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

MAXELL, LTD., Plaintiff, v. LG ELECTRONICS INC., and LG ELECTRONICS U.S.A., INC., Defendants.	Case No. **JURY TRIAL DEMANDED**

COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff Maxell, Ltd. ("Maxell"), by and through its undersigned counsel, files this complaint under 35 U.S.C. § 271 against Defendants LG Electronics Inc. ("LGE") and LG Electronics U.S.A., Inc. ("LGEUS") (collectively, "LG" or "Defendants"), and allege as follows, upon actual knowledge with respect to itself and its own acts, and upon information and belief as to all other matters.

OVERVIEW

1. This is an action for patent infringement by Maxell. Founded in 1961 as Maxell Electric Industrial Co., Ltd., Maxell is a leading global manufacturer of information storage media products, including magnetic tapes, optical discs, and battery products such as lithium ion rechargeable micro batteries and alkaline dry batteries. The company has over 50 years of experience producing industry-leading recordable media and energy products for both the consumer and the professional markets. Maxell is also a leading manufacturer of projectors and lenses and additionally sells various other devices, such as Bluetooth headsets, wireless charging solutions, etc.

2. Maxell has built an international reputation for excellence and reliability for pioneering the power supplies and digital recording for today's mobile and multi-media devices, and leading the electronics industry in the fields of storage media and batteries.

3. Since being one of the first companies to develop alkaline batteries and Blu-ray camcorder discs, Maxell has always assured its customers of industry-leading product innovation and is one of the world's foremost suppliers of memory, power, audio, and visual goods. Maxell's well-recognized logo and iconic "blown away" image exemplify the reputation Maxell carefully developed in these markets.

4. As more fully described below, in 2009 Hitachi, Ltd. assigned much of its intellectual property to Hitachi Consumer Electronics Co., Ltd., along with a significant portion of its Consumer Business Group, including manufacturing and research and development capabilities. Then, in 2013, Hitachi Consumer Electronics Co., Ltd. assigned the intellectual property, including many of the patents in this case, along with the related manufacturing and research and development capabilities, to Hitachi Maxell, Ltd., which later assigned the patents to Maxell as a result of a reorganization and name change. This was an effort to align its intellectual property with the licensing, business development, research and development, and manufacturing efforts of

Maxell, including in the mobile and mobile-media device market. Maxell continues to sell products in the mobile device market including wireless charging solutions, wireless flash drives, multimedia players, storage devices, and headphones. Maxell also maintains intellectual property related to televisions, computer products, tablets, digital cameras, and mobile phones. As a mobile technology developer and industry leader, and due to its historical and continuous investment in research and development, including in this District, Maxell owns a portfolio of patents related to such technologies and actively enforces its patents through licensing and/or litigation. Maxell is forced to bring this action against LG as a result of LG's knowing and ongoing infringement of Maxell's patents as further described herein.

5. Since at least July 19, 2021, LG has been aware of Maxell's patents, and has had numerous communications with Maxell regarding its infringement of these patents. These communications included Maxell providing to LG detailed information regarding Maxell's patents and allegations, the developed technology, and LG's ongoing use of this patented technology. Through this process, Maxell believed the parties could reach a mutually beneficial solution. LG elected, however, not to enter into an agreement and did not license Maxell's patents. Instead, LG continued, and continues today, to make, use, sell, and offer for sale Maxell's patented technology without license.

6. Since 2014, Maxell has had regular and continuous business in the Eastern District of Texas. As a result of such business dealings and hopes to expand those and other business dealings, a Maxell affiliate, Maxell Research and Development America, LLC ("MRDA"), was founded in Marshall, Texas. Maxell has and continues to regularly meet and work with MRDA to expand its business and investments are being made by Maxell, MRDA, and others in this District to further the goals of these companies.

NATURE OF THE ACTION

7. This is an action for patent infringement arising under the Patent Laws of the United States, 35 U.S.C. § 271, *et seq.*

THE PARTIES

8. Plaintiff Maxell, Ltd. is a Japanese corporation with a registered place of business at 1 Koizumi, Oyamazaki, Oyamazaki-cho, Otokuni-gun, Kyoto, Japan.

9. Defendant LG Electronics Inc. is a company under the laws of the Republic of Korea with its principal place of business at LG Twin Towers 20 Yoido-dong, Youngdungpo-gu, Seoul, South Korea.

10. Defendant LG Electronics U.S.A., Inc., is a Delaware corporation with a principal place of business at 111 Sylvan Avenue, North Building, Englewood Cliffs, New Jersey 07632. LGEUS is a wholly-owned subsidiary of LGE, and has regular and established places of business within this District at 2153-2155 Eagle Pkwy, Fort Worth, TX 76177 and 14901 Beach St, Fort Worth, TX 76177. LGEUS may be served with process through its Texas registered agent, United States Corporation Co., 211 East 7th Street, Suite 620, Austin, Texas 78701.

11. Upon information and belief, Defendants are part of the same corporate structure and distribution chain with respect to the design, manufacture, use, importation, offer to sell, and/or sale of LG-branded products.

JURISDICTION AND VENUE

12. This Court has subject matter jurisdiction over the subject matter of this action pursuant to 28 U.S.C. §§ 1331 and 1338(a) because the action arises under the patent laws of the United States, 35 U.S.C. § 271, *et seq.*

13. This Court has personal jurisdiction over Defendants pursuant to due process and/or the Texas Long Arm Statute because, *inter alia*, (i) Defendants have done and continue to do

business in the United States, including in the State of Texas; (ii) Defendants have committed and continue to commit acts of patent infringement in the United States, including in the State of Texas, including making, using, offering to sell, and/or selling accused products in the United States and Texas, and/or importing accused products into the United States and Texas, including by Internet sales and sales via retail and wholesale stores, inducing others to commit acts of patent infringement in the United States and Texas, and/or committing a least a portion of any other infringements alleged herein. LGEUS has maintained regular and established places of business within this District at 2153-2155 Eagle Pkwy, Fort Worth, TX 76177 and 14901 Beach St, Fort Worth, TX 76177. The address at 14901 Beach St, Fort Worth, TX 76177 is a distribution center. Defendants design, manufacture, distribute, import, offer for sale, and/or sell in the State of Texas and the Eastern District of Texas smartphones, laptops, and tablets that infringe the patents asserted in this matter. Further, Defendants have consented to jurisdiction for patent infringement actions wherein substantially the same accused devices are at issue, for example in *Spacetime3D, Inc. v. LG Electronics Inc. et al.*, No 2:22-cv-00049-RWS.

14. In addition, or in the alternative, this Court has personal jurisdiction over the Defendants pursuant to Fed. R. Civ. P. 4(k)(2).

15. Venue is proper in this district as to Defendants. LGEUS has maintained regular and established places of business within this District at 2153-2155 Eagle Pkwy, Fort Worth, TX 76177 and 14901 Beach St, Fort Worth, TX 76177. LGE is organized under the laws of South Korea. 28 U.S.C. § 1391(c)(3) provides that "a defendant not resident in the United States may be sued in any judicial district, and the joinder of such a defendant shall be disregarded in determining where the action may be brought with respect to other defendants."

16. Four of the patents asserted herein—U.S. Patent Nos. 6,973,334; 8,339,493, 6,856,760 and 8,736,729 were previously asserted in this District against Huawei Device Co., Ltd., Huawei Device USA, Inc., ZTE (USA), Inc., ZTE Corporation, and/or Apple Inc. During the course of these lawsuits, this Court heard from the parties and their experts regarding the technology at issue in these patents, construed numerous claims terms, and even conducted a jury trial involving two of these patents, during which the patents were found to be valid and willfully infringed. Accordingly, this Court has substantial knowledge of and concerning the majority of the patents asserted in this lawsuit. Judicial economy further supports venue in this District.

COUNT 1 – INFRINGEMENT OF U.S. PATENT NO. 6,856,760

17. Maxell incorporates paragraphs 1-16 above by reference.

18. U.S. Patent No. 6,856,760 ("the '760 Patent," attached hereto at Exhibit 1) duly issued on February 15, 2005, and is entitled "Recording Medium."

19. Maxell is the owner by assignment of the '760 Patent and possesses all rights under the '760 Patent, including the exclusive right to recover for past and future infringement.

20. The patentability of the '760 Patent was challenged in IPR2018-00905, wherein the Patent Trial and Appeal Board was asked to consider the teachings of prior art (e.g., Japanese Laid Open Patent Application No. 10-108133 and Japanese Laid Open Patent Application No. 10-164483) in a challenge to the validity of claims 1-15. In response, the Patent Trial and Appeal Board denied the petition, finding that the information presented does not "demonstrate a reasonable likelihood that Petitioner would prevail in showing that at least one of the challenged claims of the '760 Patent is unpatentable."

21. The '760 Patent is directed to facilitating recording and reproduction of still pictures in different formats, including but not limited to fine still pictures. The '760 Patent explains that conventional techniques did not provide the capability for a recordable video player

to record and reproduce high resolution still images using multiple formats and also record and reproduce pictures having a smaller number of pixels per frame. The ’760 Patent provides methods in which still pictures are encoded in multiple formats, including, for example, by using an encoding method that is the same as that used for moving pictures. Using multiple encoding formats enables reproduction by various reproducing devices.

22. Defendants have directly infringed one or more claims of the ’760 Patent in this district and elsewhere in Texas, including at least claims 4, 6, 7, and 9 literally and/or under the doctrine of equivalents, by or through making, using (*e.g.*, through product testing), importing offering for sale and/or selling its telecommunications technology, including at least the LG Arena 2; LG Fiesta Family (Fiesta LTE (CDMA), Fiesta LTE (GSM); LG Fortune 3; LG G Family (G Stylo, G Vista 2, G4, G5, G5 Silver, G6+, G6, G6 Duo, G7 Fit, G7 ThinQ, G8 ThinQ, G8X ThinQ, and G8X ThinQ Dual Screen); LG Grace LTE (GSM); LG K Family (K10, K20, K20 Plus, K22, K30, K3, K3 2017, K40, K4, K51, K7, K8 V, K8, K8 2017, K8X, and K92 5G); LG Leon LTE; LG Nexus 5X; LG Phoenix Family (Phoenix 2, Phoenix 3, and Phoenix Plus); LG Premier LTE (CDMA); LG Premier LTE (GSM); LG Prime 2; LG Q Family (Q7+, Q7+ BTS Limited Edition, and Q70); LG Risio 4; LG Risio; LG Spree; LG Stylo Family (Stylo 2 V, Stylo 2 Plus, Stylo 2, Stylo 2 LTE (CDMA), Stylo 2 LTE (GSM), Stylo 3, Stylo 3 LTE (CDMA), Stylo 3 Plus, Stylo 3 Plus Titan, Stylo 5x,); LG Tribute Family (Tribute 5, Tribute Empire, Tribute Royal, Tribute HD, and Tribute Monarch); LG V Family (V10, V20, V30S ThinQ, V30, V30+, V35 ThinQ, V35 ThinQ with Alexa Hands-Free, V40 ThinQ, V50 ThinQ 5G, V60 ThinQ 5G, V60 ThinQ 5G, V60 ThinQ 5G Dual Screen, and V60 ThinQ 5G UW); LG Velvet 5G; LG Volt 2; LG Wing 5G; LG X Charge; LG X Power; LG X Style (CDMA); LG X Style (GSM); LG X Venture; LG Xpression Plus 2; LG Xpression Plus 3 and LG Zone 4 (the “’760 Accused Products”). Maxell reserves the

right to discover and pursue any additional infringing devices that incorporate infringing functionalities. For the avoidance of doubt, the '760 Accused Products are identified to describe the Defendants' infringement and in no way limit the discovery and infringement allegations against Defendants concerning other devices that incorporate the same or reasonably similar functionalities.

23. Each of the '760 Accused Products, including for example, the LG V60 ThinQ 5G, has still picture recording capabilities and includes a processor programmed for reproducing still pictures from recording media such as internal memory in various formats and according to various encoding standards, including for example DNG and JPEG formats. This includes the capability to reproduce thumbnail images for each still or moving picture recorded on the recording media, where different stored pictures are encoded using different encoding standards, such as DNG and JPEG, and where a recorded image may be stored as two files, each using a different encoding format (*e.g.*, a RAW DNG and a JPEG file). The reproduced thumbnail images are constructed from a smaller number of pixels than the images they represent.

May be stored

24. Each of the '760 Accused Products also incorporates hardware and software components configured to record and store still and moving pictures, to generate and store pictorial or thumbnail representations of the recorded pictures, and to allow reproduction and display of the thumbnails and corresponding moving or still pictures associated with the thumbnails.

25. The foregoing features and capabilities of each of the '760 Accused Products, and LG's description and/or demonstration thereof, including in user manuals and advertising, reflect LG's direct infringement by satisfying every element of at least claims 4, 6, 7, and 9 of the '760 Patent, under 35 U.S.C. § 271(a).

26. Defendants have indirectly infringed at least claims 4, 6, 7, and 9 of the ’760 Patent in this judicial district and elsewhere in the United States by, among other things, actively inducing the use, offering for sale, selling, or importation of at least the ’760 Accused Products. Defendants’ customers who purchase devices and components thereof and operate such devices and components in accordance with Defendants’ instructions directly infringe one or more claims of the ’760 Patent in violation of 35 U.S.C. § 271. Defendants instruct their customers through at least user guides, such as those for the LGV60 ThinQ 5G and other Accused ’760 Products located at the following websites: https://ss7.vzw.com/is/content/VerizonWireless/Catalog%20Assets/Devices/LG/LG_V60_ThinQ/userguide/lg-v60-thinq-5g-lm-v600vmengug-user-manual-en-03132020.pdf and https://www.lg.com/us/support/manuals-documents. Defendants are thereby liable for infringement of the ’760 Patent pursuant to 35 U.S.C. § 271(b).

27. Defendants have indirectly infringed at least claims 4, 6, 7, and 9 of the ’760 Patent, by, among other things, contributing to the direct infringement of others, including customers of the ’760 Accused Products by making, offering to sell, or selling, in the United States, or importing a component of a patented process, constituting a materials part of the invention, knowing the same to be especially made or especially adapted for use in infringement of the ’760 Patent, and not a staple article or commodity of commerce suitable for substantial non-infringing use.

28. For example, the ’760 Accused Products include camera hardware and related software configured to encode pictures using multiple encoding standards from common image data, and to display a thumbnail image corresponding to the encodings. This is a component of a patented machine, manufacture, or combination, or an apparatus for use in practicing a patented process. Furthermore, such component is a material part of the invention and upon information

and belief is not a staple article or commodity of commerce suitable for substantial non-infringing use. Thus, Defendants are liable for infringement of the ’760 Patent pursuant to 35 U.S.C. § 271(c).

29. LG has been aware of the ’760 Patent since at least July 19, 2021, based on correspondence directed to Mr. Hwi jae Cho. *See* Letter from T. Yamamoto to H. Cho dated Jul. 19, 2021 (Exhibit 2). That correspondence set forth Maxell’s belief that LG makes, uses, sells, offers to sell, or imports products that infringe certain of Maxell’s patents, and specifically identified the ’760 Patent as well as exemplary claims and exemplary accused products for that patent. By the time of trial, LG will thus have known and intended (since receiving such notice), that its continued actions would actively induce and contribute to actual infringement of at least claims 4, 6, 7, and 9 of the ’760 Patent.

30. LG undertook and continued its infringing actions despite an objectively high likelihood that such activities infringed the ’760 Patent, which has been duly issued by the USPTO, and is presumed valid. For example, since at least July 19, 2021, LG has been aware of an objectively high likelihood that their actions constituted and continue to constitute infringement of the ’760 Patent, and that the ’760 Patent is valid. On information and belief, LG could not reasonably, subjectively believe that their actions do not constitute infringement of the ’760 Patent, nor could they reasonably, subjectively believe that the patent is invalid. Despite that knowledge and subjective belief, and the objectively high likelihood that their actions constitute infringement, LG has continued its infringing activities. As such, LG willfully infringes the ’760 Patent.

31. Maxell has been damaged by Defendants’ infringement of the ’760 Patent.

COUNT 2 – INFRINGEMENT OF U.S. PATENT NO. 6,973,334

32. Maxell incorporates paragraphs 1-31 above by reference.

33. U.S. Patent No. 6,973,334 (“the ’334 Patent,” attached hereto at Exhibit 3) duly issued on December 6, 2005, and is entitled “Cellular Telephone.”

34. Maxell is the owner by assignment of the ’334 Patent and possesses all rights under the ’334 Patent, including the exclusive right to recover for past and future infringement.

35. The ’334 Patent enables a cellular phone to satisfy the minimum requirements for power transmission while reducing the amount of current required to achieve that power, thereby saving battery life. The ’334 Patent achieves this by correlating the gain of the variable amplitude amplifier with the bias condition of the power amplifier.

36. Defendants have directly infringed one or more claims of the ’334 Patent in this district and elsewhere in Texas, including at least claims 4 and 6 literally and/or under the doctrine of equivalents, by or through making, using (*e.g.*, through product testing), importing offering for sale and/or selling its telecommunications technology, including at least, the LG Arena 2, LG Aristo Family (Aristo, Aristo 2, Aristo 2+, Aristo 3+, Aristo 4+, Aristo 5, Aristo Cobalt Blue, and Aristo Silver), LG Classic, LG Escape 3, LG Fiesta Family (Fiesta LTE (CDMA), Fiesta LTE (GSM), Fiesta 2 LTE (CDMA), and Fiesta 2 LTE (GSM)), LG Fortune, LG Fortune 3, LG G Family (G Stylo, G Vista 2, G4, G5, G5 Silver, G6+, G6, G6 Duo, G7 Fit, G7 ThinQ, G8 ThinQ, G8X ThinQ, and G8X ThinQ Dual Screen), LG Grace LTE (GSM), LG Harmony Family (Harmony, Harmony 2, Harmony 3, and Harmony 4), LG Journey LTE, LG K Family (K10, K20, K20 Plus, K22, K30, K31, K31 Rebel, K3, K3 2017, K40, K4, K51, K7, K8 V, K8, K8 2017, K8X, and K92 5G), LG Leon LTE, LG Neon Plus, LG Nexus 5X, LG Optimus Zone 3, LG Phoenix Family (Phoenix 2, Phoenix 3, Phoenix 5, and Phoenix Plus), LG Premier LTE (CDMA), LG Premier LTE (GSM), LG Prime 2, LG Q Family (Q6, Q7+, Q7+ BTS Limited Edition, and Q70), LG Rebel Family (Rebel 2 LTE (CDMA), Rebel 2 LTE (GSM), Rebel 3 LTE (CDMA), Rebel 3 LTE (GSM), Rebel LTE (CDMA), and Rebel LTE (GSM)), LG Reflect, LG Risio 2, LG Risio 4, LG Risio, LG Solo LTE, LG Spree, LG Stylo Family (Stylo 2 V, Stylo 2 Plus, Stylo 2, Stylo 2

LTE (CDMA), Stylo 2 LTE (GSM), Stylo 3, Stylo 3 LTE (CDMA), Stylo 3 Plus, Stylo 3 Plus Titan, Stylo 4, Stylo 5, Stylo 5x, and Stylo 6), LG Treasure LTE (CDMA), LG Treasure LTE (GSM), LG Tribute Family (Tribute 5, Tribute Dynasty, Tribute Empire, Tribute Royal, Tribute HD, and Tribute Monarch), LG V Family (V10, V20, V30S ThinQ, V30, V30+, V35 ThinQ, V35 ThinQ with Alexa Hands-Free, V40 ThinQ, V50 ThinQ 5G, V60 ThinQ 5G, V60 ThinQ 5G, V60 ThinQ 5G Dual Screen, and V60 ThinQ 5G UW), LG Velvet 5G, LG Volt 2, LG Wing 5G, LG X Charge, LG X Power, LG X Style (CDMA), LG X Style (GSM), LG X Venture, LG Xpression Plus 2, LG Xpression Plus 3, and LG Zone 4 (the "'334 Accused Products"). Maxell reserves the right to discover and pursue any additional infringing devices that incorporate infringing functionalities. For the avoidance of doubt, the '334 Accused Products are identified to describe the Defendants' infringement and in no way limit the discovery and infringement allegations against Defendants concerning other devices that incorporate the same or reasonably similar functionalities.

37. Each of the '334 Accused Products is a cellular telephone used in a CDMA system, such as WCDMA, TD-SCDMA, and CDMA 1x, and includes a transmitter, such as an RF transmitter.

38. Each of the '334 Accused Products receives signals from and transmits signals to cell-site stations, such as base stations. For example, each of the '334 Accused Products (*e.g.*, the LG V60 ThinQ 5G) receives a first communication signal (such as a data signal transmitted on a downlink channel) and a transmitting power control signal (such as a TPC transmitted on a downlink channel) from a cell-site station (such as a base station) to provide communication services.

39. Upon information and belief, each of the ’334 Accused Products is configured to generate a power control signal derived from the transmitting power control signal (TPC) received from the cell-site station. *See e.g.*, https://www.umtsworld.com/technology/power.htm. For example, the LG V60 ThinQ 5G derives a power control step in response to one or more TPC commands received from the cell-site station and, in accordance with the power control step size, generates a power control signal to carry out power control, including closed loop power control or inner loop power control, of its RF transmitter. *Id.*

40. Each of the ’334 Accused Products converts a first communication signal (such as a data signal transmitted on a downlink channel) received from a cell-site station (such as a base station) into a voice signal code. For example, on information and belief, the LG V60 ThinQ 5G uses RF receiving components (such as a cellular modem) to transform RF signals received from a cell-site station into signal codes, including voice signal codes while providing voice calling functions.

41. Each of the ’334 Accused Products converts the voice signal code into an audio signal for driving an acoustic transducer (such as a speaker) of the ’334 Accused Product. For example, the LG V60 ThinQ 5G converts the voice signal code into an audio signal (such as through digital-to-analog conversion) to drive a speaker included in the LG V60 ThinQ 5G to be able to output voice via the speaker during a voice call.

42. Each of the ’334 Accused Products converts the audio input signal from an acoustic transducer into an input voice code signal. For example, the LG V60 ThinQ 5G converts the audio input signal from a microphone into an input voice code signal (such as through analog-to-digital conversion) to convert voice signals into a code signal for transmission during a voice call.

43. Each of the ’334 Accused Products controls the transmitter so that an open-loop power control is performed prior to a closed-loop power control that is performed according to the power control signal so as to control the transmitted power to converge into a range required by the cell-site station. For example, on information and belief, the LG V60 ThinQ 5G performs open loop power control. *See* https://www.umtsworld.com/technology/power.htm. On information and belief, the LG V60 ThinQ 5G then performs closed-loop (or “inner-loop”) power control according to the power control signal generated from the received TPC commands, in accordance with the transmitter power control ranges. *Id.*

44. On information and belief, each of the ’334 Accused Products has a variable amplitude amplifier of which it controls the gain, and a power amplifier of which it controls a bias condition, using a function defining a relation between bias data and gain data stored in memory. *See* https://www.qualcomm.com/products/technology/modems/rf (“Power Amplifier Modules” and “Power Trackers”). The control is such that the function uses bias conditions defined in a ratio to the maximum bias voltage value and that said bias condition increases gradually to the maximum value when output intensity increases to the value taken when said cellular telephone is very far from the cell-site station. For example, upon information and belief, the LGV60 ThinQ 5G includes a Qualcomm Snapdragon chip, operates at multiple power levels, and utilizes an envelope tracker to adjust the gain of its variable amplitude amplifier, and thus a supply voltage to and bias condition of its power amplifier. *See* https://www.qualcomm.com/products/mobile/snapdragon/smartphones/snapdragon-8-series-mobile-platforms/snapdragon-865-5g-mobile-platform. Upon information and belief, the LG V50 ThinQ 5G stores the function described in this paragraph in memory, and uses such function to change its output power level to support envelope tracking.

45. The foregoing features and capabilities of the LGV60 ThinQ 5G and each of the '334 Accused Products, and Defendants' description and/or demonstration thereof, including in user manuals and advertising, reflect Defendants' direct infringement by satisfying every element of at least claims 4 and 6 of the '334 Patent, under 35 U.S.C. § 271(a).

46. Defendants have indirectly infringed at least claims 4 and 6 of the '334 Patent in this judicial district and elsewhere in the United States by, among other things, actively inducing the use, offering for sale, selling, or importation of at least the '334 Accused Products. Defendants' customers who purchase devices and components thereof and operate such devices and components in accordance with Defendants' instructions directly infringe one or more claims of the '334 Patent in violation of 35 U.S.C. § 271. Defendants instruct their customers through at least user guides, such as those for the LGV60 ThinQ 5G and other Accused '334 Products located at the following websites: https://ss7.vzw.com/is/content/VerizonWireless/Catalog%20Assets/Devices/LG/LG_V60_ThinQ/userguide/lg-v60-thinq-5g-lm-v600vmengug-user-manual-en-03132020.pdf and https://www.lg.com/us/support/manuals-documents. Defendants are thereby liable for infringement of the '334 Patent pursuant to 35 U.S.C. § 271(b).

47. Defendants have indirectly infringed at least claims 4 and 6 of the '334 Patent, by, among other things, contributing to the direct infringement of others, including customers of the '334 Accused Products by making, offering to sell, or selling, in the United States, or importing a component of a patented process, constituting a materials part of the invention, knowing the same to be especially made or especially adapted for use in infringement of the '334 Patent, and not a staple article or commodity of commerce suitable for substantial non-infringing use.

48. For example, the ’334 Accused Products include an envelope tracker and related RF and amplification components to effectuate power control functionality. These are components of a patented machine, manufacture, or combination, or an apparatus for use in practicing a patented process. Furthermore, such components are a material part of the invention and upon information and belief are not a staple article or commodity of commerce suitable for substantial non-infringing use. Thus, Defendants are liable for infringement of the ’334 Patent pursuant to 35 U.S.C. § 271(c).

49. LG has been aware of the ’334 Patent since at least July 19, 2021, based on correspondence directed to Mr. Hwi jae Cho. *See* Letter from T. Yamamoto to H. Cho dated Jul. 19, 2021. (Exhibit 2). That correspondence set forth Maxell’s belief that LG makes, uses, sells, offers to sell, or imports products that infringe certain of Maxell’s patents, and specifically identified the ’334 Patent as well as exemplary claims and exemplary accused products for that patent. By the time of trial, LG will thus have known and intended (since receiving such notice), that its continued actions would actively induce and contribute to actual infringement of at least claims 4 and 6 of the ’334 Patent.

50. LG undertook and continued its infringing actions despite an objectively high likelihood that such activities infringed the ’334 Patent, which has been duly issued by the USPTO, and is presumed valid. For example, since at least July 19, 2021, LG has been aware of an objectively high likelihood that their actions constituted and continue to constitute infringement of the ’334 Patent, and that the ’334 Patent is valid. On information and belief, LG could not reasonably, subjectively believe that their actions do not constitute infringement of the ’334 Patent, nor could they reasonably, subjectively believe that the patent is invalid. Despite that knowledge

and subjective belief, and the objectively high likelihood that their actions constitute infringement, LG has continued its infringing activities. As such, LG willfully infringes the ’334 Patent.

51. Maxell has been damaged by Defendants’ infringement of the ’334 Patent.

COUNT 3 – INFRINGEMENT OF U.S. PATENT NO. 7,199,821

52. Maxell incorporates paragraphs 1-51 above by reference.

53. U.S. Patent No. 7,199,821 (“the ’821 Patent,” attached hereto at Exhibit 4 duly issued on April 3, 2007 and is entitled, “Imaging Apparatus and Method for Controlling White Balance.”

54. Maxell is the owner by assignment of the ’821 Patent and possesses all rights under the ’821 Patent, including the exclusive right to recover for past and future infringement.

55. The ’821 Patent is directed to an imaging apparatus that has the ability to capture pictures with the correct color effect. Specifically, in order for a camera to capture and generate a picture of high quality with proper color, the camera needs to balance the different portions of the image. For example, if the camera is photographing a subject that is wearing a white shirt against a colorful background, the camera will need to process the image signals in such a way that the white portion of the image is balanced with the colorful portion. This processing is referred to as white balancing of an image or white balance correction.

56. Conventional techniques prior to the ’821 Patent performed white balance corrections by constructing a feedback loop such that signals corresponding to the white portion and colored portions were distinguished to detect a white balance deviation, and this detected deviation was then used to adjust the signals corresponding to the colored portions. But this technique did not create pictures of high quality under all conditions, as the detected deviation may not have been accurate if the colored portions of the image included a large part of the pictures. Further, these techniques did not account for additional variations during photography, including

brightness of the object being photographed, distance of the object from the camera, and zoom value.

57. The ’821 Patent solves these problems by implementing white balance correction that takes into account the distance of the object being photographed, a zoom value, and brightness of the object being photographed. For example, the ’821 Patent discloses an imaging method of an imaging apparatus that includes a white balance control means, an object distance detecting means, a zoom detecting means, and a brightness detecting means such that the apparatus corrects the white balance of the image signals based on the detected brightness, zoom, and distance values. Incorporating such a white balance correction technique ensures that the imaging apparatus generates high-quality pictures despite varying conditions and control parameters.

58. Defendants have directly infringed one or more claims of the ’821 Patent in this District and elsewhere in Texas, including at least claim 6 literally and/or under the doctrine of equivalents, by or through making, using (*e.g.*, through product testing), importing, offering for sale, and/or selling its telecommunications technology, including at least the LG Arena 2; LG Aristo Family (Aristo, Aristo 2, Aristo 2+, Aristo 3+, Aristo 4+, Aristo 5, Aristo Cobalt Blue, and Aristo Silver); LG Classic; LG Escape 3; LG Fiesta Family (Fiesta LTE (CDMA), Fiesta LTE (GSM), Fiesta 2 LTE (CDMA), and Fiesta 2 LTE (GSM)); LG Fortune; LG Fortune 3; LG G Family (G Stylo, G Vista 2, G4, G5, G5 Silver, G6+, G6, G6 Duo, G7 Fit, G7 ThinQ, G8 ThinQ, G8X ThinQ, and G8X ThinQ Dual Screen); LG Grace LTE (GSM); LG Harmony Family (Harmony, Harmony 2, Harmony 3, and Harmony 4); LG Journey LTE; LG K Family (K10, K20, K20 Plus, K22, K30, K31, K31 Rebel, K3, K3 2017, K40, K4, K51, K7, K8 V, K8, K8 2017, K8X, and K92 5G); LG Leon LTE; LG Neon Plus; LG Nexus 5X; LG Optimus Zone 3; LG Phoenix Family (Phoenix 2, Phoenix 3, Phoenix 5, and Phoenix Plus); LG Premier LTE (CDMA); LG

Premier LTE (GSM); LG Prime 2; LG Q Family (Q6, Q7+, Q7+ BTS Limited Edition, and Q70); LG Rebel Family (Rebel 2 LTE (CDMA), Rebel 2 LTE (GSM), Rebel 3 LTE (CDMA), Rebel 3 LTE (GSM), Rebel LTE (CDMA), and Rebel LTE (GSM)); LG Reflect; LG Risio 2; LG Risio 4; LG Risio; LG Solo LTE; LG Spree; LG Stylo Family (Stylo 2 V, Stylo 2 Plus, Stylo 2, Stylo 2 LTE (CDMA), Stylo 2 LTE (GSM), Stylo 3, Stylo 3 LTE (CDMA), Stylo 3 Plus, Stylo 3 Plus Titan, Stylo 4, Stylo 5, Stylo 5x, and Stylo 6); LG Treasure LTE (CDMA); LG Treasure LTE (GSM); LG Tribute Family (Tribute 5, Tribute Dynasty, Tribute Empire, Tribute Royal, Tribute HD, and Tribute Monarch); LG V Family (V10, V20, V30S ThinQ, V30, V30+, V35 ThinQ, V35 ThinQ with Alexa Hands-Free, V40 ThinQ, V50 ThinQ 5G, V60 ThinQ 5G, V60 ThinQ 5G, V60 ThinQ 5G Dual Screen, and V60 ThinQ 5G UW); LG Velvet 5G; LG Volt 2; LG Wing 5G; LG X Charge; LG X Power; LG X Style (CDMA); LG X Style (GSM); LG X Venture; LG Xpression Plus 2; LG Xpression Plus 3; LG Zone 4; LG Gram laptops; including the LG gram 13.3” Ultra-Lightweight Laptop with Intel® Core™ i5 processor; LG gram 13.3” Ultra-Lightweight Touchscreen Laptop with Intel® Core™ i5 processor; LG gram 14" 2-in-1 Ultra-Lightweight Laptop with Intel® Evo 11th Gen Intel® Core™ i5 Processor and Iris® Xe Graphics; LG gram 14" 2-in-1 Ultra-Lightweight Laptop with Intel® Evo 11th Gen Intel® Core™ i7 Processor and Iris® Xe Graphics; LG gram 14" Ultra-Lightweight and Slim Laptop with 11th Gen Intel® Core™ i3 Processor; LG gram 14" Ultra-Lightweight and Slim Laptop with Intel® Evo 11th Gen Intel® Core™ i5 Processor and Iris® Xe Graphics; LG gram 14" Ultra-Lightweight and Slim Laptop with Intel® Evo 11th Gen Intel® Core™ i7 Processor and Iris® Xe Graphics; LG gram 14" Ultra-Lightweight Laptop with 10th Gen Intel® Core™ Processor w/Intel Iris® Plus®; LG gram 14" i7 Processor 2-in-1 Ultra-Lightweight Laptop; LG gram 14" Ultra-Lightweight and Slim Laptop with 11th Gen Intel® Core™ i3 Processor; LG gram 14” Ultra-Lightweight Touchscreen Laptop with

Intel® Core™ i7; LG gram 15" Ultra-Lightweight Laptop with 10th Gen Intel® Core™ Processor w/Intel Iris® Plus®; LG gram 15" Ultra-Lightweight Laptop with 11th Gen Intel® Core™ Processor w/Intel® Iris® Xe Graphics; LG gram 15" Ultra-Lightweight Laptop with 11th Gen Intel® Core™ i7 Processor w/Intel® Iris® Xe Graphics; LG gram 15.6" Ultra Slim-Slim Laptop with Intel 10th gen i5 Processor; LG gram 15.6" Ultra-Lightweight Touchscreen Laptop w/ Intel® Core™ i7 processor and Thunderbolt™ 3; LG gram 15.6" i7 Processor Ultra-Slim Laptop; LG gram 15.6" Ultra-Lightweight Laptop with Intel® Core™ i5 processor; LG gram 15" Ultra-Lightweight and Slim Laptop with 11th Gen Intel® Core™ i5 Processor and Iris® Xe Graphics; LG gram 15" Ultra-Lightweight and Slim Laptop with 11th Gen Intel® Core™ i5 Processor w/Intel® Iris® Xe Graphics; LG gram 15" Ultra-Lightweight and Slim Laptop with 11th Gen Intel® Core™ i7 Processor and Iris® Xe Graphics; LG gram 15" Ultra-Lightweight and Slim Laptop with 11th Gen Intel® Core™ i7 Processor w/Intel® Iris® Xe Graphics; LG gram 16" 2-in-1 Ultra-Lightweight Laptop with Intel® Evo 11th Gen Intel® Core™ i5 Processor and Iris® Xe Graphics; LG gram 16" 2-in-1 Ultra-Lightweight Laptop with Intel® Evo 11th Gen Intel® Core™ i7 Processor and Iris® Xe Graphics; LG gram 16.0" i7 Processor Ultra-Slim Laptop; LG gram 16" Ultra-Lightweight and Slim Laptop with Intel® Evo 11th Gen Intel® Core™ i5 Processor and Iris® Xe Graphics; LG gram 16" Ultra-Lightweight and Slim Laptop with Intel® Evo 11th Gen Intel® Core™ i7 Processor and Iris® Xe Graphics; LG gram 17" Ultra-Lightweight Laptop with 10th Gen Intel® Core™ Processor w/Intel Iris® Plus®; LG gram 17" Ultra-Lightweight Laptop with 11th Gen Intel® Core™ i7 Processor w/Intel® Iris® Xe Graphics; LG gram 17" Ultra-Lightweight Laptop with 10th Gen Intel® Core™ Processor w/Intel Iris® Plus®; LG gram 17" Ultra-Lightweight Laptop with 11th Gen Intel® Core™ Processor w/Intel® Iris® Xe Graphics; LG gram 17.0" i7 Processor Ultra-Slim Laptop; LG gram 17" Ultra-Lightweight and

Slim Laptop with Intel® Evo 11th Gen Intel® Core™ i7 Processor and Iris® Xe Graphics; LG gram 17" Ultra-Lightweight Laptop with Intel® Core™ i7 processor; LG gram 2-in-1 Ultra-Lightweight with 14" 16:10 IPS Display with LG Glance by Mirametrix®; LG gram 2-in-1 Ultra-Lightweight with 16" 16:10 IPS Display with LG Glance by Mirametrix®; LG gram14Z90Q Thin and Lightweight Laptop; LG gram15Z90Q Thin and Lightweight Laptop; LG gram16Z90Q Thin and Lightweight Laptop; LG Ultra PC 13.3" Ryzen™ 5 Processor Lightweight and Slim Laptop; LG Ultra PC 13.3" Ryzen™ 7 Processor Lightweight and Slim Laptop; LG Ultra PC 17" Lightweight & High Performance Laptop with Intel® 11th Gen i7 and NVIDIA® GTX1650Ti; LG Ultra PC 17" Lightweight & High Performance Laptop with NVIDIA® GeForce® GTX™; LG UltraPC 15.6'' Lightweight & High Performance Laptop with Intel® 11th Gen i7 and NVIDIA® GeForce® GTX™ 1650Ti; and all SKUs of each of LG 13Z990, LG 13Z980, LG 13Z970, LG 13Z950, LG 14Z90R, LG 14Z90Q, LG 14Z90P, LG 14Z90N, LG 14Z995, LG 14Z990, LG 14Z980, LG 14Z970, LG 15Z90R, LG 15Z90Q, LG15Z90P, LG 15Z90N, LG 15Z95P, LG 15Z95N, LG 15Z995, LG 15Z990, LG 15Z980, LG 15Z975, LG 15Z970, LG 15Z960, LG 16Z90R, LG 16Z90Q, LG 16Z90P, LG 17Z90R, LG 17Z90Q, LG 17Z90P, LG 17Z90N, LG 17Z95P, LG 17Z95N, LG 17Z990, LG 14ZB90Q, 16ZB90Q, 17ZB90Q, 15ZB90Q, LG 14Z90RS, LG 16Z90RS, LG 15Z90RT, LG 14T90R, LG 14T90Q, LG 14T90P, LG 14T90N, LG 14T990, LG 16T90R, LG 16T90Q, LG 16T90P, LG 13U70P, LG 14U70Q, LG 15U70P, LG 16U70Q, LG 17U70Q and LG 17U70N (the "'821 Accused Products"). Maxell reserves the right to discover and pursue any additional infringing devices that incorporate infringing functionalities. For the avoidance of doubt, the '821 Accused Products are identified to describe the Defendants' infringement and in no way limit the discovery and infringement allegations against Defendants concerning other devices that incorporate the same or reasonably similar functionalities.

59. Each of the ’821 Accused Products, including for example, the LGV60 ThinQ 5G and the LG gram 15” Ultra-Lightweight and Slim Laptop with 11th Gen Intel® Core™ i7 Processor w/Intel® Iris® Xe Graphics, is observed to perform an imaging method of an imaging apparatus with a display that displays images that are picked up by an image pick up device and processed by an image processor. The ’821 Accused Products have a white balance circuit that ensures that white objects in images picked up by the image sensor appear white. The ’821 Accused Products also include circuitry and/or a processor for detecting object distance and outputting object distance detection information, detecting a zoom value and outputting zoom value information, and detecting object brightness and outputting object brightness information. For example, the ’821 Accused Products have autofocus functions (which include distance detection functions), brightness measurement functions, zoom functions, color correction functions, and white balance functionalities. The ’821 Accused Products control white balance in an image based on these distance, zoom, and brightness values. The ’821 Accused Products also have circuitry for setting an object distance threshold on the basis of the object brightness and zoom value information, and adjusting white balance according to the distance threshold. For example, the ’821 Accused Products including for example, the LGV60 ThinQ 5G and the LG gram 15” Ultra-Lightweight and Slim Laptop with 11th Gen Intel® Core™ i7 Processor w/Intel® Iris® Xe Graphics, generate bounding boxes when detecting that a face is present in a picture. The LGV60 ThinQ 5G and, on information and belief, the LG gram 15” Ultra-Lightweight and Slim Laptop with 11th Gen Intel® Core™ i7 Processor w/Intel® Iris® Xe Graphics perform white balance corrections within the bounding boxes based on the brightness and zoom level (both of which are a function of object distance) of the target image, but will not perform such white balance

corrections when the bounding box is too small or too large based on the face being too close or far from the camera.

60. Additionally, for example, the following excerpt from LG's website provides additional non-limiting examples of the '821 Accused Products infringing at least claim 6 of the '821 Patent by performing white balance corrections after capturing pictures, including, for example, with the implementation of Portrait mode, wherein, for example, photo depth information is used to adjust lighting effects on a photo (e.g., Bokeh effect), and filters such as a beauty filter perform white balance corrections.

Various camera modes

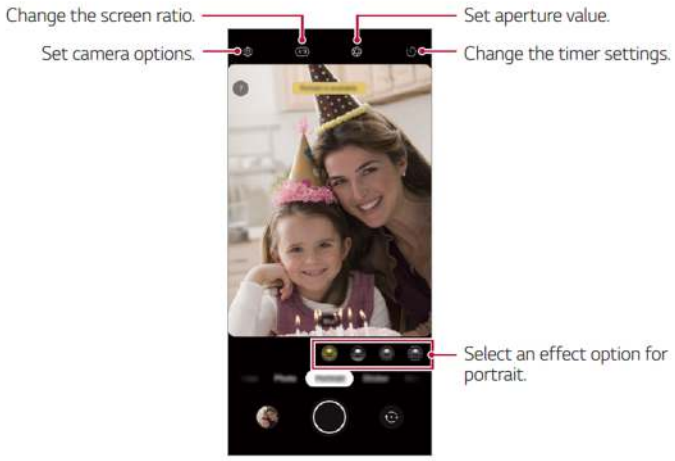
Portrait

You can take photos or videos that make the subject more distinct and stand out by blurring the background.

1 On the home screen, tap then select **Portrait** by swiping camera modes.
- Select a desired effect by swiping effect options for portrait.
- Tap to adjust the aperture value.

2 When **Portrait is available.** appears on the screen, tap to take a photo, or touch and hold to record a video (available only in some options).
- Tap to adjust the aperture value while recording a video.

- The Portrait feature may not work if the camera cannot recognize the subject.
- While taking a photo, keep the distance to your subject to 1.3 ~ 5 feet.
- This feature is not available if the surroundings are too dark.



LG V60 ThinQ 5G User Manual at 84.

61. The foregoing features and capabilities of the ’821 Accused Products and LG’s description and/or demonstration thereof, including user manuals and advertising, reflect LG’s direct infringement by satisfying every element of at least claim 6 of the ’821 Patent, under 35 U.S.C. § 271(a).

62. Defendants have indirectly infringed at least claim 6 of the ’821 Patent in this District and elsewhere in the United States by, among other things, actively inducing the use, offering for sale, selling, or importation of at least the ’821 Accused Products. LG’s customers who purchase devices and components thereof and operate such devices and components in accordance with LG’s instructions directly infringe one or more claims of the ’821 Patent in violation of 35 U.S.C. § 271(b). Defendants instruct their customers through at least user guides, such as those for the LGV60 ThinQ 5G and other Accused ’821 Products located at the following websites:
https://ss7.vzw.com/is/content/VerizonWireless/Catalog%20Assets/Devices/LG/LG_V60_ThinQ/userguide/lg-v60-thinq-5g-lm-v600vmengug-user-manual-en-03132020.pdf and https://www.lg.com/us/support/manuals-documents.

63. For example, as noted above, LG instructs its customers to “take photos or videos that make the subject more distinct and stand out by blurring the background” with Portrait mode. Defendants are thereby liable for infringement of the ’821 Patent pursuant to 35 U.S.C. § 271(b).

64. Defendants have indirectly infringed at least claim 6 of the ’821 Patent, by, among other things, contributing to the direct infringement of others, including customers of the ’821 Accused Products by making, offering to sell, or selling, in the United States, or importing a component of a patented machine, manufacture, or combination, or an apparatus for use in

practicing a patented process, constituting a material part of the invention, knowing the same to be especially made or especially adapted for use in infringement of the '821 Patent, and not a staple article or commodity of commerce suitable for substantial non-infringing use.

65. For example, the '821 Accused Products include a white balance correction circuit and additional image correcting and processing components. These are components of a patented machine, manufacture, or combination, or an apparatus for use in practicing a patented process. Furthermore, such components are a material part of the invention and upon information and belief are not a staple article or commodity of commerce suitable for substantial non-infringing use. Thus, Defendants are liable for infringement of the '821 Patent pursuant to 35 U.S.C. § 271(c).

66. LG has been aware of the '821 Patent since at least July 19, 2021, based on correspondence directed to Mr. Hwi jae Cho. *See* Letter from T. Yamamoto to H. Cho dated Jul. 19, 2021 (Exhibit 2). That correspondence set forth Maxell's belief that LG makes, uses, sells, offers to sell, or imports products that infringe certain of Maxell's patents, and specifically identified the '821 Patent as well as exemplary claims and exemplary accused products for that patent. By the time of trial, LG will thus have known and intended (since receiving such notice), that its continued actions would actively induce and contribute to actual infringement of at least claim 6 of the '821 Patent.

67. LG undertook and continued its infringing actions despite an objectively high likelihood that such activities infringed the '821 Patent, which has been duly issued by the USPTO, and is presumed valid. For example, since at least July 19, 2021, LG has been aware of an objectively high likelihood that their actions constituted and continue to constitute infringement of the '821 Patent, and that the '821 Patent is valid. On information and belief, LG could not reasonably, subjectively believe that their actions do not constitute infringement of the '821 Patent,

nor could they reasonably, subjectively believe that the patent is invalid. Despite that knowledge and subjective belief, and the objectively high likelihood that their actions constitute infringement, LG has continued its infringing activities. As such, LG willfully infringes the ’821 Patent.

68. Maxell has been damaged by Defendant’s infringement of the ’821 patent.

COUNT 4 – INFRINGEMENT OF U.S. PATENT NO. 10,244,284

69. Maxell incorporates paragraphs 1-68 above by reference.

70. U.S. Patent No. 10,244,284 (“the ’284 Patent,” attached hereto at Exhibit 5) duly issued on March 26, 2019 and is entitled, “Display Apparatus and Video Processing Apparatus.”

71. Maxell is the owner by assignment of the ’284 Patent and possesses all rights under the ’284 Patent, including the exclusive right to recover for past and future infringement.

72. The ’284 Patent is directed to a technique for establishing multiple connections between a plurality of devices wirelessly via a radio in order to transmit video information.

73. For example, prior to the ’284 Patent, conventional techniques of connecting video processing devices with each other involved establishing analog connections for video and audio signals. But with the widespread use of digital videos and the ability of devices to perform multiple tasks at the same time, there arose a need to implement additional techniques of transmitting video information while also ensuring that the devices could continue to be used for additional functions during video transfer.

74. Thus, the ’284 Patent discloses a technique wherein a video processing device can include multiple radio communication circuits such that these circuits could be controlled to transfer video to another device via one of the circuits, while another circuit could be used to allow the video processing device to connect to the Internet or home network. This solution allows the video processing device to transfer video information over a digital connection while also ensuring

that it could continue to be used to perform additional functions such as accessing a website over the Internet.

75. Defendants have directly infringed one or more claims of the ’284 Patent in this district and elsewhere in Texas, including at least claims 18-20 literally and/or under the doctrine of equivalents, by or through making, using (*e.g.*, through product testing), importing offering for sale and/or selling its telecommunications technology, including at least the LG Arena 2, LG Aristo Family (Aristo, Aristo 2, Aristo 2+, Aristo 3+, Aristo 4+, Aristo 5, Aristo Cobalt Blue, and Aristo Silver), LG Classic, LG Escape 3, LG Fiesta Family (Fiesta LTE (CDMA), Fiesta LTE (GSM), Fiesta 2 LTE (CDMA), and Fiesta 2 LTE (GSM)), LG Fortune, LG Fortune 3, LG G Family (G Stylo, G Vista 2, G4, G5, G5 Silver, G6+, G6, G6 Duo, G7 Fit, G7 ThinQ, G8 ThinQ, G8X ThinQ, and G8X ThinQ Dual Screen), LG Grace LTE (GSM), LG Harmony Family (Harmony, Harmony 2, Harmony 3, and Harmony 4), LG Journey LTE, LG K Family (K10, K20, K20 Plus, K22, K30, K31, K31 Rebel, K3, K3 2017, K40, K4, K51, K7, K8 V, K8, K8 2017, K8X, and K92 5G), LG Leon LTE, LG Neon Plus, LG Nexus 5X, LG Optimus Zone 3, LG Phoenix Family (Phoenix 2, Phoenix 3, Phoenix 5, and Phoenix Plus), LG Premier LTE (CDMA), LG Premier LTE (GSM), LG Prime 2, LG Q Family (Q6, Q7+, Q7+ BTS Limited Edition, and Q70), LG Rebel Family (Rebel 2 LTE (CDMA), Rebel 2 LTE (GSM), Rebel 3 LTE (CDMA), Rebel 3 LTE (GSM), Rebel LTE (CDMA), and Rebel LTE (GSM)), LG Reflect, LG Risio 2, LG Risio 4, LG Risio, LG Solo LTE, LG Spree, LG Stylo Family (Stylo 2 V, Stylo 2 Plus, Stylo 2, Stylo 2 LTE (CDMA), Stylo 2 LTE (GSM), Stylo 3, Stylo 3 LTE (CDMA), Stylo 3 Plus, Stylo 3 Plus Titan, Stylo 4, Stylo 5, Stylo 5x, and Stylo 6), LG Treasure LTE (CDMA), LG Treasure LTE (GSM), LG Tribute Family (Tribute 5, Tribute Dynasty, Tribute Empire, Tribute Royal, Tribute HD, and Tribute Monarch), LG V Family (V10, V20, V30S ThinQ, V30, V30+, V35 ThinQ, V35

ThinQ with Alexa Hands-Free, V40 ThinQ, V50 ThinQ 5G, V60 ThinQ 5G, V60 ThinQ 5G, V60 ThinQ 5G Dual Screen, and V60 ThinQ 5G UW), LG Velvet 5G, LG Volt 2, LG Wing 5G, LG X Charge, LG X Power, LG X Style (CDMA), LG X Style (GSM), LG X Venture, LG Xpression Plus 2, LG Xpression Plus 3, and LG Zone 4 (the "'284 Accused Products"). Maxell reserves the right to discover and pursue any additional infringing devices that incorporate infringing functionalities. For the avoidance of doubt, the '284 Accused Products are identified to describe the Defendants' infringement and in no way limit the discovery and infringement allegations against Defendants concerning other devices that incorporate the same or reasonably similar functionalities.

76. Each of the '284 Accused Products, including for example, the LG V60 ThinQ 5G, is observed to include a first radio communication circuit (for example, a Wi-Fi communication chip or, alternatively, a cellular communication chip) and a second radio communication circuit (for example, a cellular communication chip or, alternatively, a Wi-Fi communication chip) that are used to transmit and/or receive video information using first and second transmission frequency bands.

77. The '284 Accused Products are further observed to control the first and second radio communication circuits such that the first radio communication circuit transmits digital video information to an external apparatus (for example, a mobile device) and the second radio communication circuit connects to the Internet or home network simultaneously.

78. The '284 Accused Products are further observed to control the assignment such that the assignment between the first radio communication circuit and the external apparatus is prioritized more than the assignment between the second radio communication circuit and the Internet or the home network when a user issues an indication to transmit digital video information

by the first radio communication circuit while acquiring information from the Internet or the home network by the second radio communication circuit.

79. For example, on information and belief, under certain conditions LG V60 ThinQ 5G is configured to control transmitting video using a Wi-Fi communication chip (for example, over e-mail or Wi-Fi Direct) while simultaneously connected to the Internet using a cellular communication chip. On information belief, under certain conditions the LG V60 ThinQ 5G is further configured to prioritize the assignment between the Wi-Fi communication chip and the external apparatus more than the assignment between the cellular communication chip and the Internet when a user issues an indication to transmit digital video information by the Wi-Fi communication chip while acquiring information from the Internet by the cellular communication chip.

80. Alternatively, on information and belief, under certain conditions the LG V60 ThinQ 5G is configured to control transmitting video using a cellular communication chip (for example over email) while simultaneously connected to the Internet or a home network using a Wi-Fi communication chip. On information belief, under certain conditions the LG V60 ThinQ 5G is further configured to prioritize the assignment between the cellular communication chip and the external apparatus more than the assignment between the Wi-Fi communication chip and the Internet or the home network when a user issues an indication to transmit digital video information by the cellular communication chip while acquiring information from the Internet or the home network by the Wi-Fi communication chip.

81. The foregoing features and capabilities of the ’284 Accused Products and LG’s description and/or demonstration thereof, including user manuals and advertising, reflect LG’s

direct infringement by satisfying every element of at least claims 18-20 of the ’284 Patent, under 35 U.S.C. § 271(a).

82. Defendants have indirectly infringed at least claims 18-20 of the ’284 Patent in this District and elsewhere in the United States by, among other things, actively inducing the use, offering for sale, selling, or importation of at least the ’284 Accused Products. LG’s customers who purchase devices and components thereof and operate such devices and components in accordance with LG’s instructions directly infringe one or more claims of the ’284 Patent in violation of 35 U.S.C. § 271(b). Defendants instruct their customers through at least user guides, such as those for the LGV60 ThinQ 5G and other Accused ’284 Products located at the following websites:

https://ss7.vzw.com/is/content/VerizonWireless/Catalog%20Assets/Devices/LG/LG_V60_ThinQ/userguide/lg-v60-thinq-5g-lm-v600vmengug-user-manual-en-03132020.pdf and https://www.lg.com/us/support/manuals-documents.

83. For example, in its user guides, as cited above, LG instructs its customers to “take and share pictures and videos” and to “connect your device to other devices that support Wi-Fi Direct to share data directly with them.” Defendants are thereby liable for infringement of the ’284 Patent pursuant to 35 U.S.C. § 271(b).

84. Defendants have indirectly infringed at least claims 18-20 of the ’284 Patent, by, among other things, contributing to the direct infringement of others, including customers of the ’284 Accused Products by making, offering to sell, or selling, in the United States, or importing a component of a patented machine, manufacture, or combination, or an apparatus for use in practicing a patented process, constituting a material part of the invention, knowing the same to be

especially made or especially adapted for use in infringement of the ’284 Patent, and not a staple article or commodity of commerce suitable for substantial non-infringing use.

85. For example, the ’284 Accused Products include hardware (Wi-Fi chipset, cellular chipset, application process, memory, and camera) and software (Wi-Fi and cellular software). These are components of a patented machine, manufacture, or combination, or an apparatus for use in practicing a patented process. Furthermore, such components are a material part of the invention and upon information and belief are not a staple article or commodity of commerce suitable for substantial non-infringing use. Thus, Defendants are liable for infringement of the ’284 patent pursuant to 35 U.S.C. § 271(c).

86. LG has been aware of the ’284 Patent since at least July 19, 2021, based on correspondence directed to Mr. Hwi jae Cho. *See* Letter from T. Yamamoto to H. Cho dated Jul. 19, 2021 (Exhibit 2). That correspondence set forth Maxell’s belief that LG makes, uses, sells, offers to sell, or imports products that infringe certain of Maxell’s patents, and specifically identified the ’284 Patent as well as exemplary claims and exemplary accused products for that patent. By the time of trial, LG will thus have known and intended (since receiving such notice), that its continued actions would actively induce and contribute to actual infringement of at least claims 18-20 of the ’284 Patent.

87. LG undertook and continued its infringing actions despite an objectively high likelihood that such activities infringed the ’284 Patent, which has been duly issued by the USPTO, and is presumed valid. For example, since at least July 19, 2021, LG has been aware of an objectively high likelihood that their actions constituted and continue to constitute infringement of the ’284 Patent, and that the ’284 Patent is valid. On information and belief, LG could not reasonably, subjectively believe that their actions do not constitute infringement of the ’284 Patent,

nor could they reasonably, subjectively believe that the patent is invalid. Despite that knowledge and subjective belief, and the objectively high likelihood that their actions constitute infringement, LG has continued its infringing activities. As such, LG willfully infringes the ’284 Patent.

88. Maxell has been damaged by Defendant’s infringement of the ’284 patent.

COUNT 5 – INFRINGEMENT OF U.S. PATENT NO. 8,339,493

89. Maxell incorporates paragraphs 1-88 above by reference.

90. U.S. Patent No. 8,339,493 (“the ’493 Patent,” attached hereto at Exhibit 6) duly issued on December 25, 2012 and is entitled, “Electric Camera.”

91. Maxell is the owner by assignment of the ’493 Patent and possesses all rights thereunder, including the exclusive right to recover for past and future infringement.

92. The patentability of the ’493 Patent was challenged in IPR2018-00236, wherein the Patent Trial and Appeal Board was asked to consider the teachings of prior art (*e.g.*, U.S. Patent Nos. 5,493,335, 5,440,343, 5,497,192, 5,828,406, and 6,512,541) in a challenge to the validity of claims 5 and 6. In response, the Patent Trial and Appeal Board denied the petition, finding that the information presented does not “demonstrate a reasonable likelihood that Petitioner would prevail in showing that at least one of the challenged claims of the ’493 patent is unpatentable.” The PTAB also denied an additional IPR (IPR2020-00597) that was filed against the ’493 patent by Apple.

93. The ’493 Patent relates to electric cameras and other devices used for capturing images. Prior to the ’493 Patent, conventional electric cameras could not effectively capture both static (or still) and moving images. For example, when taking still pictures with a camera designed for capturing moving images, the number of pixels was insufficient for a high-quality image. And when attempting to capture moving images with a camera designed for taking still images, the dynamic range quality of the moving image would deteriorate, and the required circuitry would increase. The ’493 Patent addresses this problem by reciting an electric camera and other devices

that allow signal charges from differing number of pixels in an image sensor's pixel array to be used based on whether the device is operating in still image recording mode, monitoring mode, or moving video mode. Specifically, the '493 Patent categorizes pixels of the image sensor into an N number of vertically arranged pixel lines, and allowing moving and still image capture applications to use different portions of the N number of vertically arranged pixels lines for their respective functions, thereby allowing each mode of the camera to use the portion of the image sensor most suited for the required task.

94. LG has directly infringed one or more claims of the '493 Patent in this District and elsewhere in Texas, including at least claims 10 and 12-14 literally and/or under the doctrine of equivalents, by or through making, using (*e.g.*, through product testing), importing, offering for sale and/or selling its telecommunications technology, including at least the LG Arena 2; LG Aristo Family (Aristo, Aristo 2, Aristo 2+, Aristo 3+, Aristo 4+, Aristo 5, Aristo Cobalt Blue, and Aristo Silver); LG Classic; LG Escape 3; LG Fiesta Family (Fiesta LTE (CDMA), Fiesta LTE (GSM), Fiesta 2 LTE (CDMA), and Fiesta 2 LTE (GSM)); LG Fortune; LG Fortune 3; LG G Family (G Stylo, G Vista 2, G4, G5, G5 Silver, G6+, G6, G6 Duo, G7 Fit, G7 ThinQ, G8 ThinQ, G8X ThinQ, and G8X ThinQ Dual Screen); LG Grace LTE (GSM); LG Harmony Family (Harmony, Harmony 2, Harmony 3, and Harmony 4); LG Journey LTE; LG K Family (K10, K20, K20 Plus, K22, K30, K31, K31 Rebel, K3, K3 2017, K40, K4, K51, K7, K8 V, K8, K8 2017, K8X, and K92 5G); LG Leon LTE; LG Neon Plus; LG Nexus 5X; LG Optimus Zone 3; LG Phoenix Family (Phoenix 2, Phoenix 3, Phoenix 5, and Phoenix Plus); LG Premier LTE (CDMA); LG Premier LTE (GSM); LG Prime 2; LG Q Family (Q6, Q7+, Q7+ BTS Limited Edition, and Q70); LG Rebel Family (Rebel 2 LTE (CDMA), Rebel 2 LTE (GSM), Rebel 3 LTE (CDMA), Rebel 3 LTE (GSM), Rebel LTE (CDMA), and Rebel LTE (GSM)); LG Reflect; LG Risio 2; LG Risio 4;

LG Risio; LG Solo LTE; LG Spree; LG Stylo Family (Stylo 2 V, Stylo 2 Plus, Stylo 2, Stylo 2 LTE (CDMA), Stylo 2 LTE (GSM), Stylo 3, Stylo 3 LTE (CDMA), Stylo 3 Plus, Stylo 3 Plus Titan, Stylo 4, Stylo 5, Stylo 5x, and Stylo 6); LG Treasure LTE (CDMA); LG Treasure LTE (GSM); LG Tribute Family (Tribute 5, Tribute Dynasty, Tribute Empire, Tribute Royal, Tribute HD, and Tribute Monarch); LG V Family (V10, V20, V30S ThinQ, V30, V30+, V35 ThinQ, V35 ThinQ with Alexa Hands-Free, V40 ThinQ, V50 ThinQ 5G, V60 ThinQ 5G, V60 ThinQ 5G, V60 ThinQ 5G Dual Screen, and V60 ThinQ 5G UW); LG Velvet 5G; LG Volt 2; LG Wing 5G; LG X Charge; LG X Power; LG X Style (CDMA); LG X Style (GSM); LG X Venture; LG Xpression Plus 2; LG Xpression Plus 3; LG Zone 4; LG laptops including, for example, at least the following laptops:

LG gram 14" 2-in-1 Ultra-Lightweight Laptop with Intel® Core™ i7 processor and Wacom Pen

14T990-U.AAS8U1

NEW

LG gram 17" Ultra-Lightweight Laptop with 10th Gen Intel® Core™ Processor w/Intel Iris® Plus®

17Z90N-R.AAS9U1

NEW

LG gram 15" Ultra-Lightweight Laptop with 10th Gen Intel® Core™ Processor w/Intel Iris® Plus®

15Z90N-U.ARS5U1

NEW

LG gram 14" Ultra-Lightweight Laptop with 10th Gen Intel® Core™ Processor w/Intel Iris® Plus®

14Z90N-U.AAS7U1

NEW

LG gram 14" Ultra-Lightweight Laptop with 10th Gen Intel® Core™ Processor w/Intel Iris® Plus®

14Z90N-U.ARW5U1

LG gram 13.3" Ultra-Lightweight Touchscreen Laptop with Intel® Core™ i7 processor

13Z990-R.AAS7U1

LG gram 13.3" Ultra-Lightweight Touchscreen Laptop with Intel® Core™ i7 processor

13z990-R.AAS7U1Z

NEW

LG gram 15" Ultra-Lightweight Laptop with 10th Gen Intel® Core™ Processor w/Intel Iris® Plus®

15Z90N-R.AAS7U1

NEW

LG gram 14" i7 Processor 2-in-1 Ultra-Lightweight Laptop

14T90N-R.AAS9U1

NEW

LG gram 17" Ultra-Lightweight Laptop with 10th Gen Intel® Core™ Processor w/Intel Iris® Plus®

17Z90N-R.AAS9U1Z

NEW

LG gram 17" Ultra-Lightweight Laptop with 10th Gen Intel® Core™ Processor w/Intel Iris® Plus® - COSTCO...

17Z90N-R.AAC8U1

NEW

LG gram 15" Ultra-Lightweight Laptop with 10th Gen Intel® Core™ Processor w/Intel Iris® Plus® -...

15Z90N-R.AAS8U1

and additional LG laptops with similar functionalities (the "'493 Accused Products"). Maxell reserves the right to discover and pursue any additional infringing devices that incorporate infringing functionalities. For the avoidance of doubt, the '493 Accused Products are identified to describe LG's infringement and in no way limit the discovery and infringement allegations against LG concerning other devices that incorporate the same or reasonably similar functionalities.

95. Each of the '493 Accused Products includes at least one, and possibly two cameras (one front and one rear-facing), which incorporates a light-receiving sensor or imaging sensor (*e.g.*, CMOS sensor) with an array of pixels arranged vertically and horizontally in a grid pattern. The '493 Accused Products further include a processor or processing unit (e.g., ISP) that processes signals output from one or more cameras and sensors to generate image signals for display and/or storage, where the generated image can be manipulated in accordance with a select pixel arrangement and/or image stabilization correction factor using a portion of the pixel lines available. Each '493 Accused Product also incorporates a display unit with a display that displays images corresponding to image signals captured by the imaging sensors.

96. Each ’493 Accused Product allows selecting between a static image mode (*i.e.*, a photo mode) and a moving video mode (*i.e.*, a video mode). In the static image mode, the user can monitor the still image as it is captured by and displayed on the ’493 Accused Product. In accordance with the selected mode, each ‘493 Accused Product may generate an image using all of the vertically arranged pixel lines when recording a still image, or by using a set of pixel lines which have been mixed or culled from the vertically arranged pixel lines when in the moving video mode. When previewing an image in the static image mode, the signal processing unit is used to generate image signals by using pixel lines that have been mixed or culled from the vertically arranged pixel lines separated by a different distance than the separation used when recording in the moving video mode.

97. For example, the following excerpts from LG’s website provide non-limiting examples of the LGV60 ThinQ 5G infringing at least claims 10 and 12-14 of the ’493 patent by way of implementing a camera (for certain of the ’493 Accused Products, both front and rear cameras), CMOS sensors, and an image signal processor that arranges an array of pixels in a grid pattern and processes the pixels for each of a static image mode (*e.g.*, still pictures), monitoring mode (*e.g.*, preview of pictures/videos), and moving video mode (*e.g.*, videos):

KEY FEATURES

- Ultimate multi-tasking with the LG Dual Screen™ (Sold separately)
- 6.8" OLED Display
- 8K Video Recording
- Triple Camera System: 64 MP Standard, 13 MP Ultra-Wide, Z-Camera
- All-Day 5,000 mAh Battery
- 5G Connectivity

LGV60 ThinQ 5G Technical Specifications (https://www.lg.com/us/cell-phones/lg-lmv600amaattcb-att-v60-thinq-5g).

98. The foregoing features and capabilities of the ’493 Accused Products and LG’s description and/or demonstration thereof, including user manuals and advertising, reflect LG’s direct infringement by satisfying every element of at least claims 10 and 12-14 of the ’493 Patent, under 35 U.S.C. § 271(a).

99. Defendants have indirectly infringed at least claims 10 and 12-14 of the ’493 Patent in this District and elsewhere in the United States by, among other things, actively inducing the use, offering for sale, selling, or importation of at least the ’493 Accused Products. LG’s customers who purchase devices and components thereof and operate such devices and components in accordance with LG’s instructions directly infringe one or more claims of the ’493 patent in violation of 35 U.S.C. § 271(b). Defendants instruct their customers through at least user guides, such as those for the LGV60 ThinQ 5G and other Accused ’493 Products located at the following websites:

https://ss7.vzw.com/is/content/VerizonWireless/Catalog%20Assets/Devices/LG/LG_V60_ThinQ/userguide/lg-v60-thinq-5g-lm-v600vmengug-user-manual-en-03132020.pdf and https://www.lg.com/us/support/manuals-documents.

100. For example, as noted above, LG instructs its customers to use the “camera” application, and provides a software interface for adjusting the resolution of recording so as to differ from the resolution of the sensors. Defendants are thereby liable for infringement of the ’493 Patent pursuant to 35 U.S.C. § 271(b).

101. Defendants have indirectly infringed at least claims 10 and 12-14 of the ’493 Patent, by, among other things, contributing to the direct infringement of others, including customers of the ’493 Accused Products by making, offering to sell, or selling, in the United States, or importing a component of a patented machine, manufacture, or combination, or an apparatus for use in

practicing a patented process, constituting a material part of the invention, knowing the same to be especially made or especially adapted for use in infringement of the ’493 Patent, and not a staple article or commodity of commerce suitable for substantial non-infringing use.

102. For example, the ’493 Accused Products include camera components, displays, and integrated software in which display resolution differs from sensor resolution, and in which software is provided to adjust video recording resolution and still image recording resolution. These are components of a patented machine, manufacture, or combination, or an apparatus for use in practicing a patented process. Furthermore, such components are a material part of the invention and upon information and belief are not a staple article or commodity of commerce suitable for substantial non-infringing use. Thus, Defendants are liable for infringement of the ’493 Patent pursuant to 35 U.S.C. § 271(c).

103. LG has been aware of the ’493 Patent since at least July 19, 2021, based on correspondence directed to Mr. Hwi jae Cho. *See* Letter from T. Yamamoto to H. Cho dated Jul. 19, 2021 (Exhibit 2). That correspondence set forth Maxell’s belief that LG makes, uses, sells, offers to sell, or imports products that infringe certain of Maxell’s patents, and specifically identified the ’493 Patent as well as exemplary claims and exemplary accused products for that patent. By the time of trial, LG will thus have known and intended (since receiving such notice), that its continued actions would actively induce and contribute to actual infringement of at least claims 10 and 12-14 of the ’493 Patent.

104. LG undertook and continued its infringing actions despite an objectively high likelihood that such activities infringed the ’493 Patent, which has been duly issued by the USPTO, and is presumed valid. For example, since at least July 19, 2021, LG has been aware of an objectively high likelihood that their actions constituted and continue to constitute infringement of

the ’493 Patent, and that the ’493 Patent is valid. On information and belief, LG could not reasonably, subjectively believe that their actions do not constitute infringement of the ’493 Patent, nor could they reasonably, subjectively believe that the patent is invalid. Despite that knowledge and subjective belief, and the objectively high likelihood that their actions constitute infringement, LG has continued its infringing activities. As such, LG willfully infringes the ’493 Patent.

105. Maxell has been damaged by Defendant’s infringement of the ’493 Patent.

COUNT 6 – INFRINGEMENT OF U.S. PATENT NO. 8,736,729

106. Maxell incorporates paragraphs 1-105 above by reference.

107. U.S. Patent No. 8,736,729 (“the ’729 Patent,” attached hereto at Exhibit 7) duly issued on May 27, 2014 and is entitled, “Electric Camera.”

108. Maxell is the owner by assignment of the ’729 Patent and possesses all rights thereunder, including the exclusive right to recover for past and future infringement.

109. The patentability of the ’729 Patent was challenged in IPR2018-00238, wherein the Patent Trial and Appeal Board was asked to consider the teachings of prior art (*e.g.*, U.S. Patent Nos. 5,828,406, 5,440,343, 5,497,192, 6,512,541, and 5,493,335) in a challenge to the validity of claims 1-4. In response, the Patent Trial and Appeal Board denied the petition, finding that “Petitioner has not demonstrated a reasonable likelihood that at least one of the challenged claims is unpatentable based on the asserted grounds.”

110. The ’729 Patent relates to electric cameras and other devices used for capturing images. As explained above regarding the ’493 Patent, conventional electric cameras could not effectively capture both static (or still) and moving images. The ’729 Patent addresses this problem by changing an effective set of pixels based on a detected amount of image instability, thereby allowing the camera to focus the effective set of pixels on where it is most needed. This allows

cameras to achieve higher-resolution images and better dynamic image quality with a smaller number of pixels in the image sensor array.

111. LG has directly infringed one or more claims of the '729 Patent in this District and elsewhere in Texas, including at least claims 3 and 4 literally and/or under the doctrine of equivalents, by or though making, using (*e.g.*, through product testing), importing, offering for sale, and/or selling its telecommunications technology, including at least LG products having functionality, including by way of example the LG V60 ThinQ 5G, and products running materially similar software, including, without limitation, LG Arena 2; LG Aristo Family (Aristo, Aristo 2, Aristo 2+, Aristo 3+, Aristo 4+, Aristo 5, Aristo Cobalt Blue, and Aristo Silver); LG Classic; LG Escape 3; LG Fiesta Family (Fiesta LTE (CDMA), Fiesta LTE (GSM), Fiesta 2 LTE (CDMA), and Fiesta 2 LTE (GSM)); LG Fortune; LG Fortune 3; LG G Family (G Stylo, G Vista 2, G4, G5, G5 Silver, G6+, G6, G6 Duo, G7 Fit, G7 ThinQ, G8 ThinQ, G8X ThinQ, and G8X ThinQ Dual Screen); LG Grace LTE (GSM); LG Harmony Family (Harmony, Harmony 2, Harmony 3, and Harmony 4); LG Journey LTE; LG K Family (K10, K20, K20 Plus, K22, K30, K31, K31 Rebel, K3, K3 2017, K40, K4, K51, K7, K8 V, K8, K8 2017, K8X, and K92 5G); LG Leon LTE; LG Neon Plus; LG Nexus 5X; LG Optimus Zone 3; LG Phoenix Family (Phoenix 2, Phoenix 3, Phoenix 5, and Phoenix Plus); LG Premier LTE (CDMA); LG Premier LTE (GSM); LG Prime 2; LG Q Family (Q6, Q7+, Q7+ BTS Limited Edition, and Q70); LG Rebel Family (Rebel 2 LTE (CDMA), Rebel 2 LTE (GSM), Rebel 3 LTE (CDMA), Rebel 3 LTE (GSM), Rebel LTE (CDMA), and Rebel LTE (GSM)); LG Reflect; LG Risio 2; LG Risio 4; LG Risio; LG Solo LTE; LG Spree; LG Stylo Family (Stylo 2 V, Stylo 2 Plus, Stylo 2, Stylo 2 LTE (CDMA), Stylo 2 LTE (GSM), Stylo 3, Stylo 3 LTE (CDMA), Stylo 3 Plus, Stylo 3 Plus Titan, Stylo 4, Stylo 5, Stylo 5x, and Stylo 6); LG Treasure LTE (CDMA); LG Treasure LTE (GSM); LG Tribute Family

(Tribute 5, Tribute Dynasty, Tribute Empire, Tribute Royal, Tribute HD, and Tribute Monarch); LG V Family (V10, V20, V30S ThinQ, V30, V30+, V35 ThinQ, V35 ThinQ with Alexa Hands-Free, V40 ThinQ, V50 ThinQ 5G, V60 ThinQ 5G, V60 ThinQ 5G, V60 ThinQ 5G Dual Screen, and V60 ThinQ 5G UW); LG Velvet 5G; LG Volt 2; LG Wing 5G; LG X Charge; LG X Power; LG X Style (CDMA); LG X Style (GSM); LG X Venture; LG Xpression Plus 2; LG Xpression Plus 3; and LG Zone 4 (the "'729 Accused Products"). Maxell reserves the right to discover and pursue any additional infringing devices that incorporate infringing functionalities. For the avoidance of doubt, the '729 Accused Products are identified to describe LG's infringement and in no way limit the discovery and infringement allegations against LG concerning other devices that incorporate the same or reasonably similar functionalities.

112. Each of the '729 Accused Products includes front and rear-facing cameras, each of which incorporates a light-receiving sensor or imaging sensor (*e.g.*, CMOS sensor) with an array of pixels arranged vertically and horizontally in a grid pattern. Each of the '729 Accused Products can record an image in a static mode, for example, recording photographs and snapshots in static image camera modes, and in a moving video mode, for example recording a video clip in video camera mode. Further, each of the '729 Accused Products implements multiple viewing angles based on the implemented camera modes.

113. Further, each of the '729 Accused Products includes a processor (*e.g.*, ISP) that processes signals from one or more camera and sensors to generate image signals for displaying on each of the '729 Accused Products' display, where the generated image can be manipulated in accordance with a select pixel arrangement and/or image stabilization correction factor using a portion of the pixel lines available. Each of the '729 Accused Products includes one or more image-instability detector, such as a gyroscope, that detects an amount of image-instability of the camera.

114. Each ’729 Accused Product allows selecting between a static image mode and a moving video mode. Each also allows selecting an operation including monitoring and/or recording an image in the static image mode. In the moving video mode, each ’729 Accused Product allows recording of an image. In accordance with selected recording resolutions, when in the static image mode, the formed image may have a first view angle corresponding to a first set of pixels of the image sensing device and recording an image in that mode may use all effective pixels of the image sensing device. In accordance with selected recording resolutions, when in the moving video mode, the recording may use a different viewing angle achieved by using a second set of pixels from a portion of the pixels provided on the sensor device, and that portion may vary based on instability detected in order to correct image-instability.

115. For example, the following excerpts from LG’s website provide non-limiting examples of each of the ’729 Accused Products infringing at least claims 3 and 4 of the ’729 Patent by way of implementing front and rear cameras, CMOS sensors, and an image signal processor that arranges an array of pixels in a grid pattern and processes the pixels for each of a static image mode (*e.g.*, still pictures), monitoring mode (*e.g.*, preview of pictures/videos), and moving video mode (*e.g.*, videos):

KEY FEATURES

- Ultimate multi-tasking with the LG Dual Screen™ (Sold separately)
- 6.8" OLED Display
- 8K Video Recording
- Triple Camera System: 64 MP Standard, 13 MP Ultra-Wide, Z-Camera
- All-Day 5,000 mAh Battery
- 5G Connectivity

Screen Resolution	2460 x 1080 pixels
Rear Camera Resolution	64MP (Standard Angle), 13MP (Wide Angle)
Front Camera Resolution	10MP

LGV60 ThinQ 5G Technical Specifications (https://www.lg.com/us/cell-phones/lg-lmv600amaattcb-att-v60-thinq-5g).

116. The foregoing features and capabilities of the '729 Accused Products and LG's description and/or demonstration thereof, including user manuals and advertising, reflect LG's direct infringement by satisfying every element of at least claims 3 and 4 of the '729 Patent, under 35 U.S.C. § 271(a).

117. Defendants have indirectly infringed at least claims 3 and 4 of the '729 Patent in this District and elsewhere in the United States by, among other things, actively inducing the use, offering for sale, selling, or importation of at least the '729 Accused Products. LG's customers who purchase devices and components thereof and operate such devices and components in accordance with LG's instructions directly infringe one or more claims of the '729 Patent in violation of 35 U.S.C. § 271(b). Defendants instruct their customers through at least user guides, such as those for the LGV60 ThinQ 5G and other Accused '729 Products located at the following websites:

https://ss7.vzw.com/is/content/VerizonWireless/Catalog%20Assets/Devices/LG/LG_V60_ThinQ/userguide/lg-v60-thinq-5g-lm-v600vmengug-user-manual-en-03132020.pdf and https://www.lg.com/us/support/manuals-documents.

118. For example, as noted above, LG instructs its customers to use the "camera" application that it provides. Defendants are thereby liable for infringement of the '729 Patent pursuant to 35 U.S.C. § 271(b).

119. Defendants have indirectly infringed at least claims 3 and 4 of the '729 Patent, by, among other things, contributing to the direct infringement of others, including customers of the '729 Accused Products by making, offering to sell, or selling, in the United States, or importing

a component of a patented machine, manufacture, or combination, or an apparatus for use in practicing a patented process, constituting a material part of the invention, knowing the same to be especially made or especially adapted for use in infringement of the ’729 Patent, and not a staple article or commodity of commerce suitable for substantial non-infringing use.

120. For example, the ’729 Accused Products include components and circuitry to enable correction of image instability by adjusting the portion of the sensor used for providing image data during recording. These are components of a patented machine, manufacture, or combination, or an apparatus for use in practicing a patented process. Furthermore, such components are a material part of the invention and upon information and belief are not a staple article or commodity of commerce suitable for substantial non-infringing use. Thus, Defendants are liable for infringement of the ’729 Patent pursuant to 35 U.S.C. § 271(c).

121. LG has been aware of the ’729 Patent since at least July 19, 2021, based on correspondence directed to Mr. Hwi jae Cho. *See* Letter from T. Yamamoto to H. Cho dated Jul. 19, 2021 (Exhibit 2). That correspondence set forth Maxell’s belief that LG makes, uses, sells, offers to sell, or imports products that infringe certain of Maxell’s patents, and specifically identified the ’729 Patent as well as exemplary claims and exemplary accused products for that patent. By the time of trial, LG will thus have known and intended (since receiving such notice), that its continued actions would actively induce and contribute to actual infringement of at least claims 3 and 4 of the ’729 Patent.

122. LG undertook and continued its infringing actions despite an objectively high likelihood that such activities infringed the ’729 Patent, which has been duly issued by the USPTO, and is presumed valid. For example, since at least July 19, 2021, LG has been aware of an objectively high likelihood that their actions constituted and continue to constitute infringement of

the ’729 Patent, and that the ’729 Patent is valid. On information and belief, Defendants could not reasonably, subjectively believe that their actions do not constitute infringement of the ’729 Patent, nor could they reasonably, subjectively believe that the patent is invalid. Despite that knowledge and subjective belief, and the objectively high likelihood that their actions constitute infringement, Defendants have continued their infringing activities. As such, Defendants willfully infringe the ’729 Patent.

123. Maxell has been damaged by LG’s infringement of the ’729 Patent.

COUNT 7 – INFRINGEMENT OF U.S. PATENT NO. 7,421,188

124. Maxell incorporates paragraphs 1-123 above by reference.

125. U.S. Patent No. 7,421,188 (“the ’188 Patent,” attached hereto at Exhibit 8) duly issued on September 2, 2008 and is entitled, “Information Edition Device, Information Edition Method, Information Edition Program, and Information Recording Medium.”

126. Maxell is the owner by assignment of the ’188 Patent and possesses all rights thereunder, including the exclusive right to recover for past and future infringement.

127. The ’188 Patent relates to an information editing method which can prevent a thumbnail image from being changed to prevent the accidental change of the thumbnail image, which shows the contents of recorded information. This makes it possible to protect thumbnail images and recorded information set by a contents holder and protect thumbnail images set by the user.

128. LG has directly infringed one or more claims of the ’188 Patent in this District and elsewhere in Texas, including at least claims 4, 5 and 6 literally and/or under the doctrine of equivalents, by or though making, using (*e.g.*, through product testing), importing, offering for sale, and/or selling its telecommunications technology, including at least LG products having functionality, including by way of example the LG V60 ThinQ 5G, and products running

materially similar software, including, without limitation, LG Arena 2; LG Aristo Family (Aristo, Aristo 2, Aristo 2+, Aristo 3+, Aristo 4+, Aristo 5, Aristo Cobalt Blue, and Aristo Silver); LG Classic; LG Escape 3; LG Fiesta Family (Fiesta LTE (CDMA), Fiesta LTE (GSM), Fiesta 2 LTE (CDMA), and Fiesta 2 LTE (GSM)); LG Fortune; LG Fortune 3; LG G Family (G Stylo, G Vista 2, G4, G5, G5 Silver, G6+, G6, G6 Duo, G7 Fit, G7 ThinQ, G8 ThinQ, G8X ThinQ, and G8X ThinQ Dual Screen); LG Grace LTE (GSM); LG Harmony Family (Harmony, Harmony 2, Harmony 3, and Harmony 4); LG Journey LTE; LG K Family (K10, K20, K20 Plus, K22, K30, K31, K31 Rebel, K3, K3 2017, K40, K4, K51, K7, K8 V, K8, K8 2017, K8X, and K92 5G); LG Leon LTE; LG Neon Plus; LG Nexus 5X; LG Optimus Zone 3; LG Phoenix Family (Phoenix 2, Phoenix 3, Phoenix 5, and Phoenix Plus); LG Premier LTE (CDMA); LG Premier LTE (GSM); LG Prime 2; LG Q Family (Q6, Q7+, Q7+ BTS Limited Edition, and Q70); LG Rebel Family (Rebel 2 LTE (CDMA), Rebel 2 LTE (GSM), Rebel 3 LTE (CDMA), Rebel 3 LTE (GSM), Rebel LTE (CDMA), and Rebel LTE (GSM)); LG Reflect; LG Risio 2; LG Risio 4; LG Risio; LG Solo LTE; LG Spree; LG Stylo Family (Stylo 2 V, Stylo 2 Plus, Stylo 2, Stylo 2 LTE (CDMA), Stylo 2 LTE (GSM), Stylo 3, Stylo 3 LTE (CDMA), Stylo 3 Plus, Stylo 3 Plus Titan, Stylo 4, Stylo 5, Stylo 5x, and Stylo 6); LG Treasure LTE (CDMA); LG Treasure LTE (GSM); LG Tribute Family (Tribute 5, Tribute Dynasty, Tribute Empire, Tribute Royal, Tribute HD, and Tribute Monarch); LG V Family (V10, V20, V30S ThinQ, V30, V30+, V35 ThinQ, V35 ThinQ with Alexa Hands-Free, V40 ThinQ, V50 ThinQ 5G, V60 ThinQ 5G, V60 ThinQ 5G, V60 ThinQ 5G Dual Screen, and V60 ThinQ 5G UW); LG Velvet 5G; LG Volt 2; LG Wing 5G; LG X Charge; LG X Power; LG X Style (CDMA); LG X Style (GSM); LG X Venture; LG Xpression Plus 2; LG Xpression Plus 3; and LG Zone 4 (the "'188 Accused Products"). Maxell reserves the right to discover and pursue any additional infringing devices that incorporate infringing functionalities. For the

avoidance of doubt, the ’188 Accused Products are identified to describe LG’s infringement and in no way limit the discovery and infringement allegations against LG concerning other devices that incorporate the same or reasonably similar functionalities.

129. Each of the ’188 Accused Products implements an information editing method, that can prevent a thumbnail image, from being accidentally deleted or changed by misoperation of the user. Each of the ’188 Accused Products comprises a deciding process for deciding whether a thumbnail image can be changed, a change prohibiting process that prohibits change when the deciding device decides change is not permitted, and wherein editing is performed on a reproduced form of the recorded information. Each of the ’188 Accused Products implements an information editing method with a change prohibit process for prohibiting a change of the thumbnail image when the deciding device decides that the thumbnail image can be changed or not. Further, the editing of the information editing method is performed on a reproduced form of the recorded information recorded on the recorded medium. For example, the LG V60 ThinQ 5G is a smart phone that can record and edit pictures and videos, and the user manual confirms the ability to delete, add and rearrange files through a decision process by the user. The LG V60 ThinQ 5G also prohibits deletion of certain thumbnail images and editing is performed on the reproduced form of the recorded information.

130. Each of the ’188 Accused Products also implements a generating process which generates a display signal for displaying a warning indicating that the thumbnail image cannot be changed when a deciding device decides that a change is not permitted. For example, in the LG V60 ThinQ 5G, when attempting to delete a certain thumbnail, a warning message indicates that the user “Cannot delete system albums.”

131. Each of the ’188 Accused Products implements a changing process for changing the thumbnail image when the deciding device decides that a change is permitted. For example, in the LG V60 ThinQ 5G, when deleting a certain thumbnail, a message indicates that the thumbnail was successfully “Moved to Trash.”

132. The foregoing features and capabilities of the ’188 Accused Products and LG’s description and/or demonstration thereof, including user manuals and advertising, reflect LG’s direct infringement by satisfying every element of at least claims 4, 5 and 6 of the ’188 Patent, under 35 U.S.C. § 271(a).

133. Defendants have indirectly infringed at least claims 4, 5, and 6 of the ’188 Patent in this District and elsewhere in the United States by, among other things, actively inducing the use, offering for sale, selling, or importation of at least the ’188 Accused Products. LG’s customers who purchase devices and components thereof and operate such devices and components in accordance with LG’s instructions directly infringe one or more claims of the ’188 Patent in violation of 35 U.S.C. § 271(b). Defendants instruct their customers through at least user guides, such as those for the LGV60 ThinQ 5G and other ’188 Accused Products located at the following websites:

https://ss7.vzw.com/is/content/VerizonWireless/Catalog%20Assets/Devices/LG/LG_V60_ThinQ/userguide/lg-v60-thinq-5g-lm-v600vmengug-user-manual-en-03132020.pdf and https://www.lg.com/us/support/manuals-documents.

134. For example, as noted above, LG instructs its customers to use the “camera” and “Gallery” applications that it provides. Defendants are thereby liable for infringement of the ’188 Patent pursuant to 35 U.S.C. § 271(b).

135. Defendants have indirectly infringed at least claims 4, 5 and 6 of the ’188 Patent, by, among other things, contributing to the direct infringement of others, including customers of the ’188 Accused Products by making, offering to sell, or selling, in the United States, or importing a component of a patented machine, manufacture, or combination, or an apparatus for use in practicing a patented process, constituting a material part of the invention, knowing the same to be especially made or especially adapted for use in infringement of the ’188 Patent, and not a staple article or commodity of commerce suitable for substantial non-infringing use. Thus, Defendants are liable for infringement of the ’188 Patent pursuant to 35 U.S.C. § 271(c).

136. LG has been aware of the ’188 Patent since at least July 19, 2021, based on correspondence directed to Mr. Hwi jae Cho. *See* Letter from T. Yamamoto to H. Cho dated Jul. 19, 2021 (Exhibit 2). That correspondence set forth Maxell’s belief that LG makes, uses, sells, offers to sell, or imports products that infringe certain of Maxell’s patents, and specifically identified the ’188 Patent as well as exemplary claims and exemplary accused products for that patent. By the time of trial, LG will thus have known and intended (since receiving such notice), that its continued actions would actively induce and contribute to actual infringement of at least claims 4, 5 and 6 of the ’188 Patent.

137. LG undertook and continued its infringing actions despite an objectively high likelihood that such activities infringed the ’188 Patent, which has been duly issued by the USPTO, and is presumed valid. For example, since at least July 19, 2021, LG has been aware of an objectively high likelihood that their actions constituted and continue to constitute infringement of the ’188 Patent, and that the ’188 Patent is valid. On information and belief, Defendants could not reasonably, subjectively believe that their actions do not constitute infringement of the ’188 Patent, nor could they reasonably, subjectively believe that the patent is invalid. Despite that knowledge

and subjective belief, and the objectively high likelihood that their actions constitute infringement, Defendants have continued their infringing activities. As such, Defendants willfully infringe the ’188 Patent.

138. Maxell has been damaged by LG’s infringement of the ’188 Patent.

COUNT 8 – INFRINGEMENT OF U.S. PATENT NO. 9,818,449

139. Maxell incorporates paragraphs 1-138 above by reference.

140. U.S. Patent No. 9,818,449 (“the ’449 Patent,” attached hereto at Exhibit 9) duly issued on November 14, 2017 and is entitled, “Editing Method and Recording and Reproducing Device.”

141. Maxell is the owner by assignment of the ’449 Patent and possesses all rights thereunder, including the exclusive right to recover for past and future infringement.

142. The ’449 Patent relates to an information processing method that entails recording video information onto a recording medium, wherein the recorded information is included in first and second groups of video information, and is deleted from the first group of video information but not all groups of video information.

143. LG has directly infringed one or more claims of the ’449 Patent in this District and elsewhere in Texas, including at least claims 9 through 12 literally and/or under the doctrine of equivalents, by or though making, using (*e.g.*, through product testing), importing, offering for sale, and/or selling its telecommunications technology, including at least LG products having functionality, including by way of example the LG V60 ThinQ 5G, and products running materially similar software, including, without limitation, LG Arena 2; LG Aristo Family (Aristo, Aristo 2, Aristo 2+, Aristo 3+, Aristo 4+, Aristo 5, Aristo Cobalt Blue, and Aristo Silver); LG Classic; LG Escape 3; LG Fiesta Family (Fiesta LTE (CDMA), Fiesta LTE (GSM), Fiesta 2 LTE (CDMA), and Fiesta 2 LTE (GSM)); LG Fortune; LG Fortune 3; LG G Family (G Stylo, G Vista

2, G4, G5, G5 Silver, G6+, G6, G6 Duo, G7 Fit, G7 ThinQ, G8 ThinQ, G8X ThinQ, and G8X ThinQ Dual Screen); LG Grace LTE (GSM); LG Harmony Family (Harmony, Harmony 2, Harmony 3, and Harmony 4); LG Journey LTE; LG K Family (K10, K20, K20 Plus, K22, K30, K31, K31 Rebel, K3, K3 2017, K40, K4, K51, K7, K8 V, K8, K8 2017, K8X, and K92 5G); LG Leon LTE; LG Neon Plus; LG Nexus 5X; LG Optimus Zone 3; LG Phoenix Family (Phoenix 2, Phoenix 3, Phoenix 5, and Phoenix Plus); LG Premier LTE (CDMA); LG Premier LTE (GSM); LG Prime 2; LG Q Family (Q6, Q7+, Q7+ BTS Limited Edition, and Q70); LG Rebel Family (Rebel 2 LTE (CDMA), Rebel 2 LTE (GSM), Rebel 3 LTE (CDMA), Rebel 3 LTE (GSM), Rebel LTE (CDMA), and Rebel LTE (GSM)); LG Reflect; LG Risio 2; LG Risio 4; LG Risio; LG Solo LTE; LG Spree; LG Stylo Family (Stylo 2 V, Stylo 2 Plus, Stylo 2, Stylo 2 LTE (CDMA), Stylo 2 LTE (GSM), Stylo 3, Stylo 3 LTE (CDMA), Stylo 3 Plus, Stylo 3 Plus Titan, Stylo 4, Stylo 5, Stylo 5x, and Stylo 6); LG Treasure LTE (CDMA); LG Treasure LTE (GSM); LG Tribute Family (Tribute 5, Tribute Dynasty, Tribute Empire, Tribute Royal, Tribute HD, and Tribute Monarch); LG V Family (V10, V20, V30S ThinQ, V30, V30+, V35 ThinQ, V35 ThinQ with Alexa Hands-Free, V40 ThinQ, V50 ThinQ 5G, V60 ThinQ 5G, V60 ThinQ 5G, V60 ThinQ 5G Dual Screen, and V60 ThinQ 5G UW); LG Velvet 5G; LG Volt 2; LG Wing 5G; LG X Charge; LG X Power; LG X Style (CDMA); LG X Style (GSM); LG X Venture; LG Xpression Plus 2; LG Xpression Plus 3; and LG Zone 4 (the "'449 Accused Products"). Maxell reserves the right to discover and pursue any additional infringing devices that incorporate infringing functionalities. For the avoidance of doubt, the '449 Accused Products are identified to describe LG's infringement and in no way limit the discovery and infringement allegations against LG concerning other devices that incorporate the same or reasonably similar functionalities.

144. Each of the ’449 Accused Products implements an information processing method that records video information by a recording unit on a recording medium (e.g., sensors and camera lenses, which can save on the device’s memory storage). Each of the ’449 Accused Products implements outputting, by an output unit, a menu display for a user to select one group of video information among a plurality of groups of video information by specifying a position of a character, and then reproducing selected video information (*e.g.*, using the touch screen to select videos from an album in the device’s “Gallery” of videos). The ’449 Accused Products further allow control, selection and reproduction of specific video information from the menu display (*e.g.*, “Gallery”) from groups of video information by selecting thumbnails using the touchscreen. The ’449 Accused Products further allow, then, that when one video information is recorded and included in two groups of video information (*e.g.*, present in two albums in the device’s “Gallery”), the video information may be deleted from the first group of video information (*e.g.*, Favorites album in “Gallery”), but continues to remain in the second group of video information (*e.g.*, Camera album in “Gallery”), and a thumbnail of the video information will remain in the second group.

145. Exemplary of the ’449 Accused Products, the LG V60 ThinQ 5G satisfies each element of the method set forth above and in claims 9 through 12 of the ’449 Patent. The LG V60 ThinQ 5G possesses camera lenses capable of recording and a recording medium, through at least the phone’s storage. The LG V60 ThinQ 5G further implements outputting a menu display through a touch screen interface, allowing a user to select a group of video information from a plurality of groups of video information, by specifying a character corresponding to the group. The LG V60 ThinQ 5G further implements reproduction through a “Gallery” application that is pre-installed on the device, which displays reproduced selected video information that is read out from the

recording medium. It further implements controlling through its operating platform and use of a touch screen, through which a first and second group of thumbnails (corresponding to a first and second group of video information) are displayed, and the user can control selection of video information. LG V60 ThinQ 5G further implements an information processing method wherein the video information recorded is in both groups of video information, and then, through user control on the device's platform and touch screen features, is deleted from a first group but not the second.

146. Each of the '449 Accused Products further implements a method to control the output unit to display a first character corresponding to the first group of video information in the first area when the first group of thumbnails is displayed, and a second character corresponding to the second group of video information in the first area when the second group of thumbnails is displayed. For example, in the LG V60 ThinQ 5G, the "Gallery" application allows multiple albums of videos to be viewed in a single frame at a time, with each album representing one group of video information.

147. Each of the '449 Accused Products also implements an information processing method that further allows control of the output unit to display the first group of thumbnails in a second area (separate from the first area) when the first group of thumbnails are displayed; and to display the second group of thumbnails in the second area when the second group of thumbnails are displayed. For example, in the LG V60 ThinQ 5G, in the "Gallery" application, from the main screen, it is possible to enter each album (*i.e.*, group of video information) to see thumbnails for each video in the album. This is done by using the touch screen to control the display to select the respective album to see the group of thumbnails displayed.

148. Further, each of the ’449 Accused Products also implements an information processing method where when one video information is deleted from the first group of video information, the video information is not deleted from the recording medium. For example, in the LG V60 ThinQ 5G, when a video is deleted from an album, it is not deleted from the entire device.

149. The foregoing features and capabilities of the ’449 Accused Products and LG’s description and/or demonstration thereof, including user manuals and advertising, reflect LG’s direct infringement by satisfying every element of at least claims 9 through 12 of the ’449 Patent, under 35 U.S.C. § 271(a).

150. Defendants have indirectly infringed at least claims 9 through 12 of the ’449 Patent in this District and elsewhere in the United States by, among other things, actively inducing the use, offering for sale, selling, or importation of at least the ’449 Accused Products. LG’s customers who purchase devices and components thereof and operate such devices and components in accordance with LG’s instructions directly infringe one or more claims of the ’449 Patent in violation of 35 U.S.C. § 271(b). Defendants instruct their customers through at least user guides, such as those for the LGV60 ThinQ 5G and other’449 Accused Products located at the following websites:

https://ss7.vzw.com/is/content/VerizonWireless/Catalog%20Assets/Devices/LG/LG_V60_ThinQ/userguide/lg-v60-thinq-5g-lm-v600vmengug-user-manual-en-03132020.pdf and https://www.lg.com/us/support/manuals-documents.

151. For example, as noted above, LG instructs its customers to use the “camera” and “Gallery” applications that it provides. Defendants are thereby liable for infringement of the ’449 Patent pursuant to 35 U.S.C. § 271(b).

152. Defendants have indirectly infringed at least claims 9 through 12 of the ’449 Patent, by, among other things, contributing to the direct infringement of others, including customers of the ’449 Accused Products by making, offering to sell, or selling, in the United States, or importing a component of a patented machine, manufacture, or combination, or an apparatus for use in practicing a patented process, constituting a material part of the invention, knowing the same to be especially made or especially adapted for use in infringement of the ’449 Patent, and not a staple article or commodity of commerce suitable for substantial non-infringing use. Thus, Defendants are liable for infringement of the ’449 Patent pursuant to 35 U.S.C. § 271(c).

153. LG has been aware of the ’449 Patent since at least July 19, 2021, based on correspondence directed to Mr. Hwi jae Cho. *See* Letter from T. Yamamoto to H. Cho dated Jul. 19, 2021 (Exhibit 2). That correspondence set forth Maxell’s belief that LG makes, uses, sells, offers to sell, or imports products that infringe certain of Maxell’s patents, and specifically identified the ’449 Patent as well as exemplary claims and exemplary accused products for that patent. By the time of trial, LG will thus have known and intended (since receiving such notice), that its continued actions would actively induce and contribute to actual infringement of at least claims 9 through 12 of the ’449 Patent.

154. LG undertook and continued its infringing actions despite an objectively high likelihood that such activities infringed the ’449 Patent, which has been duly issued by the USPTO, and is presumed valid. For example, since at least July 19, 2021, LG has been aware of an objectively high likelihood that their actions constituted and continue to constitute infringement of the ’449 Patent, and that the ’449 Patent is valid. On information and belief, Defendants could not reasonably, subjectively believe that their actions do not constitute infringement of the ’449 Patent, nor could they reasonably, subjectively believe that the patent is invalid. Despite that knowledge

and subjective belief, and the objectively high likelihood that their actions constitute infringement, Defendants have continued their infringing activities. As such, Defendants willfully infringe the ’449 Patent.

155. Maxell has been damaged by LG’s infringement of the ’449 Patent.

COUNT 9 – INFRINGEMENT OF U.S. PATENT NO. 10,199,072

156. Maxell incorporates paragraphs 1-155 above by reference.

157. U.S. Patent No. 10,199,072 (“the ’072 Patent,” attached hereto at Exhibit 10) duly issued on February 5, 2019 and is entitled, “Editing Method and Recording and Reproducing Device.”

158. Maxell is the owner by assignment of the ’072 Patent and possesses all rights thereunder, including the exclusive right to recover for past and future infringement.

159. The ’072 Patent relates to an information processing method that involves recording a video data on a recording medium, reproducing the recorded video data and editing one copy of the recorded video data.

160. LG has directly infringed one or more claims of the ’072 Patent in this District and elsewhere in Texas, including at least claims 11 through 15 literally and/or under the doctrine of equivalents, by or though making, using (*e.g.*, through product testing), importing, offering for sale, and/or selling its telecommunications technology, including at least LG products having functionality, including by way of example the LG V60 ThinQ 5G, and products running materially similar software, including, without limitation, LG Arena 2; LG Aristo Family (Aristo, Aristo 2, Aristo 2+, Aristo 3+, Aristo 4+, Aristo 5, Aristo Cobalt Blue, and Aristo Silver); LG Classic; LG Escape 3; LG Fiesta Family (Fiesta LTE (CDMA), Fiesta LTE (GSM), Fiesta 2 LTE (CDMA), and Fiesta 2 LTE (GSM)); LG Fortune; LG Fortune 3; LG G Family (G Stylo, G Vista 2, G4, G5, G5 Silver, G6+, G6, G6 Duo, G7 Fit, G7 ThinQ, G8 ThinQ, G8X ThinQ, and G8X

ThinQ Dual Screen); LG Grace LTE (GSM); LG Harmony Family (Harmony, Harmony 2, Harmony 3, and Harmony 4); LG Journey LTE; LG K Family (K10, K20, K20 Plus, K22, K30, K31, K31 Rebel, K3, K3 2017, K40, K4, K51, K7, K8 V, K8, K8 2017, K8X, and K92 5G); LG Leon LTE; LG Neon Plus; LG Nexus 5X; LG Optimus Zone 3; LG Phoenix Family (Phoenix 2, Phoenix 3, Phoenix 5, and Phoenix Plus); LG Premier LTE (CDMA); LG Premier LTE (GSM); LG Prime 2; LG Q Family (Q6, Q7+, Q7+ BTS Limited Edition, and Q70); LG Rebel Family (Rebel 2 LTE (CDMA), Rebel 2 LTE (GSM), Rebel 3 LTE (CDMA), Rebel 3 LTE (GSM), Rebel LTE (CDMA), and Rebel LTE (GSM)); LG Reflect; LG Risio 2; LG Risio 4; LG Risio; LG Solo LTE; LG Spree; LG Stylo Family (Stylo 2 V, Stylo 2 Plus, Stylo 2, Stylo 2 LTE (CDMA), Stylo 2 LTE (GSM), Stylo 3, Stylo 3 LTE (CDMA), Stylo 3 Plus, Stylo 3 Plus Titan, Stylo 4, Stylo 5, Stylo 5x, and Stylo 6); LG Treasure LTE (CDMA); LG Treasure LTE (GSM); LG Tribute Family (Tribute 5, Tribute Dynasty, Tribute Empire, Tribute Royal, Tribute HD, and Tribute Monarch); LG V Family (V10, V20, V30S ThinQ, V30, V30+, V35 ThinQ, V35 ThinQ with Alexa Hands-Free, V40 ThinQ, V50 ThinQ 5G, V60 ThinQ 5G, V60 ThinQ 5G, V60 ThinQ 5G Dual Screen, and V60 ThinQ 5G UW); LG Velvet 5G; LG Volt 2; LG Wing 5G; LG X Charge; LG X Power; LG X Style (CDMA); LG X Style (GSM); LG X Venture; LG Xpression Plus 2; LG Xpression Plus 3; and LG Zone 4 (the "'072 Accused Products"). Maxell reserves the right to discover and pursue any additional infringing devices that incorporate infringing functionalities. For the avoidance of doubt, the '072 Accused Products are identified to describe LG's infringement and in no way limit the discovery and infringement allegations against LG concerning other devices that incorporate the same or reasonably similar functionalities.

161. Each of the '072 Accused Products implements an information processing method that records a plurality of video information on a recording medium (e.g., sensors and camera

lenses to capture video information, saved on the device's memory storage). Each of the '072 Accused Products implements outputting a menu display for a user to select a group of video data from a plurality of groups of video information through specifying a position of a character corresponding to the group of video data, and reproducing the selected video data. For example, the LG V60 ThinQ 5G has camera lenses and sensors for capturing video information, and captured video data can be saved on the device's internal memory. The LG V60 ThinQ 5G allows touch screen selection of video data from groups of video information in the device's "Gallery" application, and allows reproduction of the selected video data, for example, through the "Favorites" Album in the "Gallery" application.

162. Each of the '072 Accused Products further implements a controlling display, when a first group of video data is selected in the menu display by selecting a character corresponding to the first group of thumbnails, which correspond to the first group of video data, and the order of the first group of thumbnails is displayed and editable; and likewise for a second group of video data and the respective second group of thumbnails that correspond to the second group of video data. For example, the LG V60 ThinQ 5G "Gallery" application and touch screen allow a user to select a group of video data by clicking the thumbnail representative of the video information. Once the video data has been selected, the user can select the "Sort by" function which makes the video data, and thus, the order of the first group of thumbnails, editable. The LG V60 ThinQ 5G "Gallery" application likewise implements a display, where a second group of video data is selected and a second group of thumbnails representing the second group of video data is displayed and the video data is editable.

163. Each of the '072 Accused Products implements an information processing method wherein when one video data is recorded and then included in both the first and second groups of

video data, and is then deleted from the first group of video data, it will continue to be included in the second group of video data and a thumbnail corresponding to the recorded video data will be displayed in the group of thumbnails representing the second group of video data. For example, in the LG V60 ThinQ 5G, when video data is saved in multiple albums in the "Gallery" application, and is deleted from one album, it is not deleted from the remaining album(s) where it is saved. In addition, a thumbnail representing the video data will appear in connection with the remaining album(s); but the thumbnail representative of the video data will not appear for the album from which the corresponding video data was deleted.

164. Each of the '072 Accused Products further implements an information processing method that comprises encoding the inputted video data with an encoder, and storing the plurality of video data encoded by the encoder on the recording medium. For example, the LG V60 ThinQ 5G uses a Qualcomm Snapdragon 865 Octa-Core Processor which supports a hardware-accelerated H.265 encoder, that can be used for encoding a plurality of video data, and the video storage can be stored to the LG V60 ThinQ 5G's memory.

165. Each of the '072 Accused Products further implements an information processing method comprising controlling to display a first character corresponding to the first group of video data in a first area when the first group of thumbnails is displayed, and a second character corresponding to the second group of video data in the same first area when the second group of thumbnails is displayed. For example, the LG V60 ThinQ 5G "Gallery" displays multiple albums (*i.e.*, each album representing a separate "group" of video data) in a single frame through the display of thumbnails.

166. Each of the '072 Accused Products implements an information processing method comprising controlling to display a first group of thumbnails in a second area when the first group

of thumbnails is displayed. For example, the LG V60 ThinQ 5G "Gallery" first screen displays multiple albums (*i.e.*, each album representing a separate "group" of video data), and upon selection of an album (by selecting the representative thumbnail), the album opens to a separate area and the group of thumbnails (each thumbnail representing individual video information) associated with the album will be displayed in that area.

167. Each of the '072 Accused Products implements an information processing method wherein when the one video data is deleted from the first group of video data, the controller removes the one video data from only the first group of video data, without deleting the one video data recorded on the recording medium. For example, in the LG V60 ThinQ 5G, where video data is deleted from one album, it is not deleted from the device's memory/storage.

168. The foregoing features and capabilities of the '072 Accused Products and LG's description and/or demonstration thereof, including user manuals and advertising, reflect LG's direct infringement by satisfying every element of at least claims 11 through 15 of the '072 Patent, under 35 U.S.C. § 271(a).

169. Defendants have indirectly infringed at least claims 11 through 15 of the '072 Patent in this District and elsewhere in the United States by, among other things, actively inducing the use, offering for sale, selling, or importation of at least the '072 Accused Products. LG's customers who purchase devices and components thereof and operate such devices and components in accordance with LG's instructions directly infringe one or more claims of the '072 Patent in violation of 35 U.S.C. § 271(b). Defendants instruct their customers through at least user guides, such as those for the LGV60 ThinQ 5G and other '072 Accused Products located at the following websites: https://ss7.vzw.com/is/content/VerizonWireless/Catalog%20Assets/Devices/LG/LG_V60_ThinQ

/userguide/lg-v60-thinq-5g-lm-v600vmengug-user-manual-en-03132020.pdf and https://www.lg.com/us/support/manuals-documents.

170. For example, as noted above, LG instructs its customers to use the "camera" and "Gallery" applications that it provides. Defendants are thereby liable for infringement of the '072 Patent pursuant to 35 U.S.C. § 271(b).

171. Defendants have indirectly infringed at least claims 11 through 15 of the '072 Patent, by, among other things, contributing to the direct infringement of others, including customers of the '072 Accused Products by making, offering to sell, or selling, in the United States, or importing a component of a patented machine, manufacture, or combination, or an apparatus for use in practicing a patented process, constituting a material part of the invention, knowing the same to be especially made or especially adapted for use in infringement of the '072 Patent, and not a staple article or commodity of commerce suitable for substantial non-infringing use. Thus, Defendants are liable for infringement of the '072 Patent pursuant to 35 U.S.C. § 271(c).

172. LG has been aware of the '072 Patent since at least July 19, 2021, based on correspondence directed to Mr. Hwi jae Cho. *See* Letter from T. Yamamoto to H. Cho dated Jul. 19, 2021 (Exhibit 2). That correspondence set forth Maxell's belief that LG makes, uses, sells, offers to sell, or imports products that infringe certain of Maxell's patents, and specifically identified the '072 Patent as well as exemplary claims and exemplary accused products for that patent. By the time of trial, LG will thus have known and intended (since receiving such notice), that its continued actions would actively induce and contribute to actual infringement of at least claims 11 through 15 of the '072 Patent.

173. LG undertook and continued its infringing actions despite an objectively high likelihood that such activities infringed the '072 Patent, which has been duly issued by the USPTO,

and is presumed valid. For example, since at least July 19, 2021, LG has been aware of an objectively high likelihood that their actions constituted and continue to constitute infringement of the ’072 Patent, and that the ’072 Patent is valid. On information and belief, Defendants could not reasonably, subjectively believe that their actions do not constitute infringement of the ’072 Patent, nor could they reasonably, subjectively believe that the patent is invalid. Despite that knowledge and subjective belief, and the objectively high likelihood that their actions constitute infringement, Defendants have continued their infringing activities. As such, Defendants willfully infringe the ’072 Patent.

174. Maxell has been damaged by LG’s infringement of the ’072 Patent.

DAMAGES

As a result of Defendants’ acts of infringement, Maxell has suffered actual and consequential damages. To the fullest extent permitted by law, Maxell seeks recovery of damages at least in the form of reasonable royalties.

JURY DEMAND

Pursuant to Rule 38 of the Federal Rules of Civil Procedure, Maxell demands a trial by jury on all issues triable as such.

PRAYER FOR RELIEF

WHEREFORE, Maxell demands judgment for itself and against Defendants as follows:

A. An adjudication that LG has infringed U.S. Patent Nos. 6,856,760; 6,973,334; 7,199,821; 10,244,284; 8,339,493; 8,736,729; 7,421,188; 9,818,449; and 10,199,072.

B. An award of damages to be paid by Defendants adequate to compensate Maxell for Defendants’ past infringement of the Asserted Patents, and any continuing or future infringement through the date such judgment is entered, including interest, costs, expenses

and an accounting of all infringing acts including, but not limited to, those acts not presented at trial;

C. A declaration that this case is exceptional under 35 U.S.C. § 285, and an award of Plaintiff's reasonable attorneys' fees; and

D. An award to Plaintiff of such further relief at law or in equity as the Court deems just and proper.

Dated: December 29, 2023

PATTON, TIDWELL & CULBERTSON, L.L.P.

/s/ Geoffrey P. Culbertson

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