrangement of elements as the '780 Patent's claim 9. Further, based on Lawther, the POSITA would have had a reasonable expectation that he or she would successfully create a system of the '780 Patent's claim 9. EX1003, ¶116. Thus, claim 9 should be found unpatentable as obvious under 35 U.S.C. § 103.

10. **Dependent Claim 10:** ***"The image display apparatus according to claim 9, wherein the address information of the digital camera on the network is IP address of the digital camera."***

Because it is obvious to a POSITA that the "address information of the digital camera" means the IP address of the digital camera, Lawther teaches this claim limitation for the same reasons regarding dependent claim 9 right above. EX1003, ¶¶114, 115, 118. See *Supra* Section § XI.B.10.

11. Dependent Claim 11: ***"The image display apparatus according to claim 1, further comprising: a sound outputting apparatus configured to output sound during the display screen displays the slide show."***

Lawther teaches that the image display apparatus according to claim 1 may further comprise "a sound outputting apparatus configured to output sound during the display screen displays the slide show." EX1003, ¶121; EX1004, at [0052]-[0064]. For example, Lawther discloses that "[a]udio system 218 is likewise optional and can include any known system for converting digital audio signals

provided by processing circuit 206 or memory 208 into an audible signal." EX1004, at [0064]. EX1003, ¶121.

Lawther discloses or renders obvious all elements of the '780 Patent's claim 11. EX1003, ¶122. Further, based on the disclosure of Lawther, the POSITA would have been motivated to arrive at the invention claimed in the '780 Patent's claim 11 because Lawther teaches or suggests the same arrangement of elements as the '780 Patent's claim 11. Further, based on Lawther, the POSITA would have had a reasonable expectation that he or she would successfully create a system of the '780 Patent's claim 11. EX1003, ¶122. Thus, claim 11 should be found unpatentable as obvious under 35 U.S.C. § 103.

12. **Dependent Claim 13:** ***"The image display apparatus according to claim 1, further comprising: a demodulator, wherein the wireless LAN interface circuitry receives a radio signal including the compressed second image information which is modulated by a predetermined modulation method, and the demodulator demodulates the radio signal received by the wireless LAN interface circuitry based on the predetermined modulation method."***

Lawther teaches inherently that the image display apparatus according to claim 1 may further comprise "a demodulator, wherein the wireless LAN interface circuitry receives a radio signal including the compressed second image information which is modulated by a predetermined modulation method, and the demodulator demodulates the radio signal received by the wireless LAN interface circuitry based on the predetermined modulation method." EX1003, ¶124;

EX1004, at [0047]. Specifically, Lawther discloses that the image display apparatus (i.e., DMF 102) may be connected to the Internet wirelessly to receive digital images directly from an Internet node. EX1004, at [0047]. It is obvious to a POSITA that the demodulator is equipped for all devices that can be connected to the Internet wirelessly. EX1003, ¶124. It is also obvious for a POSITA that "the demodulator demodulates the radio signal received by the wireless LAN interface circuitry based on the predetermined modulation method." EX1003, ¶124.

Lawther discloses or renders obvious all elements of the '780 Patent's claim 13. EX1003, ¶125. Further, based on the disclosure of Lawther, the POSITA would have been motivated to arrive at the invention claimed in the '780 Patent's claim 13 because Lawther teaches or suggests the same arrangement of elements as the'780 Patent's claim 13. Further, based on Lawther, the POSITA would have had a reasonable expectation that he or she would successfully create a system of the '780 Patent's claim 13. EX1003, ¶125. Thus, claim 13 should be found unpatentable as obvious under 35 U.S.C. § 103.

13.Independent Claim 15

In short, similar to claim 1, this independent claim 15 also claims an image display apparatus, and the only differences between this claim 15 and claim 1 are that claim 15 claims 1) a portable video processing apparatus instead of a digital camera, and 2) a resizing processor that resizes the still pictures by changing a

number of horizontal pixels and/or a number of vertical lines of still pictures obtained by a decoder. EX1004, claim 15. Claim 18 of the '780 Patent which depends from claim 15, confirms that the "video processing apparatus" of claim 15 includes a digital camera. EX1003, ¶126. As discussed in the section for dependent claim 7 above, a resizing processor that resizes the still pictures by changing a number of horizontal pixels and/or a number of vertical lines of the still pictures is disclosed by Lawther. EX1003, ¶126; EX1004, at [0075]. To the extent that decoder is not disclosed by Lawther, a POSITA reading Lawther would have understood that Lawther discloses still pictures obtained by a decoder as discussed in the *supra* sections. (e.g., § XI.B.1.iv). EX1003, ¶126. The detailed discussion is as follows.

i. **Preamble: *"An image display apparatus, comprising:"***

This Preamble is identical to claim 1. Accordingly, Lawther teaches this limitation for the same reasons. See *supra* Section § XI.B.1.i.; EX1003, ¶¶62, 63.

ii. Element 15[A]: "Universal Serial Bus (USB) interface circuitry configured to receive compressed first image information from a portable video processing apparatus over a USB cable;"

This element 15[A] is identical to element 1[A], except that this element 15[A] claims a portable video processing apparatus instead of a digital camera. It is obvious to a POSITA that a digital camera is a portable video processing apparatus, and Lawther also teaches a portable video capture device. EX1003,

¶¶64-67; EX1004, at [0139]. Accordingly, Lawther teaches this element 15[A] for the same reasons regarding element 1[A]. EX1003, ¶¶64-67. See *supra* Section § XI.B.1.ii.

iii. Element 15[B]: "wireless LAN interface circuitry configured to wirelessly receive compressed second image information from the portable video processing apparatus over a network;"

This element 15[B] is identical to element 1[B], except that this element 15 [A] claims a portable video processing apparatus instead of a digital camera. It is obvious to a POSITA that a digital camera is a portable video processing apparatus, (EX1003, ¶126) and Lawther also teaches a portable video capture device. EX1003, ¶¶68-69, EX1004, at [0139]. Accordingly, Lawther teaches this claim element15[B] for the same reasons regarding element 1[B]. EX1003, ¶¶68-70. See *supra* Section § XI.B.1.iii.

iv. Element 15[C]: "a decoder configured to decode the compressed first image information received by the USB interface circuitry or the compressed second image information received by the wireless LAN interface circuitry;"

Because this element 15[C] is identical to element 1[C], Lawther teaches this element 15[C] for the same reasons regarding element 1[C]. EX1003, ¶¶71-73, See *supra* Section § XI.B.1.iv.

v. Element 15[D]: "a resizing processor; and a display screen,"

Lawther teaches a resizing processor and a display screen. EX1003, ¶¶74-75, 108; EX1004, at [0002], [0008], [0011], [0012], [0039], [0075], FIGS. 1, 2, 4. See *supra* Sections § XI.B.1.i. and § XI.B.7.

vi. Element 15[E]: "wherein at least in the state that the USB interface circuitry connects with the portable video processing apparatus over the USB cable, based on an operation on the input device of the image display apparatus for conducting a slide show,"

Lawther teaches "wherein at least in the state that the USB interface circuitry connects with the portable video processing apparatus over the USB cable, based on an operation on the input device of the image display apparatus for conducting a slide show." Because this element 15[E] claims the same subject as element 1[E], Lawther teaches this element 15[E] for the same reasons regarding element 1[E]. EX1003, ¶¶76-78. See *supra* Section § XI.B.1.vi.

vii. Element 15[F]: "the USB interface circuitry transmits, over the USB cable, a first signal to the portable video processing apparatus for causing the portable video processing apparatus to output compressed first image information corresponding to first still pictures, and receives, over the cable, the compressed first image information corresponding to first still pictures output from the portable video processing apparatus,"

This element 15[F] is identical to element 1[F], except that this element 15 [F] claims a portable video processing apparatus instead of a digital camera. As

noted above it is obvious to a POSITA that a digital camera is a portable video processing apparatus, and Lawther also teaches a portable video capture device. EX1003, ¶126; EX1004, at [0139]. Accordingly, Lawther teaches this claim element 15[F] for the same reasons regarding element 1[F]. EX1003, ¶¶79-80. See *supra* Section § XI.B.1.vii.

viii. Element 15[G]: "the decoder decodes the compressed first image information corresponding to first still pictures received by the USB interface circuitry"

Because this element 15[G] is identical to element 1[G], Lawther teaches this element 15[G] for the same reasons regarding element 1[G]. EX1003, ¶¶71-75, 81. See *supra* Section § XI.B.1.a.viii.

ix. Element 15[H]: "the resizing processor resizes the first still pictures by changing a number of horizontal pixels and/or a number of vertical lines of the first still pictures obtained by the decoder, and"

Lawther teaches "the resizing processor resizes the first still pictures by changing a number of horizontal pixels and/or a number of vertical lines of the first still pictures obtained by the decoder". EX1003, ¶108, EX1004, at [0041], [0050], [0051], [0053], [0075]. It is also obvious to a POSITA that a resizing processor is configured to resize a still picture by changing a number of horizontal pixels and/or a number of vertical lines of the pictures, and the pictures are obtained by the decoder. EX1003, ¶126. See *supra* Sections § XI.B.1.xii. and § XI.B.7.

x. Element 15[I]: "the display screen displays a slide show at predetermined time intervals with the resized first still pictures, and"

This element 15[I] is identical to element 1[H], and the added limitation regarding image resizing functions is obvious to a POSITA as discussed above. EX1003, ¶¶82-83. Accordingly, Lawther teaches this element 15[I] for the same reasons regarding element 1[H]. EX1003, ¶¶82-83. See *supra* Section § XI.B.1.ix.

xi. Element 15[J]: "wherein at least in the state that the wireless LAN interface circuitry connects with the portable video processing apparatus over the network, based on an operation on the input device of the image display apparatus for conducting a slide show"

Lawther teaches "wherein at least in the state that the wireless LAN interface circuitry connects with the portable video processing apparatus over the network, based on an operation on the input device of the image display apparatus for conducting a slide show." EX1003, ¶¶85-89. Because this element 15[J] claims the same subject as the element 1[L], Lawther teaches this element 15[L] for the same reasons regarding element 1[L]. EX1003, ¶¶85-89. See supra Section § XI.B.1.xiii.

xii. Element 15[K]: "the wireless LAN interface circuitry wirelessly transmits, over the network, a second signal to the portable video processing apparatus for causing the portable video processing apparatus to output compressed second image information corresponding to second still pictures, and wirelessly receives, over the

network, the compressed second image information corresponding to second still pictures output from the portable video processing apparatus, and"

This element 15[K] is identical to element 1[J], except that this element 15 [K] claims a portable video processing apparatus instead of a digital camera. It is obvious to a POSITA that a digital camera is a portable video processing apparatus, and Lawther also teaches a portable video capture device. EX1003, ¶126; EX1004, at [0139]. Accordingly, Lawther teaches this claim element 15[K] for the same reasons regarding element 1[J]. EX1003, ¶85. See *supra* Section § XI.B.1.xi.

xiii. Element 15[L]: "the decoder decodes the compressed second image information corresponding to second still pictures received by the wireless LAN interface circuitry,"

Because this element 15[L] is identical to element 1[K], Lawther teaches this element 15[L] for the same reasons regarding element 1[K]. EX1003, ¶86. See *supra* Section § XI.B.1.xii.

xiv. Element 15[M]: "the resizing processor resizes the second still pictures by changing a number of horizontal pixels and/or a number of vertical lines of the second still pictures obtained by the decoder, and"

Lawther teaches "the resizing processor resizes the second still pictures by changing a number of horizontal pixels and/or a number of vertical lines of the second still pictures obtained by the decoder". EX1003, ¶¶108, 126. EX1004, at

[0041], [0050], [0051], [0053], [0075]. It is also obvious to a POSITA that a resizing processor is configured to resize a still picture by changing a number of horizontal pixels and/or a number of vertical lines of the pictures, and the pictures are obtained by the decoder. EX1003, ¶¶108, 126. See *supra* Sections § XI.B.1.xii. and § XI.B.7.

xv. Element 15[N]: "the display screen displays a slide show at predetermined time intervals with the resized second still pictures."

Because this element 15[N] is identical to element 1[L], and the added limitation regarding image resizing functions is obvious to a POSITA as discussed above. EX1003, ¶¶108, 126. Lawther teaches this element 15[N] for the same reasons regarding element 1[L] and claim 1. EX1003, ¶¶87-90, 108, 126. See *supra* Section § XI.B.1.xiii.

Lawther discloses or renders obvious all elements of the '780 Patent's claim 15. EX1003, ¶127. Further, based on the disclosure of Lawther, the POSITA would have been motivated to arrive at the invention claimed in the '780 Patent's claim 15 because Lawther teaches or suggests the same arrangement of elements as the '780 Patent's claim 15. Further, based on Lawther, the POSITA would have had a reasonable expectation that he or she would successfully create a system of the '780 Patent's claim 15.

EX1003, ¶127. Thus, claim 15 should be found unpatentable as obvious under 35 U.S.C. § 103.

14. Dependent Claim 16: "*The image display apparatus according to claim 15, wherein the portable video processing apparatus is a cellular phone.*"

Lawther teaches "[t]he image display apparatus according to claim 15, wherein the portable video processing apparatus is a cellular phone." EX1003, ¶129; EX1004, at [0049] and [0167]. For example, Lawther discloses that:

"External devices 202 **can comprise but are not limited to digital still cameras**, **digital video cameras**, scanners, computers, local servers, remote servers, memory devices, the internet, printers, internet appliances, a remote control (as will be described in greater detail below), personal digital assistants, personal video players, telephones, telecommunication networks, **cellular telephones**, analog televisions or digital televisions or television signal distribution systems such as cable, satellite or other television systems and/or television storage systems such as recorders or players of television systems such as solid state, optical, or magnetic television signal recording and/or playback systems. EX1004, at [0049] (emphases added)

"The source of digital images can include any of **digital still cameras**, **digital video cameras**, scanners, computers, local servers, remote servers, memory devices, the internet, printers, internet appliances, a remote control, personal digital assistants, personal video players, telephones, telecommunication networks, **cellular telephones**, analog televisions or digital televisions or television signal distribution systems such as cable, satellite or other television systems and/or television storage systems such as recorders or players of television systems such as solid state, optical, or magnetic television signal recording and/or playback systems." EX1004, at [0167] (emphases added)

15. **Dependent Claim 17: "*The image display apparatus according to claim 15, wherein the portable video processing apparatus is a game machine.*"**

Lawther teaches "[t]he image display apparatus according to claim 15, wherein the portable video processing apparatus is a game machine" as discussed above. EX1003, ¶129; EX1004, at [0049] and [0167]. The POSITA would have also understood that in 2007 a cellular telephone and a computer to be a "game machine." EX1003, ¶132. To the extent that a game machine is not specifically mentioned in Lawther, it is obvious for the POSITA that the portable video processing apparatus can be a game machine. EX1003, ¶132.

16. **Dependent Claim 18: *"The image display apparatus according to claim 15, wherein the portable video processing apparatus is a digital camera."***

Lawther teaches "[t]he image display apparatus according to claim 15, wherein the portable video processing apparatus is a digital camera" as discussed above. EX1003, ¶126. EX1004, at [0049] and [0167].

17. **Dependent Claim 19: "*The image display apparatus according to claim 15, wherein the wireless LAN interface circuitry is capable of connecting internet and receiving internet content.*"**

Lawther teaches "[t]he image display apparatus according to claim 15, wherein the wireless LAN interface circuitry is capable of connecting internet and receiving internet content." EX1003, ¶137; EX1004, at [0047]. Specifically, Lawther teaches an internet connector 116 that "enables the DMF 102 to receive

digital images directly from an Internet node. EX1004, at [0047]. For example, in one embodiment, Lawther discusses that "the DMF 102 is configured to be able to read ("HyperText Markup Language") HTML and to interface with Transmission Control Protocol ("TCP")/Internet protocol ("IP")." *Id.* EX1003, ¶137.

18. Independent Claim 20

Lawther discloses or renders obvious all elements of the '780 Patent's claim 20, because this independent claim 20 is a method claim corresponding to the independent apparatus claim 15, and claim 15 is disclosed or rendered obvious by Lawther as discussed above. EX1004, claim 20. EX1003, ¶¶62-90, 108, 126-127.

XII. SOTERA STIPULATION

Should the Board grant *inter partes* review of this Petition, Petitioner stipulates that it will not pursue in the parallel district court litigation the same grounds or any grounds that could have reasonably been raised before the PTAB. *See Sotera Wireless, Inc. v. Masimo Corp.*, IPR2020-01019, Paper 12 at 18-19 (Dec. 1, 2020) (precedential as to § II.A). In view of Petitioner's *Sotera* stipulation, and in accordance with Director Vidal's Interim Procedure for Discretionary Denials in AIA Post-Grant Proceedings with Parallel District Court Litigation ("Interim Procedure"), the Board should, therefore, not exercise discretion to deny institution in view of the parallel district court proceeding. Interim Procedure at 9 (instructing that the Board will not deny institution under *Fintiv* "where a petitioner stipulates not to pursue in a parallel district court proceeding the same

grounds as in the petition or any grounds that could have reasonably been raised in the petition").

XIII. CONCLUSION

Petitioner respectfully requests the Board institute *inter partes* review of the '780 Patent and cancel each challenged claim.

Dated: November 4, 2024

Respectfully submitted by:

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CERTIFICATE OF COMPLIANCE

The undersigned hereby certifies that this petition complies with the type volume limitations of 37 C.F.R. § 42.24(a)(1)(i). Excluding the portions allowed by 37 C.F.R. § 42.24(a)(1), this petition contains 12,826 words as calculated by the "Word Count" feature of Microsoft Word 2010, the word processing program used to create this.

The undersigned further certifies this petition complies with the typeface requirements of 37 C.F.R. § 42.6(a)(2)(ii) and typestyle requirements of 37 C.F.R. § 42.6(a)(2)(iii). This petition has been prepared in a proportionally spaced typeface using Microsoft Word 2010 in Times New Roman 14-point font.

Dated: November 4, 2024 /Douglas A. Robinson/

CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. §§42.6(e) and 42.105(a), the undersigned certifies that on November 4, 2024, a copy of **Petitioner TCL Electronics Holdings Ltd. (f/k/a TCL Multimedia Technology Holdings, Ltd.)'s Petition for *Inter Partes* Review and Exhibits 1001-1015** were served by Priority Mail Express on the correspondence address of record indicated in the Patent Office's public PAIR system for U.S. Patent No. 10,650,780:

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