

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

IMAGE PROCESSING TECHNOLOGIES,
LLC,

Plaintiff,

v.

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

Defendants.

Civil Action No. 2:16-CV-0505-JRG

JURY TRIAL DEMANDED

FIRST AMENDED COMPLAINT FOR PATENT INFRINGEMENT

1. This action is for patent infringement, in which Plaintiff Image Processing Technologies, LLC (“IPT”) alleges as follows against defendants Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc. (collectively, “Samsung” or the “Defendants”):

THE PARTIES

2. Image Processing Technologies, LLC is a limited liability company duly formed under the laws of the State of Florida with a place of business at 990 Biscayne Blvd., #503, Miami, Florida 33132.

3. Samsung Electronics Co., Ltd. (“SEC”) is a corporation organized under the laws of the Republic of Korea with a principal place of business at 1320-10 Seocho 2-dong Seocho-gu, Seoul 137-857, Korea. SEC manufactures various products, including smartphones, tablets and cameras, and ships the products to the United States for sale and distribution within this country. (D.I. 23.)

4. Samsung Electronics America, Inc. (“SEA”) is a corporation organized under the laws of the State of New York with a principal place of business at 85 Challenger Road, Ridgefield Park, New Jersey 07660. SEA is a wholly-owned subsidiary of SEC. SEA sells various Samsung products, including Samsung cameras, in the United States. SEA maintains a Registered Agent in Texas, CT Corporation System, at 1999 Bryan St., Ste. 900, Dallas, Texas 75201. (D.I. 23.)

5. Samsung stipulated in this litigation (D.I. 15) that SEA is the successor-in-interest to Samsung Telecommunications America LLC (“STA”), which was a limited-liability company organized under the laws of the State of Delaware with a principal place of business at 1301 E. Lookout Dr., Richardson, Texas 75082. STA was a wholly-owned subsidiary of SEA until its merger into SEA effective January 1, 2015. (D.I. 23.) STA developed and sold Samsung mobile phones, tablets and Galaxy cameras in the United States. SEA, as STA’s successor-in-interest, is liable for its past infringing activities. Following the merger of SEA and STA, SEA has sold the mobile phones and tablets in the United States that were previously sold through STA. SEA has assumed responsibility for any alleged liability, discovery, and damages relating to STA in this lawsuit. (D.I. 15.)

JURISDICTION AND VENUE

6. This action arises under the patent laws of the United States, Title 35 of the United States Code. The Court has jurisdiction over the subject matter of this action pursuant to 28 U.S.C. §§ 1331 and 1338(a).

7. Samsung is subject to this Court’s specific and general personal jurisdiction at least for the reasons set forth below and due to its presence and substantial business in this

forum, including: (i) the presence of its place of business in this State; (ii) its commission of at least a portion of the infringement alleged herein; and (iii) regularly and systematically doing or soliciting business, engaging in other persistent courses of conduct, and deriving substantial revenue from goods and services provided to individuals in Texas and in this District.

8. Personal jurisdiction is proper in this District because, upon information and belief, Samsung, directly and/or through its intermediaries, transacts business in this District, including using, distributing, importing, making, offering for sale, selling, and/or marketing, supporting and advertising of its infringing products in Texas and in this District.

9. Specifically, this Court has personal jurisdiction over SEC. Among other things, SEC has purposefully availed itself of the benefits of doing business in the State of Texas and in this District by, among other things, exporting and selling infringing products into the State of Texas, by inducing SEA and/or STA's infringing activities in the United States, and by the acts alleged in Paragraph 2 of this Complaint. SEC has previously admitted that this Court has personal jurisdiction over it based on, at least, its development, manufacture and supply of battery-powered devices such as smartphones and tablets, including at least the Samsung Galaxy Note, Samsung Galaxy S and Samsung Galaxy Tab devices. *TIVO, Inc., v. Samsung Elecs. Co.*, No. 15-cv-01503, D.I. 16 at ¶¶ 14, 32 (E.D. Tex. Nov. 17, 2015) (Answer of SEC and SEA). *See also Vantage Point Tech., Inc., v. Samsung Elecs. Co.*, No. 13-cv-00928, D.I. 16 at ¶ 6 (E.D. Tex. Mar. 6, 2014) (Answer of SEC, SEA and STA) (admitting that this Court has personal jurisdiction over SEC).

10. This Court has personal jurisdiction over SEA. Among other things, SEA has purposefully availed itself of the benefits of doing business in the State of Texas and in this

District and by and/or through intermediaries (including, distributors, retailers, partners, subsidiaries and others), distributing, offering for sale, selling, and advertising Samsung products, including infringing smartphone, tablet and camera products, in the United States, including in the State of Texas and this judicial District. SEA has previously admitted that this Court has personal jurisdiction over it based on, at least, its development, manufacture and supply of battery-powered devices such as smartphones and tablets, including at least the Samsung Galaxy Note, Samsung Galaxy S and Samsung Galaxy Tab devices. *TIVO*, No. 15-cv-01503, D.I. 16 at ¶¶ 14, 32. *See also Vantage Point Tech.*, No. 13-cv-00928, D.I. 16 at ¶ 6 (admitting that this Court has personal jurisdiction over SEA). In 2015, SEA acquired (and SEA currently holds) the deed for an STA facility that is located in the Eastern District of Texas that is a point of entry of Samsung smartphone and tablet products into the United States, where, on information and belief, witnesses and documents relevant to Samsung smartphone and tablet products are located. *Interwoven, Inc. v. Vertical Computer Sys.*, No. 11-cv-189-RS, 2011 WL 1642250, at *2 (N.D. Cal. May 2, 2011) (granting declaratory judgment defendant's motion to transfer action to this District); see *Apple Inc. v. Samsung Elecs. Co.*, No. 11-cv-1846, D.I. 1610 at 794:3 – 795:12 (N.D. Cal.) (Trial Tr. Aug. 3, 2012) (testimony of Samsung employee stating that Samsung imports mobile phones into the United States from Korea via a "Dallas" facility).

11. Prior to its merger into SEA, STA maintained its principal place of business in Texas, had appointed an agent for service of process in Texas, and had purposefully availed itself of the benefits of doing business in the State of Texas and in this District by, among other things, STA, directly and/or through intermediaries (including, distributors, retailers, partners, subsidiaries and others), distributing, offering for sale, selling, and advertising Samsung products, including infringing smartphone and tablet products, in the United States, including in

the State of Texas and this judicial District. The point of entry of Samsung smartphone and tablet products into the United States is the Eastern District of Texas. *Interwoven, Inc.*, No. 11-cv-189-RS, 2011 WL 1642250, at *2 (N.D. Cal. May 2, 2011). STA previously admitted that the majority of potentially relevant documents and things related to the marketing, sale and distribution of Samsung's smartphones, cellular-equipped tablets and Galaxy cameras are physically located in Texas. *B.E. Technology, L.L.C. v. Samsung Telecomms. Am. LLC*, No. 12-cv-02824-JPM-tmp, D.I. 27-13 at ¶ 6 (W.D. Tenn. Jan. 22, 2013). Further, STA admitted that the majority of potential witnesses from STA with relevant knowledge concerning Samsung's smartphones, cellular-equipped tablets and Galaxy cameras work and reside in Texas. *Id.* at ¶ 8. *See also Vantage Point Tech.*, No. 13-cv-00928, D.I. 16 at ¶ 6 (admitting that this Court has personal jurisdiction over STA).

12. Samsung regularly and systematically conducts business within this Judicial District. On information and belief, Samsung derives substantial revenue from the sale of Samsung products, including infringing smartphones, tablets and cameras, within Texas and within this judicial District.

13. The exercise of personal jurisdiction over Samsung would not offend traditional notions of fair play and substantial justice.

14. Venue is proper in this District pursuant to 28 U.S.C. §§ 1391 and 1400 because Samsung is subject to personal jurisdiction in this District, has committed acts of infringement in this District, has in the recent past maintained a principal place of business related to at least smartphones in Texas, and has maintained service center and store locations in Texas at which Samsung demonstrates, repairs, and/or refurbishes its smartphone products. Samsung has

previously admitted that venue is proper in this District. *AI Automation, LLC v. Samsung Elecs. Co.*, No. 15-cv-00052, D.I. 13 at ¶ 7 (E.D. Tex. April 29, 2015); *Vantage Point Tech.*, No. 13-cv-00928, D.I. 16 at ¶ 7. Samsung maintains, and has maintained, facilities located in the Eastern District of Texas at 1301 E. Lookout Dr., Richardson, TX 75082.

PATENTS-IN-SUIT

15. IPT owns all right, title and interest, including the right to sue for past damages, in United States Patent Nos.:

- 8,989,445 (the “445 patent”) duly and legally issued on March 24, 2015 by the United States Patent and Trademark Office;
- 8,805,001 (the “001 patent”) duly and legally issued on August 12, 2014 by the United States Patent and Trademark Office;
- 6,959,293 (the “293 patent”) duly and legally issued on October 25, 2005 by the United States Patent and Trademark Office;
- 7,650,015 (the “015 patent”) duly and legally issued on January 19, 2010 by the United States Patent and Trademark Office;
- 8,983,134 (the “134 patent”) duly and legally issued on March 17, 2015 by the United States Patent and Trademark Office; and
- 6,717,518 (the “518 patent”) duly and legally issued on April 6, 2004 by the United States Patent and Trademark Office.

16. The '445, '001, '293, '015, '134, and '518 patents are collectively the Patents-in-Suit. True and correct copies of these patents are attached hereto as Exhibits A, B, C, D, E, and F, respectively.

SAMSUNG'S KNOWLEDGE OF THE PATENTS

17. Samsung had knowledge of the Patents-in-Suit prior to the filing of this suit.

18. IPT notified Samsung of the '015 patent, the '293 patent, and the '518 patent in a letter dated June 4, 2013. A true and correct copy of IPT's June 4, 2013 letter is attached hereto as Exhibit G.

19. IPT notified Samsung of the '001 patent, the '445 patent, and the '134 patent in a letter dated December 10, 2015.

20. A true and correct copy of the December 10, 2015 letter is attached hereto as Exhibit H. This letter confirmed that IPT believes that Samsung has been, and continues to, infringe the Patents-in-Suit, and requested that Samsung cease its infringing activities. The letter specifically identifies certain infringing Samsung products.

21. IPT notified Samsung that IPT believes that Samsung has been, and continues to, infringe the '518 patent, and requested that Samsung cease its infringing activities, in a letter dated December 14, 2016, which is attached hereto as Exhibit I. The letter specifically identifies certain infringing Samsung products.

22. Samsung has failed to cease and desist from its infringing conduct, and Samsung continues to willfully infringe upon IPT's valid U.S. patent rights without authorization.

COUNT I
INFRINGEMENT OF U.S. PATENT NO. 8,898,445

23. Plaintiff incorporates by reference and realleges Paragraphs 1 through 22 as if specifically set forth herein.

24. On information and belief, Samsung has directly infringed and continues to directly infringe one or more claims of the '445 patent, including at least claim 24. The infringing acts include at least importing, making, using, selling, and/or offering for sale Samsung products that are covered by one or more claims of the '445 patent, including claim 24, including at least Samsung smartphone and tablet products that include the Beauty Face, Selfie, Smart Stay, and face detection features, and camera products that include the Beauty Face/Beauty Shot, Face Detection AF, Best Face, Smile Shot and Self-Portrait (AF) features.

25. On information and belief, the Beauty Face feature is included in at least Samsung's Galaxy S6, Galaxy S6 edge, Note 5, Galaxy SIII, Galaxy S4, Galaxy S5, Note 3, Note 4, Note 10.1 (2014 edition), Note Pro, Note Edge, Tab A, Tab S, Tab S2, Tab 4 and Tab Pro products. The Beauty Face feature detects and tracks faces that are visible in the preview screen of the Samsung device before an image is captured in order to apply effects to the faces in a captured image, such as brightening and/or narrowing the faces.

26. On information and belief, the Selfie feature is included in at least Samsung's Galaxy S6, Galaxy S6 edge, Galaxy S6 edge+, Note 5, Note 4, Note Edge, and Tab S2 products. The Selfie feature detects faces that are visible in the preview screen of the Samsung device in order to apply airbrushing and other effects to faces in a captured image.

27. On information and belief, the Smart Stay feature is included in at least Samsung's Galaxy S6, Galaxy S6 edge, Galaxy S6 edge+, Note 5, Galaxy SIII, Galaxy S4, Galaxy S5, Note 3, Note 4, Note 8.0, Note 10.1, Note 10.1 (2014 edition), Note Pro, Note Edge, Tab A, Tab S, Tab S2, Tab 4 and Tab Pro products. The Smart Stay feature detects the user's face and keeps this screen lit for as long as the face is detected.

28. On information and belief, the face detection feature is included in at least Samsung's Galaxy S6, Galaxy S6 edge, Galaxy S6 edge+, Note 5, Galaxy SIII, Galaxy S4, Galaxy S5, Note 3, Note 10.1, Note 10.1 (2014 edition), Note Pro, Tab S and Tab Pro products. The face detection feature detects and tracks a subject's face in a camera image as it is displayed on the preview screen of the Samsung device.

29. On information and belief, the Beauty Face/Beauty Shot feature is included in at least Samsung's Galaxy NX, NX1, NX10, NX30, NX200, NX300, NX500, NX3000, NX3300, WB30F, WB35F, WB50F, WB110, WB350, WB380, ST72 and DV150F camera products. The Beauty Face/Beauty Shot feature detects and tracks faces that are visible in the preview screen of the Samsung device before an image is captured in order to apply effects to the faces in a captured image, such as brightening face tone and/or hiding facial imperfections.

30. On information and belief, the Face Detection AF feature is included in at least Samsung's Galaxy NX, NX1, NX10, NX30, NX200, NX300, NX500, NX3000, NX3300, WB30F, WB35F, WB50F, WB110, WB350, WB380, ST72 and DV150F camera products. The Face Detection AF feature detects and tracks faces that are visible in the preview screen of the Samsung device before an image is captured in order to preferentially focus on the faces of some subjects over others.

31. On information and belief, the Best Face feature is included in at least Samsung's Galaxy NX, NX30, NX300, NX3000, NX3300, WB350 and WB380 camera products. The Best Face feature detects faces after multiple images are captured by the Samsung device in order to provide for replacement of faces captured in one photo for those captured in another.

32. On information and belief, the Smile Shot feature is included in at least Samsung's Galaxy NX500, NX3000, NX3300, WB30F, WB35F, WB50F, WB110, WB350, WB380, ST72 and DV150F camera products. The Smile Shot feature detects and tracks faces that are visible in the preview screen of the Samsung device before an image is captured in order to automatically release the shutter when a smile is detected.

33. On information and belief, the Self-Portrait (AF) feature is included in at least Samsung's NX1, NX10, NX30, NX200, NX300, NX500, NX3000, NX3300, WB35F, WB50F, WB110, WB350 and WB380 camera products. The Self-Portrait (AF) feature detects and tracks faces that are visible in the preview screen of the Samsung device when the user is taking a self-portrait and before an image is captured in order to automatically release the shutter when the detected face is in focus and located at the center of the preview screen.

34. As an example, claim 24 of the '445 patent recites an "image processing system comprising: a camera configured to output a signal including a plurality of frames, each frame including a plurality of pixels; and a processing system configured to: receive the signal."

35. The Samsung Galaxy S6 device including the Beauty Face feature, for example, comprises an image processing system configured to receive an image signal that consists of a series of frames of pixel data. For example, the Galaxy S6 device receives and processes image signals captured from its front and/or rear cameras.

36. As another example, claim 24 of the '445 patent recites “generate a histogram based on classification values of a plurality of pixels in a first frame of the signal; identify a target from the histogram; determine a target location based on the histogram generated based on the first frame”.

37. On information and belief, the Galaxy S6 device including the Beauty Face feature, for example, generates a histogram based on the classification values (e.g., particular color and/or brightness values) of pixels in a first frame of the image signal, identifies a target, e.g., a human face, from the histogram, and determines the face target's location based on the generated histogram. For example, on information and belief, the Galaxy S6 contains a processor that contains an ARM core and/or other processing hardware that calculates a histogram when executing the Beauty feature.

38. On information and belief, the Galaxy S6 device including the Beauty Face feature, for example, generates histogram(s) based on classification values of pixels in subsequent frames of the image signal and adjusts the face target location based on the histogram(s) generated based on these subsequent frames.

39. As another example, the Samsung Tab S2 device including the Beauty Face feature comprises an image processing system configured to receive an image signal that consists of a series of frames of pixel data. For example, the Tab S2 device receives and processes image signals captured from its front and/or rear cameras.

40. On information and belief, the Tab S2 device including the Beauty Face feature generates a histogram based on classification values of pixels in a first frame, identifies a target,

e.g., a human face, from the histogram, and determines the face target's location based on the generated histogram.

41. On information and belief, the Tab S2 device including the Beauty Face feature generates histogram(s) based on classification values of pixels in subsequent frames and adjusts the face target location based on the histogram(s) generated based on these subsequent frames.

42. As another example, the Samsung NX500 device including the Beauty Face feature comprises an image processing system configured to receive an image signal that consists of a series of frames of pixel data. For example, the NX500 device receives and processes captured image signals.

43. On information and belief, the NX500 device including the Beauty Face feature generates a histogram based on classification values of pixels in a first frame, identifies a target, e.g., a human face, from the histogram, and determines the face target's location based on the generated histogram.

44. On information and belief, the NX500 device including the Beauty Face feature generates histogram(s) based on classification values of pixels in subsequent frames and adjusts the face target location based on the histogram(s) generated based on these subsequent frames.

45. Samsung has, and continues to, induce infringement of at least claim 24 of the '445 patent under 35 U.S.C. § 271(b), because Samsung has intended and continues to intend that end users use its products, including at least its products that include the Beauty Face, Selfie, Smart Stay, face detection, Beauty Face/Beauty Shot, Face Detection AF, Best Face, Smile Shot and Self-Portrait (AF) features, in a manner covered by one or more claims of the '445 patent,

including claim 24. Samsung instructs and encourages end users to use its products in an infringing manner. For example, Samsung provides manuals that instruct users how to use Samsung product features, including the Beauty Face, Selfie, Smart Stay, face detection, Beauty Face/Beauty Shot, Face Detection AF, Best Face, Smile Shot and Self-Portrait (AF) features. Samsung maintains a “Global Download Center” from which it provides product manuals, product information, and product-related software directly to end users in the United States. Also, Samsung advertises and promotes its product features, including via Samsung’s website(s), press releases, and advertisements.

46. On information and belief, end users of Samsung’s smartphone and tablet products in the United States and within this judicial District have used, and continue to use, Samsung products, including at least Samsung’s smartphone and tablet products that include the Beauty Face, Selfie, Smart Stay, and face detection features, and camera products that include the Beauty Face/Beauty Shot, Face Detection AF, Best Face, Smile Shot and Self-Portrait (AF) features, in a manner that infringes the ’445 patent.

47. Additionally, SEC has, and continues to induce infringement of at least claim 24 of the ’445 patent under 35 U.S.C. § 271(b), because SEC has intended and continues to intend that SEA and/or STA use, offer for sale and/or sell Samsung products that include the Beauty Face, Selfie, Smart Stay, face detection, Beauty Face/Beauty Shot, Face Detection AF, Best Face, Smile Shot and Self-Portrait (AF) features. SEC has instructed and encouraged, and continues to instruct and encourage SEA and/or STA to use, offer for sale, and/or sell Samsung products, including products that embody one or more claims of the ’445 patent, including claim 24, in the United States. Samsung’s 2014 annual report lists the role of SEA as “[s]ale of electronic devices,” and the role of STA as “[s]ale of communication equipment.” Samsung

reports consolidated financial results that include SEA and other Samsung subsidiaries. (D.I. 23.)

48. On information and belief, SEA and/or STA have directly infringed and continue to directly infringe one or more claims of the '445 patent, including claim 24, through the use, offer for sale, and/or sale Samsung products, including products that include the Beauty Face, Selfie, Smart Stay, face detection, Beauty Face/Beauty Shot, Face Detection AF, Best Face, Smile Shot and Self-Portrait (AF) features, in the United States.

49. On information and belief, Samsung had and continues to have knowledge of the '445 patent and knowledge that use by end users of its products, including at least its smartphone and tablet products that include the Beauty Face, Selfie, Smart Stay, and face detection features, and camera products that include the Beauty Face/Beauty Shot, Face Detection AF, Best Face, Smile Shot and Self-Portrait (AF) features, infringes one or more claims of the '445 patent. For one, IPT informed Samsung in December 2015 that Samsung was infringing and asked Samsung to cease its infringement, but Samsung did not cease its infringing activities. (See Ex. G.)

50. Samsung has contributed to, and continues to contribute to, infringement of at least claim 24 of the '445 patent under 35 U.S.C. § 271(c).

51. Samsung's products, including at least its smartphone and tablet products that include the Beauty Face, Selfie, Smart Stay, and face detection features, and camera products that include the Beauty Face/Beauty Shot, Face Detection AF, Best Face, Smile Shot and Self-Portrait (AF) features, are a material part of the invention of the '445 patent and are designed to operate in a manner that is covered by one or more claims of the '445 patent through, among

other things, their use of histogram(s), and these features are not staple articles of commerce with substantial non-infringing uses.

52. When an end user of Samsung's products, including Samsung smartphone and tablet products that include the Beauty Face, Selfie, Smart Stay, and face detection features, and camera products that include the Beauty Face/Beauty Shot, Face Detection AF, Best Face, Smile Shot and Self-Portrait (AF) features, uses the product(s) in their intended manner, the user uses and/or puts into service the system of at least claim 24 of the '445 patent, and/or performs all of the steps of one or more method claims of the '445 patent.

53. Samsung has infringed and continues to infringe despite knowing of the '445 patent, and despite the fact that it knew or should have known that its actions constituted an unjustifiably high risk of infringement at least as early as it received notice from IPT as described above. For example, Samsung ignored IPT's notice and continued to infringe IPT's patents. Thus, Samsung's infringement of the '445 patent has been and continues to be willful.

54. The acts of direct and indirect infringement by Samsung have caused, are causing, and will cause damage to IPT. IPT is entitled to recover such damages from Samsung in an amount no less than a reasonable royalty pursuant to 35 U.S.C. § 284 subject to proof at trial.

55. The infringement of IPT's exclusive rights under the '445 patent by Samsung has damaged and will continue to damage IPT, causing irreparable harm, for which there is no adequate remedy at law, unless enjoined by this Court.

COUNT II
INFRINGEMENT OF U.S. PATENT NO. 8,805,001

56. Plaintiff incorporates by reference and realleges Paragraphs 1 through 55 as if specifically set forth herein.

57. On information and belief, Samsung has directly infringed and continues to directly infringe one or more claims of the '001 patent, including at least claim 1. See 35 U.S.C. § 271(a). The infringing acts include at least using, within the United States, Samsung products that are covered by one or more claims of the '001 patent, including claim 1, including at least Samsung smartphone and tablet products that include the Beauty Face, Selfie, Smart Stay, and face detection features, and camera products that include the Beauty Face/Beauty Shot, Face Detection AF, Best Face, Smile Shot and Self-Portrait (AF) features.

58. As an example, claim 1 of the '001 patent recites a “process of tracking a target in an input signal implemented using a system comprising an image processing system, the input signal comprising a succession of frames, each frame comprising a succession of pixels, the target comprising pixels in one or more of a plurality of classes in one or more of a plurality of domains”.

59. The Samsung Galaxy S6 device including the Smart Stay feature, when, for example, in the Smart Stay display setting in the “Settings” app, performs a process of tracking a target, e.g., a human face, in an image input signal that consists of a series of frames of pixel data captured by, for example, the front camera included in the device. The human face target comprises pixels in one or more of a plurality of classes (e.g., particular color and/or brightness values) in one or more of a plurality of domains (e.g., color and/or brightness).

60. As another example, claim 1 of the '001 patent recites “forming at least one histogram of the pixels in the one or more of a plurality of classes in the one or more of a plurality of domains, said at least one histogram referring to classes defining said target, and identifying the target in said at least one histogram itself”.

61. On information and belief, the Galaxy S6 device employing the Smart Stay feature, for example, forms at least one histogram of pixels and identifies the human face target in the histogram(s) itself. For example, on information and belief, the Galaxy S6 device contains a processor that contains an ARM core and/or other processing hardware that, when executing the Smart Stay, forms a histogram of pixels.

62. As a further example, claim 1 of the '001 patent recites “wherein identifying the target in said at least one histogram further comprises determining a center of the target to be between X and Y minima and maxima of the target.”

63. On information and belief, the Galaxy S6 device employing the Smart Stay feature, for example, identifies the face target through, for example, determining a center of the target to be between X and Y minima and maxima of the target.

64. The Samsung Tab S2 device including the Smart Stay feature, when, for example, in the Smart Stay display setting in the “Settings” app, performs a process of tracking a target, e.g., a human face, in an image input signal that consists of a series of frames of pixel data captured by, for example, the front camera included in the device.

65. On information and belief, the Tab S2 device employing the Smart Stay feature, for example, forms at least one histogram of pixels and identifies the human face target in the histogram(s) itself.

66. On information and belief, the Tab S2 device employing the Smart Stay feature identifies the face target through, for example, determining a center of the target to be between X and Y minima and maxima of the target.

67. The Samsung NX1 device including the Face Detection AF feature, when, for example, in the Face Detection AF option in the “AF Area” mode, performs a process of tracking a target, e.g., a human face, in an image input signal that consists of a series of frames of pixel data captured by the device.

68. On information and belief, the NX1 device employing the Face Detection AF feature forms at least one histogram of pixels and identifies the human face target in the histogram(s) itself.

69. On information and belief, the NX1 device employing the Face Detection AF feature identifies the face target through, for example, determining a center of the target to be between X and Y minima and maxima of the target.

70. Samsung has, and continues to, induce infringement of at least claim 1 of the '001 patent under 35 U.S.C. § 271(b), because Samsung has intended and continues to intend that end users use its products, including at least its products that include the Beauty Face, Selfie, Smart Stay, face detection, Beauty Face/Beauty Shot, Face Detection AF, Best Face, Smile Shot and Self-Portrait (AF) features, in a manner covered by one or more claims of the '001 patent,

including claim 1. Samsung instructs and encourages end users to use its products in an infringing manner. For example, Samsung provides manuals that instruct users how to use Samsung product features, including the Beauty Face, Selfie, Smart Stay, face detection, Beauty Face/Beauty Shot, Face Detection AF, Best Face, Smile Shot and Self-Portrait (AF) features.

71. On information and belief, end users of Samsung's products in the United States and within this judicial District have used, and continue to use, Samsung products, including at least Samsung's smartphone and tablet products that include the Beauty Face, Selfie, Smart Stay, and face detection features, and camera products that include the Beauty Face/Beauty Shot, Face Detection AF, Best Face, Smile Shot and Self-Portrait (AF) features, in a manner that infringes the '001 patent.

72. Additionally, SEC has, and continues to induce infringement of at least claim 1 of the '001 patent under 35 U.S.C. § 271(b), because SEC has intended and continues to intend that its wholly-owned U.S. subsidiaries SEA and/or STA use Samsung products that include the Beauty Face, Selfie, Smart Stay, face detection, Beauty Face/Beauty Shot, Face Detection AF, Best Face, Smile Shot and Self-Portrait (AF) features. SEC has instructed and encouraged, and continues to instruct and encourage SEA and/or STA to use Samsung products, including products that embody one or more claims of the '001 patent, including claim 1, in the United States.

73. On information and belief, SEA and/or STA directly infringe one or more claims of the '001 patent, including claim 1, through the use of Samsung products, including products that include the Beauty Face, Selfie, Smart Stay, face detection, Beauty Face/Beauty Shot, Face Detection AF, Best Face, Smile Shot and Self-Portrait (AF) features, in the United States. SEA

and/or STA operated and/or continue to operate Samsung Studios and Samsung Experience Shops nationwide, including in the State of Texas, that provide hands-on demonstrations and training for Samsung products, including Samsung's smartphone and tablet products. (D.I. 23.)

74. On information and belief, Samsung had and continues to have knowledge of the '001 patent and knowledge that use by end users of its products, including at least its smartphone and tablet products that include the Beauty Face, Selfie, Smart Stay, and face detection features, and camera products that include the Beauty Face/Beauty Shot, Face Detection AF, Best Face, Smile Shot and Self-Portrait (AF) features, infringes one or more claims of the '001 patent.

75. Samsung has contributed to, and continues to contribute to, infringement of at least claim 1 of the '001 patent under 35 U.S.C. § 271(c).

76. Samsung's products, including at least its smartphone and tablet products that include the Beauty Face, Selfie, Smart Stay, and face detection features, and camera products that include the Beauty Face/Beauty Shot, Face Detection AF, Best Face, Smile Shot and Self-Portrait (AF) features, are a material part of the invention of the '001 patent and are designed to operate in a manner that is covered by one or more claims of the '001 patent through, among other things, their use of histogram(s), and these features are not staple articles of commerce with substantial non-infringing uses.

77. When an end user of Samsung's products, including Samsung smartphone and tablet products that include the Beauty Face, Selfie, Smart Stay, and face detection features, and camera products that include the Beauty Face/Beauty Shot, Face Detection AF, Best Face, Smile Shot and Self-Portrait (AF) features, uses the product(s) in their intended manner, the user performs all of the steps of one or more claims of the '001 patent, including at least claim 1.

78. Samsung has infringed and continues to infringe despite knowing of the '001 patent, and despite the fact that it knew or should have known that its actions constituted an unjustifiably high risk of infringement at least as early as it received notice from IPT as described above. Thus, Samsung's infringement of the '001 patent has been and continues to be willful.

79. The acts of direct and indirect infringement by Samsung have caused, are causing, and will cause damage to IPT. IPT is entitled to recover such damages from Samsung in an amount no less than a reasonable royalty pursuant to 35 U.S.C. § 284 subject to proof at trial.

80. The infringement of IPT's exclusive rights under the '445 patent by Samsung has damaged and will continue to damage IPT, causing irreparable harm, for which there is no adequate remedy at law, unless enjoined by this Court.

**COUNT III
INFRINGEMENT OF U.S. PATENT NO. 6,959,293**

81. Plaintiff incorporates by reference and realleges Paragraphs 1 through 80 as if specifically set forth herein.

82. The '293 patent issued October 25, 2005. A Certificate of Correction issued for the '293 patent on September 21, 2010.

83. On information and belief, Samsung has directly infringed and continues to directly infringe one or more claims of the '293 patent, including at least claim 18, as the claims are properly construed both prior to and after the issuance of the Certificate of Correction. See 35 U.S.C. § 271(a). The infringing acts include at least importing, making, using, selling, and/or offering for sale Samsung products that are covered by one or more claims of the '293 patent,

including claim 18, as the claims are properly construed both prior to and after the issuance of the Certificate of Correction, including at least the Samsung smartphone and tablet products that include the Beauty Face, Auto, Selfie, Smart Stay, and face detection features, and camera products that include the (Smart) Auto Mode, Beauty Face/Beauty Shot, Face Detection AF, Best Face, Smile Shot and Self-Portrait (AF) features. Samsung offers to sell and sells at least Wi-Fi tablet products directly to consumers in the United States, including, on information and belief, consumers in Texas and this judicial district, through interactive Samsung websites.

84. On information and belief, the Auto feature is included in at least Samsung's Galaxy S4, Galaxy S5, Galaxy S6, Galaxy S6 edge, Galaxy S6 edge+, Note 3, Note 4, Note 5, Note 10.1 (2014 edition), Note Pro, Note Edge, Tab A, Tab S, Tab S2, Tab Pro, and Tab 4 products. The Auto feature allows the Samsung device that includes a camera to evaluate a scene and automatically determine image-capture settings that are appropriate for that scene.

85. On information and belief, the (Smart) Auto Mode feature is included in at least Samsung's Galaxy NX, NX1, NX10, NX30, NX200, NX300, NX500, NX3000, NX3300, WB30F, WB35F, WB50F, WB110, WB350, WB380, ST72 and DV150F camera products. The (Smart) Auto Mode feature allows the Samsung camera to evaluate the conditions of a scene and automatically determine and adjust image-capture settings that are appropriate for those conditions.

86. As an example, claim 18 of the '293 patent recites a "device for detecting one or more events including aural and/or visual phenomena, the device comprising: a controller coupled to a controller bus and a transfer bus; an input portal adapted to receive data describing

one or more parameters of the event being detected; a data processing block coupled to the input portal, the transfer bus and the controller bus”.

87. The Samsung Galaxy S6 device including the Auto feature is a device for detecting visual phenomena that comprises a controller, input portal and data processing block coupled to the input portal. For example, the Galaxy S6 detects and processes visual events, e.g., a scene, in images captured from its rear camera and receives pixel data describing one or more parameters of that visual event (e.g., lighting conditions of and/or objects in a scene).

88. As another example, claim 18 of the '293 patent recites “a histogram unit coupled to the input portal and configured to calculate a histogram for the selected parameter; a classification unit coupled to the input portal and the histogram unit, and configured to determine the data in the histogram that satisfy a selected criterion, and to generate an output accordingly”.

89. On information and belief, the Galaxy S6 device including the Auto feature includes a histogram unit configured to calculate a histogram for a selected parameter (e.g., lighting conditions of and/or objects in a scene) and classification unit coupled to the histogram unit configured to determine the pixel data in the histogram that satisfy a selected criterion (e.g., color and/or brightness) and to generate an output accordingly. For example, the Tab S2 device includes a processor that includes an ARM core and/or other processing hardware that, when executing the Auto feature, calculates the histogram.

90. As another example, claim 18 of the '293 patent recites “a coincidence unit coupled to receive the output of the classification unit from the transfer bus and to receive selected coincidence criteria from the controller bus, the coincidence unit being configured to

generate an enable signal for the histogram unit when the output of the classification unit satisfies the selected coincidence criterion”.

91. On information and belief, the Galaxy S6 device including the Auto feature includes a coincidence unit coupled to receive the output of the classification unit and receive selected coincidence criteria (e.g., criteria related to color and/or brightness), and configured to generate an enable signal for the histogram unit when the output of the classification unit satisfies the selected coincidence criterion.

92. As another example, the Samsung Tab S2 device including the Auto feature is a device for detecting visual phenomena that comprises a controller, input portal and data processing block coupled to the input portal. For example, the Tab S2 detects and processes visual events, e.g., a scene, in images captured from its rear camera and receives pixel data describing one or more parameters of that visual event (e.g., lighting conditions of and/or objects in a scene).

93. On information and belief, the Tab S2 device including the Auto feature, for example, includes a histogram unit configured to calculate a histogram for a selected parameter and classification unit coupled to the histogram unit configured to determine the pixel data in the histogram that satisfy a selected criterion (e.g., color and/or brightness) and to generate an output accordingly.

94. On information and belief, the Tab S2 device including the Auto feature includes a coincidence unit coupled to receive the output of the classification unit and receive selected coincidence criteria, and configured to generate an enable signal for the histogram unit.

95. As another example, the Samsung NX500 device including the Auto Mode feature is a device for detecting visual phenomena that comprises a controller, input portal and data processing block coupled to the input portal. For example, the NX500 detects and processes visual events, e.g., a scene, in captured images and receives pixel data describing one or more parameters of that visual event (e.g., lighting conditions of and/or objects in a scene).

96. On information and belief, the NX500 device including the Auto Mode feature includes a histogram unit configured to calculate a histogram for a selected parameter and classification unit coupled to the histogram unit configured to determine the pixel data in the histogram that satisfy a selected criterion (e.g., color and/or brightness) and to generate an output accordingly.

97. On information and belief, the NX500 device including the Auto Mode feature includes a coincidence unit coupled to receive the output of the classification unit and receive selected coincidence criteria, and configured to generate an enable signal for the histogram unit.

98. Samsung has, and continues to, induce infringement of at least claim 18 of the '293 patent under 35 U.S.C. § 271(b), because Samsung has intended and continues to intend that end users use its products, including at least its products that include the Beauty Face, Auto, Selfie, Smart Stay, face detection, (Smart) Auto Mode, Beauty Face/Beauty Shot, Face Detection AF, Best Face, Smile Shot and Self-Portrait (AF) features, in a manner covered by one or more claims of the '293 patent, including claim 18, as the claims are properly construed both prior to and after the issuance of the Certificate of Correction. Samsung instructs and encourages end users to use its products in an infringing manner. For example, Samsung provides manuals that instruct users as to how to use Samsung product features, including the Beauty Face, Auto,

Selfie, Smart Stay, face detection, (Smart) Auto Mode, Beauty Face/Beauty Shot, Face Detection AF, Best Face, Smile Shot and Self-Portrait (AF) features. Also, Samsung advertises and promotes its product features, including via Samsung's website(s) and Samsung advertisements. (D.I. 23 at ¶ 97.)

99. On information and belief, end users of Samsung's products in the United States and within this judicial District have used, and continue to use, Samsung products, including at least Samsung's smartphone and tablet products that include the Beauty Face, Auto, Selfie, Smart Stay, and face detection features, and camera products that include the (Smart) Auto Mode, Beauty Face/Beauty Shot, Face Detection AF, Best Face, Smile Shot and Self-Portrait (AF) features, in a manner that infringes the '293 patent.

100. Samsung had and continues to have knowledge of the '293 patent and, on information and belief, knowledge that use by end users of its products, including at least its smartphone and tablet products that include the Beauty Face, Auto, Selfie, Smart Stay, and face detection features, and camera products that include the (Smart) Auto Mode, Beauty Face/Beauty Shot, Face Detection AF, Best Face, Smile Shot and Self-Portrait (AF) features, infringes one or more claims of the '293 patent, as the claims are properly construed both prior to and after the issuance of the Certificate of Correction. (D.I. 23 at ¶ 99.)

101. Additionally, SEC has, and continues to induce infringement of at least claim 18 of the '293 patent under 35 U.S.C. § 271(b), because SEC has intended and continues to intend that SEA and/or STA use, offer for sale and/or sell Samsung products that include the Beauty Face, Auto, Selfie, Smart Stay, face detection, (Smart) Auto Mode, Beauty Face/Beauty Shot, Face Detection AF, Best Face, Smile Shot and Self-Portrait (AF) features. SEC has instructed

and encouraged, and continues to instruct and encourage SEA and/or STA to use, offer for sale, and/or sell Samsung products, including products that embody one or more claims of the '293 patent, including claim 18, in the United States.

102. Samsung has contributed to, and continues to contribute to, infringement of at least claim 18 of the '293 patent under 35 U.S.C. § 271(c), as the claims are properly construed both prior to and after the issuance of the Certificate of Correction.

103. Samsung's products, including at least its smartphone and tablet products that include the Beauty Face, Auto, Selfie, Smart Stay, and face detection features, and camera products that include the (Smart) Auto Mode, Beauty Face/Beauty Shot, Face Detection AF, Best Face, Smile Shot and Self-Portrait (AF) features, are a material part of the invention of the '293 patent and are designed to operate in a manner that is covered by one or more claims of the '293 patent, as the claims are properly construed both prior to and after the issuance of the Certificate of Correction through, among other things, their use of histogram(s), and these features are not staple articles of commerce with substantial non-infringing uses.

104. When an end user of Samsung's products, including Samsung smartphone and tablet products that include the Beauty Face, Auto, Selfie, Smart Stay, and face detection features, and camera products that include the (Smart) Auto Mode, Beauty Face/Beauty Shot, Face Detection AF, Best Face, Smile Shot and Self-Portrait (AF) features, uses the product(s) in their intended manner, and/or downloads and installs firmware into the product(s) in the manner intended by Samsung, the user uses and/or puts into service the system of at least claim 18 of the '293 patent, and/or performs all of the steps of one or more method claims of the '293 patent, as

the claims are properly construed both prior to and after the issuance of the Certificate of Correction.

105. Samsung has infringed and continues to infringe despite knowing of the '293 patent, and despite the fact that it knew or should have known that its actions constituted an unjustifiably high risk of infringement at least as early as it received notice from IPT as described above. Thus, Samsung's infringement of the '293 patent has been and continues to be willful.

106. The acts of direct and indirect infringement by Samsung have caused, are causing, and will cause damage to IPT. IPT is entitled to recover such damages from Samsung in an amount no less than a reasonable royalty pursuant to 35 U.S.C. § 284 subject to proof at trial.

107. The infringement of IPT's exclusive rights under the '445 patent by Samsung has damaged and will continue to damage IPT, causing irreparable harm, for which there is no adequate remedy at law, unless enjoined by this Court.

COUNT IV
INFRINGEMENT OF U.S. PATENT NO. 7,650,015

108. Plaintiff incorporates by reference and realleges Paragraphs 1 through 107 as if specifically set forth herein.

109. The '015 patent issued on January 19, 2010. A Certificate of Correction issued for the '015 patent on May 10, 2011.

110. On information and belief, Samsung has directly infringed and continues to directly infringe one or more claims of the '015 patent, including at least claim 6, as the claims

are properly construed both prior to and after the issuance of the Certificate of Correction. See 35 U.S.C. § 271(a). The infringing acts include at least using, within the United States, Samsung products that are covered by one or more claims of the '015 patent, including the Beauty Face, Selfie, Smart Stay, and face detection features, and camera products that include the Beauty Face/Beauty Shot, Face Detection AF, Best Face, Smile Shot and Self-Portrait (AF) features.

111. As an example, claim 6 of the '015 patent recites a “process of tracking a target in an input signal implemented using a system comprising an image processing system, the input signal comprising a succession of frames, each frame comprising a succession of pixels, the target comprising pixels in one or more of a plurality of classes in one or more of a plurality of domains”.

112. The Samsung Galaxy S6 including the Selfie feature, when, for example, in Selfie shooting mode in the “Camera” app, performs a process of tracking a target, e.g., a human face, in an image input signal that consists of a series of frames of pixel data captured by, for example, the front camera included in the device. The human face target comprises pixels in one or more of a plurality of classes (e.g., particular color and/or brightness values) in one or more of a plurality of domains (e.g., color and/or brightness).

113. As another example, claim 6 of the '015 patent recites “forming at least one histogram of the pixels in the one or more of a plurality of classes in the one or more of a plurality of domains, said at least one histogram referring to classes defining said target; identifying the target from said at least one histogram”.

114. On information and belief, the Galaxy S6 device including the Selfie feature, for example, forms at least one histogram of pixels and identifies the human face target from the

histogram(s). For example, on information and belief, the Galaxy S6 device contains a processor that contains an ARM core and/or other processing hardware that, when executing the Selfie feature, forms a histogram of pixels.

115. As a further example, claim 6 of the '015 patent recites “drawing a tracking box around the target”.

116. The Galaxy S6 device including the Selfie feature draws a tracking circle around the face target.

117. As another example, the Samsung Tab S2 device including the Selfie feature, when, for example, in Selfie shooting mode in the “Camera” app, performs a process of tracking a target, e.g., a human face, in an image input signal that consists of a series of frames of pixel data captured by, for example, the front camera included in the device.

118. On information and belief, the Tab S2 device including the Selfie feature forms at least one histogram of pixels and identifies the human face target from the histogram(s).

119. The Tab S2 device including the Selfie feature draws a tracking circle around the face target.

120. As another example, the Samsung WB350 device including the Self-Portrait feature, when, for example, in the Self-Portrait option in “Face Detection” mode, performs a process of tracking a target, e.g., a human face, in an image input signal that consists of a series of frames of pixel data captured by the device.

121. On information and belief, the WB350 device including the Self-Portrait feature forms at least one histogram of pixels and identifies the human face target from the histogram(s).

122. The WB350 device including the Self-Portrait feature draws a tracking circle around the face target.

123. Samsung has, and continues to, induce infringement of at least claim 6 of the '015 patent under 35 U.S.C. § 271(b), because Samsung has intended and continues to intend that end users use its products, including at least its products that include the Beauty Face, Selfie, Smart Stay, face detection, Beauty Face/Beauty Shot, Face Detection AF, Best Face, Smile Shot and Self-Portrait (AF) features, in a manner covered by one or more claims of the '015 patent, including claim 6, as the claims are properly construed both prior to and after the issuance of the Certificate of Correction. Samsung instructs and encourages end users to use its products in an infringing manner. For example, Samsung provides manuals that instruct users how to use Samsung product features, including the Beauty Face, Selfie, Smart Stay, face detection, Beauty Face/Beauty Shot, Face Detection AF, Best Face, Smile Shot and Self-Portrait (AF) features. (D.I. 23 at ¶ 122.)

124. On information and belief, end users of Samsung's products in the United States and within this judicial District have used, and continue to use, Samsung products, including at least Samsung's smartphone and tablet products that include the Beauty Face, Selfie, Smart Stay, and face detection features, and camera products that include the Beauty Face/Beauty Shot, Face Detection AF, Best Face, Smile Shot and Self-Portrait (AF) features, in a manner that infringes the '015 patent, as the claims are properly construed both prior to and after the issuance of the Certificate of Correction.

125. On information and belief, Samsung had and continues to have knowledge of the '015 patent and knowledge that use by end users of its products, including at least its smartphone and tablet products that include the Beauty Face, Selfie, Smart Stay, and face detection features, and camera products that include the Beauty Face/Beauty Shot, Face Detection AF, Best Face, Smile Shot and Self-Portrait (AF) features, infringes one or more claims of the '015 patent, as the claims are properly construed both prior to and after the issuance of the Certificate of Correction.

126. Additionally, SEC has, and continues to induce infringement of at least claim 6 of the '015 patent under 35 U.S.C. § 271(b), because SEC has intended and continues to intend that SEA and/or STA use Samsung products that include the Beauty Face, Selfie, Smart Stay, face detection, Beauty Face/Beauty Shot, Face Detection AF, Best Face, Smile Shot and Self-Portrait (AF) features. SEC has instructed and encouraged, and continues to instruct and encourage SEA and/or STA to use Samsung products, including products that embody one or more claims of the '015 patent, including claim 6, in the United States.

127. On information and belief, SEA and/or STA directly infringe one or more claims of the '015 patent, including claim 6, through the use, offer for sale, and/or sale Samsung products, including products that include the Beauty Face, Selfie, Smart Stay, face detection, Beauty Face/Beauty Shot, Face Detection AF, Best Face, Smile Shot and Self-Portrait (AF) features, in the United States.

128. Samsung has contributed to, and continues to contribute to, infringement of at least claim 6 of the '015 patent under 35 U.S.C. § 271(c).

129. Samsung's products, including at least its smartphone and tablet products that include the Beauty Face, Selfie, Smart Stay, and face detection features, and camera products that include the Beauty Face/Beauty Shot, Face Detection AF, Best Face, Smile Shot and Self-Portrait (AF) features, are a material part of the invention of the '015 patent and are designed to operate in a manner that is covered by one or more claims of the '015 patent, as the claims are properly construed both prior to and after the issuance of the Certificate of Correction through, among other things, their use of histogram(s), and these features are not staple articles of commerce with substantial non-infringing uses.

130. When an end user of Samsung's products, including Samsung smartphone and tablet products that include the Beauty Face, Selfie, Smart Stay, and face detection features, and camera products that include the Beauty Face/Beauty Shot, Face Detection AF, Best Face, Smile Shot and Self-Portrait (AF) features, uses the product(s) in their intended manner, the user performs all of the steps of one or more claims of the '015 patent, including at least claim 6, as the claims are properly construed both prior to and after the issuance of the Certificate of Correction.

131. Samsung has infringed and continues to infringe despite knowing of the '015 patent, and despite the fact that it knew or should have known that its actions constituted an unjustifiably high risk of infringement at least as early as it received notice from IPT as described above. Thus, Samsung's infringement of the '015 patent has been and continues to be willful.

132. The acts of direct and indirect infringement by Samsung have caused, are causing, and will cause damage to IPT. IPT is entitled to recover such damages from Samsung in an amount no less than a reasonable royalty pursuant to 35 U.S.C. § 284 subject to proof at trial.

133. The infringement of IPT's exclusive rights under the '445 patent by Samsung has damaged and will continue to damage IPT, causing irreparable harm, for which there is no adequate remedy at law, unless enjoined by this Court.

COUNT V
INFRINGEMENT OF U.S. PATENT NO. 8,983,134

134. Plaintiff incorporates by reference and realleges Paragraphs 1 through 133 as if specifically set forth herein.

135. On information and belief, Samsung has directly infringed and continues to directly infringe one or more claims of the '134 patent, including at least claim 1. See 35 U.S.C. § 271(a). The infringing acts include at least using, within the United States, Samsung products that are covered by one or more claims of the '134 patent, including claim 1, including at least Samsung smartphone and tablet products that include the Beauty Face, Selfie, Smart Stay, and face detection features, and camera products that include the Beauty Face/Beauty Shot, Face Detection AF, Best Face, Smile Shot and Self-Portrait (AF) features.

136. As an example, claim 1 of the '134 patent recites a “process of tracking a target in an input signal implemented using a system comprising an image processing system, the input signal comprising a succession of frames, each frame comprising a succession of pixels, the target comprising pixels in one or more of a plurality of classes in one or more of a plurality of domains”.

137. The Samsung Galaxy S6 including the face detection feature, when, for example, in the “Camera” app, performs a process of tracking a target, e.g., a human face, in an image input signal that consists of a series of frames of pixel data captured by, for example, the front and/or rear cameras included in the device.

138. As another example, claim 1 of the ’134 patent recites “forming at least one histogram of the pixels in the one or more of a plurality of classes in the one or more of a plurality of domains, said at least one histogram referring to classes defining said target; and identifying the target in said at least one histogram itself”.

139. On information and belief, the Galaxy S6 device including the face detection feature forms at least one histogram of pixels and identifies the human face target in the histogram(s) itself. For example, on information and belief, the Galaxy S6 contains a processor that contains an ARM core and/or other processing hardware that, when the Galaxy S6 executes the face detection feature, forms a histogram of pixels.

140. As a further example, claim 1 of the ’134 patent recites “wherein forming the at least one histogram further comprises determining X minima and maxima and Y minima and maxima of boundaries of the target.”

141. On information and belief, the Galaxy S6 device including the face detection feature forms the histogram(s) through, for example, determining X minima and maxima and Y minima and maxima of the boundaries of the face target.

142. As another example, the Samsung Tab S2 device including the face detection feature, when, for example, in the “Camera” app, performs a process of tracking a target, e.g., a

human face, in an image input signal that consists of a series of frames of pixel data captured by, for example, the front and/or rear cameras included in the device.

143. On information and belief, the Tab S2 device including the face detection feature forms at least one histogram of pixels and identifies the human face target in the histogram(s) itself.

144. On information and belief, the Tab S2 device including the face detection feature forms the histogram(s) through, for example, determining X minima and maxima and Y minima and maxima of the boundaries of the face target.

145. As another example, the Samsung WB350 device including the Smile Shot feature, when, for example, in the Smile Shot option in “Face Detection” mode, performs a process of tracking a target, e.g., a human face, in an image input signal that consists of a series of frames of pixel data captured by the device.

146. On information and belief, the WB350 device including the Smile Shot feature, when, for example, in the Smile Shot option in “Face Detection” mode, forms at least one histogram of pixels and identifies the human face target in the histogram(s) itself.

147. On information and belief, the WB350 device including the Smile Shot feature, when, for example, in the Smile Shot option in “Face Detection” mode, forms the histogram(s) through, for example, determining X minima and maxima and Y minima and maxima of the boundaries of the face target.

148. Samsung has, and continues to, induce infringement of at least claim 1 of the '134 patent under 35 U.S.C. § 271(b), because Samsung has intended and continues to intend that end

users use its products, including at least its products that include the Beauty Face, Selfie, Smart Stay, face detection, Beauty Face/Beauty Shot, Face Detection AF, Best Face, Smile Shot and Self-Portrait (AF) features, in a manner covered by one or more claims of the '134 patent, including claim 1. Samsung instructs and encourages end users to use its products in an infringing manner. For example, Samsung provides manuals that instruct users how to use Samsung product features, including the Beauty Face, Selfie, Smart Stay, face detection, Beauty Face/Beauty Shot, Face Detection AF, Best Face, Smile Shot and Self-Portrait (AF) features. (D.I. 23 at ¶ 147.)

149. On information and belief, end users of Samsung's products in the United States and within this judicial District have used, and continue to use, Samsung products, including at least Samsung's smartphone and tablet products that include the Beauty Face, Selfie, Smart Stay, and face detection features, and camera products that include the Beauty Face/Beauty Shot, Face Detection AF, Best Face, Smile Shot and Self-Portrait (AF) features, in a manner that infringes the '134 patent.

150. Additionally, SEC has, and continues to induce infringement of at least claim 1 of the '134 patent under 35 U.S.C. § 271(b), because SEC has intended and continues to intend that SEA and/or STA use Samsung products that include the Beauty Face, Selfie, Smart Stay, face detection, Beauty Face/Beauty Shot, Face Detection AF, Best Face, Smile Shot and Self-Portrait (AF) features. SEC has instructed and encouraged, and continues to instruct and encourage SEA and/or STA to use Samsung products, including products that embody one or more claims of the '134 patent, including claim 1, in the United States.

151. On information and belief, SEA and/or STA have directly infringed and continue to directly infringe one or more claims of the '134 patent, including claim 1, through the use of Samsung products, including products that include the Beauty Face, Selfie, Smart Stay, face detection, Beauty Face/Beauty Shot, Face Detection AF, Best Face, Smile Shot and Self-Portrait (AF) features, in the United States.

152. On information and belief, Samsung had and continues to have knowledge of the '134 patent and knowledge that use by end users of its products, including at least its smartphone and tablet products that include the Beauty Face, Selfie, Smart Stay, and face detection features, and camera products that include the Beauty Face/Beauty Shot, Face Detection AF, Best Face, Smile Shot and Self-Portrait (AF) features, infringes one or more claims of the '134 patent.

153. Samsung has contributed to, and continues to contribute to, infringement of at least claim 1 of the '134 patent under 35 U.S.C. § 271(c).

154. Samsung's products, including at least its smartphone and tablet products that include the Beauty Face, Selfie, Smart Stay, and face detection features, and camera products that include the Beauty Face/Beauty Shot, Face Detection AF, Best Face, Smile Shot and Self-Portrait (AF) features, are a material part of the invention of the '134 patent and are designed to operate in a manner that is covered by one or more claims of the '134 patent through, among other things, their use of histogram(s), and these features are not staple articles of commerce with substantial non-infringing uses.

155. When an end user of Samsung's products, including Samsung smartphone and tablet products that include the Beauty Face, Selfie, Smart Stay, and face detection features, and camera products that include the Beauty Face/Beauty Shot, Face Detection AF, Best Face, Smile

Shot and Self-Portrait (AF) features, uses the product(s) in their intended manner, the user performs all of the steps of one or more claims of the '134 patent, including at least claim 1.

156. Samsung has infringed and continues to infringe despite knowing of the '134 patent, and despite the fact that it knew or should have known that its actions constituted an unjustifiably high risk of infringement at least as early as it received notice from IPT as described above. Thus, Samsung's infringement of the '134 patent has been and continues to be willful.

157. The acts of direct and indirect infringement by Samsung have caused, are causing, and will cause damage to IPT. IPT is entitled to recover such damages from Samsung in an amount no less than a reasonable royalty pursuant to 35 U.S.C. § 284 subject to proof at trial.

158. The infringement of IPT's exclusive rights under the '134 patent by Samsung has damaged and will continue to damage IPT, causing irreparable harm, for which there is no adequate remedy at law, unless enjoined by this Court.

COUNT VI
INFRINGEMENT OF U.S. PATENT NO. 6,717,518

159. Plaintiff incorporates by reference and realleges Paragraphs 1 through 158 as if specifically set forth herein.

160. On information and belief, Samsung has directly infringed and continues to directly infringe one or more claims of the '518 patent, including at least claim 39. See 35 U.S.C. § 271(a). The infringing acts include at least using, within the United States, Samsung products that are covered by one or more claims of the '518 patent, including claim 39, including

at least Samsung smartphone and tablet products that include the Smart Scroll feature and Samsung camera products that include the blink detection feature.

161. Samsung smartphone and tablet products that include the Smart Scroll feature, when executing the Smart Scroll feature, carry out each step of the method of claim 39 of the '518 Patent.

162. Samsung camera products that include the blink detection feature, when executing blink detection, carry out each step of the method of claim 39 of the '518 Patent.

163. As an example, claim 39 of the '518 patent recites a process of detecting a feature of an eye, the process comprising the step of "acquiring an image of the face of the person, the image comprising pixels corresponding to the feature to be detected".

164. The Samsung Galaxy S5 including the Smart Scroll feature, performs a process of detecting a feature of an eye, the process comprising the step of acquiring an image of the face of the person, the image comprising pixels corresponding to the feature to be detected, for example, from the front camera included in the device.

165. As another example, the Samsung Note 10.1 (2014 edition) including the Smart Scroll feature, performs a process of detecting a feature of an eye, the process comprising the step of acquiring an image of the face of the person, the image comprising pixels corresponding to the feature to be detected, for example, from the front camera included in the device.

166. The WB50F device including the blink detection feature, when, for example, capturing an image of a face while blink detection is enabled, performs a process of detecting a

feature of an eye, the process comprising the step of acquiring an image of the face of the person, the image comprising pixels corresponding to the feature to be detected.

167. Samsung has, and continues to, induce infringement of at least claim 39 of the '518 patent under 35 U.S.C. § 271(b), because Samsung has intended and continues to intend that end users use its products, including at least its products that include the Smart Scroll and blink detection features, in a manner covered by one or more claims of the '518 patent, including claim 39. Samsung instructs and encourages end users to use its products in an infringing manner. For example, Samsung provides manuals that instruct users how to use Samsung product features, including the Smart Scroll and blink detection features.

168. On information and belief, end users of Samsung's products in the United States and within this judicial District have used, and continue to use, Samsung products, including at least Samsung's smartphone and tablet products that include the Smart Scroll feature, and camera products that include the blink detection feature, in a manner that infringes the '518 patent.

169. Additionally, SEC has, and continues to, induce infringement of at least claim 39 of the '518 patent under 35 U.S.C. § 271(b), because SEC has intended that SEA and/or STA use and continues to intend that SEA use Samsung products that include the Smart Scroll and blink detection features. SEC has instructed and encouraged SEA and/or STA and continues to instruct and encourage SEA to use Samsung products, including products that embody one or more claims of the '518 patent, including claim 39, in the United States.

170. On information and belief, SEA and/or STA have directly infringed and SEA continues to directly infringe one or more claims of the '518 patent, including claim 39, through

the use of Samsung products, including products that include the Smart Scroll and blink detection features, in the United States.

171. On information and belief, Samsung had and continues to have knowledge of the '518 patent and knowledge that use by end users of its products, including at least its smartphone and tablet products that include the Smart Scroll feature and camera products that include the blink detection feature, infringes one or more claims of the '518 patent.

172. Samsung has contributed to, and continues to contribute to, infringement of at least claim 39 of the '518 patent under 35 U.S.C. § 271(c).

173. Samsung's products, including at least its smartphone and tablet products that include the Smart Scroll feature and camera products that include the blink detection feature, are a material part of the invention of the '518 patent and are designed to operate in a manner that is covered by one or more claims of the '518 patent through, among other things, their use of histogram(s), and these features are not staple articles of commerce with substantial non-infringing uses.

174. When an end user of Samsung's products, including Samsung smartphone and tablet products that include the Smart Scroll feature and camera products that include the blink detection feature, uses the product(s) in their intended manner, the user performs all of the steps of one or more claims of the '518 patent, including at least claim 39.

175. Samsung has infringed and continues to infringe despite knowing of the '518 patent, and despite the fact that it knew or should have known that its actions constituted an unjustifiably high risk of infringement at least as early as it received notice from IPT as

described above. Thus, Samsung's infringement of the '518 patent has been and continues to be willful.

176. The acts of direct and indirect infringement by Samsung have caused, are causing, and will cause damage to IPT. IPT is entitled to recover such damages from Samsung in an amount no less than a reasonable royalty pursuant to 35 U.S.C. § 284 subject to proof at trial.

177. The infringement of IPT's exclusive rights under the '518 patent by Samsung has damaged and will continue to damage IPT, causing irreparable harm, for which there is no adequate remedy at law, unless enjoined by this Court.

PRAYER FOR RELIEF

WHEREFORE, IPT prays for judgment and requests that the Court find in its favor and against Samsung, and seeks relief as follows:

(a) For judgment that Samsung has infringed, and continues to infringe, either literally or under the doctrine of equivalents, one or more claims of the '293 and '015 patents, both prior to and after the issuance of their respective Certificates of Correction, which have been and continue to be infringed by Samsung and others to whose infringement Samsung has contributed and by others whose infringement has been induced by Samsung;

(b) For judgment that Samsung has infringed, and continues to infringe, either literally or under the doctrine of equivalents, one or more of claims of the '445, '001, '134, and '518 patents, which have been and continue to be infringed by

Samsung and others to whose infringement Samsung has contributed and by others whose infringement has been induced by Samsung;

(c) For judgment that such infringement has been willful;

(d) A permanent injunction enjoining Samsung and its officers, directors, agents, servants, affiliates, employees, divisions, branches, subsidiaries, parents, and all others acting in active concert therewith from infringement, inducing infringement of, or contributing to infringement of the IPT's patents;

(e) For damages and costs incurred by IPT as a result of Samsung's infringing activities under 35 U.S.C. § 284, to adequately compensate IPT for Samsung's infringement of the IPT's patents, but in no event less than a reasonable royalty for the use made by Samsung of the inventions claimed in the '293, '015 '445, '001, '134, and '518 patents, including supplemental damages for any continuing post-verdict infringement up until entry of the final judgment, with an accounting, as needed;

(f) For prejudgment and post-judgment interest;

(g) For treble damages based on Samsung's willful infringement;

(h) For judgment that this case is exceptional and for an award of attorney's fees, costs, and expenses pursuant to 35 U.S.C. § 285 or as otherwise permitted by law;

(i) For all costs of suit; and

(j) For such other and further relief as the Court may deem just and proper.

JURY DEMAND

Pursuant to Fed. R. Civ. P. 38, Plaintiff demands a trial by jury of any and all issues properly triable by a jury.

Dated: December 23, 2016

Respectfully Submitted:

/s/ Michael Zachary

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CERTIFICATE OF SERVICE

I hereby certify that on the 23rd day of December 2016, I caused to be electronically filed the foregoing with the Clerk of the Court using the CM/ECF system, which will send notification of such filing to all counsel of record.

/s/ Michael Zachary

Michael Zachary