

**IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
WACO DIVISION**

**SVV TECHNOLOGY INNOVATIONS
INC.**

Plaintiff,

v.

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

Defendants.

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Civil Action No. 6:20-cv-139-ADA

JURY DEMANDED

PLAINTIFF’S FIRST AMENDED COMPLAINT FOR PATENT INFRINGEMENT

Pursuant to Fed. R. Civ. P. 15(a)(1)(B), Plaintiff SVV Technology Innovations Inc. (“SVVTI” or “Plaintiff”) files this First Amended Complaint (“FAC”) for patent infringement against Samsung Electronics Co., Ltd. (“SEC”) and Samsung Electronics America, Inc. (“SEA”, and collectively “Samsung” or “Defendants”). This FAC adds allegations involving two patents that were issued after the filing of the original complaint: U.S. Patent Nos. 10,613,306 and 10,627,562.

THE PARTIES

1. Plaintiff SVVTI is a California corporation with a place of business 1832 Tribute Road, Suite C, Sacramento, California 95815.
2. On information and belief, Defendant SEC is a company organized and existing under the laws of the country of Korea, with its principal place of business at 129 Samsung-Ro, Yeongtong-Gu, Suwon, Gyeonggi, 16677, Korea.
3. On information and belief, Defendant SEA is a wholly owned subsidiary corporation of SEC organized and existing under the laws of New York with a principal place of business at 85 Challenger Road, Ridgefield Park, New Jersey 07660. SEA is registered to do business in Texas

and has maintained regular and established places of business with offices and/or other facilities in Texas at least at 12100 Samsung Blvd, Austin, Texas 78754; 2800 Wells Branch Pkwy, Austin, Texas 78728; 6625 Excellence Way Plano, Texas 75023; and 1301 E. Lookout Drive, Richardson, Texas 75082.

4. SEA may be served through its registered agent for service of process, CT Corporation System, 1999 Bryan St., Suite. 900, Dallas, Texas 75201.

5. On information and belief, Defendant SEC is composed of three business units. One business unit (the CE Division) makes and sells consumer electronics, such as televisions and refrigerators. A second business unit (Mobile Division) makes and sells mobile devices, such as smartphones and tablets. A third business unit (LSI Division) makes and sells semiconductor chips, such as application processors, which are incorporated into smartphones, such as those made and sold by the Mobile Division.

6. On information and belief, Defendant SEA is the U.S. subsidiary that sells Samsung's consumer electronics and mobile devices in the United States, including those that incorporate the infringing technologies.

7. On information and belief, Samsung maintains authorized sellers and sales representatives that offer and sell products pertinent to this Complaint throughout the State of Texas, including this District and to consumers throughout this District, such as: AT&T Store at 4330 W Waco Drive, Waco, Texas 76710; Verizon Authorized Retailer at 2812 W Loop 340, Suite #H-12, Waco, Texas, 76711; Best Buy at 4627 S Jack Kultgen Expy, Waco, Texas 76706; and Amazon.com.

JURISDICTION AND VENUE

8. This is an action for patent infringement arising under the patent laws of the United States, Title 35, United States Code. Jurisdiction as to these claims is conferred on this Court by 35 U.S.C. §§1331 and 1338(a).

9. This Court has personal jurisdiction over Samsung because, directly or through intermediaries, each has committed acts within the Western District of Texas giving rise to this action and/or has established minimum contacts with the Western District of Texas such that the exercise of jurisdiction would not offend traditional notions of fair play and substantial justice.

10. For example, Defendant SEA maintains regular and established place offices in the Western District of Texas, including at 12100 Samsung Blvd, Austin, Texas 78754 and 2800 Wells Branch Pkwy, Austin, Texas 78728.

11. Further, on information and belief, Defendant SEC directs and controls the actions of Defendant SEA such that it too maintains regular and established offices in the Western District of Texas, including at 12100 Samsung Blvd, Austin, Texas 78754, and 2800 Wells Branch Pkwy, Austin, Texas 78728.

12. Defendant SEC also owns and operates a manufacturing facility in Austin, Texas.

13. In addition, Samsung has placed or contributed to placing infringing products into the stream of commerce via an established distribution channel knowing or understanding that such products would be sold and used in the United States, including in the Western District of Texas.

14. This Court has specific personal jurisdiction over Defendants at least in part because Defendants conduct business in this Judicial District. SVVTI's causes of action arise, at least in part, from Defendant's contacts with and activities in the State of Texas and this Judicial District. Upon information and belief, the Defendants have committed acts of infringement within the State of Texas and this Judicial District by, *inter alia*, directly and/or indirectly making, using, selling, offering to sell, or importing products that infringe one or more claims of SVVTI's patents described below. Defendants' infringing acts within this Judicial District give rise to this action and have established minimum contacts with the forum state of Texas.

15. On information and belief, Samsung also has derived substantial revenues from infringing acts in this Judicial District, including from the sale and use of infringing products including, but not limited to, the products accused of infringement below.

16. Defendants have established minimum contacts with this forum such that the exercise of jurisdiction over Defendants would not offend traditional notions of fair play and substantial justice.

17. Venue in this Judicial District is proper as to SEC under 28 U.S.C. § 1391(c)(3) because it is a foreign corporation.

18. On information and belief, each Defendant exercises direction and control over the performance of each other Defendant, or they form a joint enterprise such that the performance by one Defendant is attributable to each other Defendant.

FACTUAL BACKGROUND

19. SVVTI was founded in 2000 by Dr. Sergiy Vasylyev, a scientist and prolific inventor.

20. Dr. Sergiy Vasylyev has an academic background and more than 20 years of research experience in physical sciences. He received a M.S. equivalent in Physics and Astronomy from the Kharkiv State University, Ukraine in 1992 and a Ph.D. in Physics and Mathematics from the Main Astronomical Observatory of National Academy of Sciences of Ukraine in 1996. From 1996 to 1999, he worked with several major academic research institutions and was involved in diverse research projects in the areas of space physics and solar energy. After immigrating to the U.S., in 2000, Dr. Vasylyev founded SVV Technology Innovations, Inc. to develop and commercialize his ideas in several technical fields ranging from optics and information technology to solar energy and lighting. Dr. Vasylyev is the author of approximately fifty patents and dozens of patent applications, has had numerous talks and presentations at the national and international conferences related to space physics, solar energy and lighting and has authored/co-authored over

30 scientific and technical publications. Dr. Vasylyev's broad technical expertise areas include IT/IOT, optics, photonics, lightguide-based illumination systems, solar energy, daylighting, and solid-state lighting.

21. Since its inception, SVVTI has been a vehicle for developing and commercializing Dr. Vasylyev's inventions, particularly being dedicated to creating impactful technology solutions that find utility in energy efficiency, renewable energy and certain types consumer products. One technology focus is optical advances that enhance solar energy harvesting and save energy in illumination systems.

22. SVVTI has invented and validated several ground-breaking technology solutions and has accumulated an extensive knowledge and built a diverse IP portfolio in optics, photonics, solar energy, daylighting and solid-state lighting fields. SVVTI has received innovation awards from TechConnect and Cleantech Open.

23. SVVTI has developed and demonstrated several novel types of optical collectors for solar energy applications, significantly improving over the traditional technologies in terms of material intensity, concentration ratio, beam uniformity and solar-to-electric conversion efficiency.

24. Another notable technology developed by SVVTI is a unique daylight redirecting film material (Daylighting Fabric®) which is applied to windows of a building façade to redirect natural daylight deep into the interior space for improving natural illumination and saving energy used for lighting.

25. SVVTI has also developed and demonstrated various types of innovative wide-area illumination panels and backlights employing light guides and light emitting diodes (LEDs). These panels can be tailored for specific applications and improving various characteristics of illumination systems, including, for example, light beam diffusion, emission directionality, material efficiency, luminous efficacy, glare control, design options and aesthetics.

26. On March 11, 2019, SVVTI sent a letter to SEA, introducing SVVTI, notifying SEA of several of the patents identified below, and identifying several of Samsung's products that utilize SVVTI's intellectual property.

27. SEA received SVVTI's letter on March 25, 2019.

28. Defendants have been aware of United States Patent Nos. 8,290,318 ("the '318 patent"); 8,740,397 ("the '397 patent"); 9,678,321 ("the '321 patent"); and 9,880,342 ("the '342 patent") since, at least, March 25, 2019 when SEA received SVVTI's letter disclosing and attaching each of these patents, and identifying several of Samsung's products utilizing claims of such patents which were also identified in SVVTI's letter.

29. Defendants have been aware of United States Patent Nos. 10,269,999 ("the '999 patent"); 10,439,088 ("the '088 patent"); and 10,439,089 ("the '089 patent") no later than when SVVTI originally filed this lawsuit detailing Defendants' infringing acts based on each of these asserted patents.

30. Defendants have been aware of United States Patent Nos. 10,613,306 ("the '306 patent"); and 10,627,562 ("the '562 patent") since, at least, May 15, 2020 when SEC received SVVTI's letter disclosing and attaching each of these patents, and identifying several of Samsung's products utilizing claims of such patents which were also identified in SVVTI's letter.

TECHNOLOGY BACKGROUND

31. Several of the products accused of infringement below are products that contain displays using LED-illuminated LCD technology. A LED-illuminated LCD (liquid-crystal display) is a flat-panel display that uses LED (light-emitting diode) illumination. The illumination may come from LEDs along one or more sides of the display (edge-lit) or from full-array backlighting (direct-lit). As explained below, some displays use a quantum dot enhancement film ("QDEF").

32. Several of the products accused of infringement below are QLED televisions. QLED stands for quantum dot LED TV.

33. Samsung debuted a TV comprising quantum dots for the first time at Consumer Electronics Show in 2015. *See e.g.*, Consumer Reports, *Samsung joins the quantum dot crowd at CES 2015 with super SUHD TVs* (January, 2015), available at <https://www.consumerreports.org/cro/news/2015/01/samsung-joins-the-quantum-dot-crowd-atces-2015-with-super-suhd-tvs/index.htm>.

34. Samsung introduced QLED TV in 2017. *See, e.g.*, Samsung, *This is QLED TV, Part 7: QLED TV – How Samsung Achieved Market Dominance in the Premium TV Market* (2017), available at <https://www.samsung.com/global/tv/news/this-is-qled-tv-part-7-qled-tv-how-samsung-achieved-dominance-in-the-premium-tv-market/>.

35. Samsung's share in North America's high-end TV market, including QLED TVs, has increased sharply following its launch of QLED TVs in 2017. *Id.*

36. Generally, quantum dots are small, semiconductor particles that have unique optical and electronic properties, including the ability to produce pure monochromatic red, green, and/or blue light.

37. A widespread commercial application is using a quantum dot enhancement film (“QDEF”) layer to improve the LED backlighting in LCD TVs. In this application, light from a blue LED backlight is converted by quantum dots to relatively pure red and green. This combination of blue, green and red light incurs less blue-green crosstalk and light absorption in the color filters after the LCD screen, thereby increasing useful light throughput and providing a better color gamut.

38. The QDEF layer is able to replace a diffuser used in traditional LCD backlight units.

39. The use of quantum dots to produce monochromatic red, green and blue light is an improvement over traditional LCD backlight units which fed a blue LED through a yellow filter to create white light which was then passed through red, green and blue color filters.

COUNT I

DEFENDANTS' INFRINGEMENT OF U.S. PATENT NO. 8,290,318

40. SVVTI incorporates by reference the paragraphs above as if fully set forth herein.

41. On October 16, 2012, United States Patent No. 8,290,318 entitled "Light Trapping Optical Cover" was duly and legally issued after full and fair examination. SVVTI is the owner of all right, title, and interest in and to the patent by assignment, with full right to bring suit to enforce the patent, including the right to recover for past infringement damages and the right to recover future royalties, damages, and income. A true copy of the '318 patent is attached as Exhibit 1.

42. The '318 patent is valid and enforceable.

43. Defendants have directly infringed, and are continuing to directly infringe, literally or under the doctrine of equivalents, at least independent claim 1 of the '318 patent by importing into the United States, making, using, selling, and/or offering for sale, at least, its QLED TV and other products containing LED-illuminated LCD displays, including televisions, computer monitors, tablets, and handheld devices, in the United States, in violation of 35 U.S.C. § 271(a).

44. Exemplary charts comparing the asserted claims of the '318 patent to exemplars of Defendants' products are attached as Exhibits 10-13.

45. Defendants had knowledge of the '318 patent since, at least, March 25, 2019 when SEA received SVVTI's letter disclosing and attaching each of these patents, and identifying several of Samsung's products utilizing claims of such patents which were also identified in SVVTI's letter.

46. Defendants had knowledge of the '318 patent since, at least, the filing date of the original complaint in this action.

47. Defendants' affirmative acts of selling the Accused Products, causing the Accused Products to be sold, advertised, offered for sale, and/or distributed, and providing instruction manuals for the Accused Products have induced and continue to induce Defendants' customers, and/or end-users to use the Accused Products in their normal and customary way to infringe the '318 patent. For example, it can be reasonably inferred that end-users will use the infringing products, which will cause the end-users to use the elements that are the subject of the claimed invention. Defendants specifically intended and were aware that these normal and customary activities would infringe the '318 Patent. In addition, Defendants provide marketing and/or instructional materials, such as user guides, that specifically teach end-users to use the Accused Products in an infringing manner. By providing such instructions, Defendants know (and have known), or were willfully blind to the probability that its actions have, and continue to, actively induce infringement. By way of example only, Defendants have induced infringement and continue to induce infringement of, in addition to other claims, at least claim 1 of the '318 patent by selling in the United States, without SVVTI's authority, infringing products and providing instructional materials. These actions have induced and continue to induce the direct infringement of the '318 patent by end-users. Defendants performed the acts that constitute induced infringement, and would induce actual infringement, with the knowledge of the '318 patent and with the knowledge, or willful blindness to the probability, that the induced acts would constitute infringement. Upon information and belief, Defendants specifically intended (and intend) that their actions will result in infringement of at least claim 1 of the '318 patent, or subjectively believe that its actions will result in infringement of the '318 patent but took deliberate actions to avoid learning of those facts, as set forth above. Upon information and belief, Defendants knew of the '318 patent and knew of their infringement, including by way of this lawsuit and earlier as described above.

48. Defendants' infringement has been and continues to be willful and deliberate. Upon information and belief, Defendants deliberately infringed the '318 patent and acted recklessly and in disregard to the '318 patent by making, having made, using, importing, and offering for sale products that infringe the '318 patent. Upon information and belief, the risks of infringement were known to Defendants and/or were so obvious under the circumstances that the infringement risks should have been known. Upon information and belief, Defendants have no reasonable non-infringement theories. Upon information and belief, Defendants have not attempted any design/sourcing change to avoid infringement. Defendants have acted despite an objectively high likelihood that its actions constituted infringement of the '318 patent. In addition, this objectively-defined risk was known or should have been known to Defendants. Upon information and belief, Defendants have willfully infringed and/or continues to willfully infringe the '318 patent. Defendants' actions of being made aware of its infringement, not developing any non-infringement theories, not attempting any design/sourcing change, and not ceasing its infringement constitute egregious behavior beyond typical infringement.

COUNT II

DEFENDANTS' INFRINGEMENT OF U.S. PATENT NO. 8,740,397

49. SVVTI incorporates by reference the paragraphs above as if fully set forth herein.

50. On June 3, 2014, United States Patent No. 8,740,397 entitled "Optical Cover Employing Microstructured Surfaces" was duly and legally issued after full and fair examination. SVVTI is the owner of all right, title, and interest in and to the patent by assignment, with full right to bring suit to enforce the patent, including the right to recover for past infringement damages and the right to recover future royalties, damages, and income. A true copy of the '397 patent is attached as Exhibit 2.

51. The '397 patent is valid and enforceable.

52. Defendants have directly infringed, and are continuing to directly infringe, literally or under the doctrine of equivalents, at least independent claim 1 of the '397 patent by importing into the United States, making, using, selling, and/or offering for sale, at least, its QLED TV and other products containing LED-illuminated LCD displays, including televisions, computer monitors, tablets, and handheld devices, in the United States, in violation of 35 U.S.C. § 271(a).

53. Exemplary charts comparing the asserted claims of the '397 patent to exemplars of Defendants' products are attached as Exhibits 14-23.

54. Defendants had knowledge of the '397 patent since, at least, March 25, 2019 when SEA received SVVTI's letter disclosing and attaching each of these patents, and identifying several of Samsung's products utilizing claims of such patents which were also identified in SVVTI's letter.

55. Defendants had knowledge of the '397 patent since, at least, the filing date of the original complaint in this action.

56. Defendants' affirmative acts of selling the Accused Products, causing the Accused Products to be sold, advertised, offered for sale, and/or distributed, and providing instruction manuals for the Accused Products have induced and continue to induce Defendants' customers, and/or end-users to use the Accused Products in their normal and customary way to infringe the '397 patent. For example, it can be reasonably inferred that end-users will use the infringing products, which will cause the end-users to use the elements that are the subject of the claimed invention. Defendants specifically intended and were aware that these normal and customary activities would infringe the '397 Patent. In addition, Defendants provide marketing and/or instructional materials, such as user guides, that specifically teach end-users to use the Accused Products in an infringing manner. By providing such instructions, Defendants know (and have known), or were willfully blind to the probability that its actions have, and continue to, actively induce infringement. By way of example only, Defendants have induced infringement and

continue to induce infringement of, in addition to other claims, at least claim 1 of the '397 patent by selling in the United States, without SVVTI's authority, infringing products and providing instructional materials. These actions have induced and continue to induce the direct infringement of the '397 patent by end-users. Defendants performed the acts that constitute induced infringement, and would induce actual infringement, with the knowledge of the '397 patent and with the knowledge, or willful blindness to the probability, that the induced acts would constitute infringement. Upon information and belief, Defendants specifically intended (and intend) that their actions will result in infringement of at least claim 1 of the '397 patent, or subjectively believe that its actions will result in infringement of the '397 patent but took deliberate actions to avoid learning of those facts, as set forth above. Upon information and belief, Defendants knew of the '397 patent and knew of their infringement, including by way of this lawsuit and earlier as described above.

57. Defendants' infringement has been and continues to be willful and deliberate. Upon information and belief, Defendants deliberately infringed the '397 patent and acted recklessly and in disregard to the '397 patent by making, having made, using, importing, and offering for sale products that infringe the '397 patent. Upon information and belief, the risks of infringement were known to Defendants and/or were so obvious under the circumstances that the infringement risks should have been known. Upon information and belief, Defendants have no reasonable non-infringement theories. Upon information and belief, Defendants have not attempted any design/sourcing change to avoid infringement. Defendants have acted despite an objectively high likelihood that its actions constituted infringement of the '397 patent. In addition, this objectively-defined risk was known or should have been known to Defendants. Upon information and belief, Defendants have willfully infringed and/or continues to willfully infringe the '397 patent. Defendants' actions of being made aware of its infringement, not developing any non-infringement

theories, not attempting any design/sourcing change, and not ceasing its infringement constitute egregious behavior beyond typical infringement.

COUNT III

DEFENDANTS' INFRINGEMENT OF U.S. PATENT NO. 9,678,321

58. SVVTI incorporates by reference the paragraphs above as if fully set forth herein.

59. On June 13, 2017, United States Patent No. 9,678,321 entitled "Light Trapping Optical Structure" was duly and legally issued after full and fair examination. SVVTI is the owner of all right, title, and interest in and to the patent by assignment, with full right to bring suit to enforce the patent, including the right to recover for past infringement damages and the right to recover future royalties, damages, and income. A true copy of the '321 patent is attached as Exhibit 3.

60. The '321 patent is valid and enforceable.

61. Defendants have directly infringed, and are continuing to directly infringe, literally or under the doctrine of equivalents, at least independent claim 1 of the '321 patent by importing into the United States, making, using, selling, and/or offering for sale, at least, its QLED TV and other products containing LED-illuminated LCD displays, including televisions, computer monitors, tablets, and handheld devices, in the United States, in violation of 35 U.S.C. § 271(a).

62. Exemplary charts comparing the asserted claims of the '321 patent to exemplars of Defendants' products are attached as Exhibits 24-27.

63. Defendants had knowledge of the '321 patent since, at least, March 25, 2019 when SEA received SVVTI's letter disclosing and attaching each of these patents, and identifying several of Samsung's products utilizing claims of such patents which were also identified in SVVTI's letter.

64. Defendants had knowledge of the '321 patent since, at least, the filing date of the original complaint in this action.

65. Defendants' affirmative acts of selling the Accused Products, causing the Accused Products to be sold, advertised, offered for sale, and/or distributed, and providing instruction manuals for the Accused Products have induced and continue to induce Defendants' customers, and/or end-users to use the Accused Products in their normal and customary way to infringe the '321 patent. For example, it can be reasonably inferred that end-users will use the infringing products, which will cause the end-users to use the elements that are the subject of the claimed invention. Defendants specifically intended and were aware that these normal and customary activities would infringe the '321 Patent. In addition, Defendants provide marketing and/or instructional materials, such as user guides, that specifically teach end-users to use the Accused Products in an infringing manner. By providing such instructions, Defendants know (and have known), or were willfully blind to the probability that its actions have, and continue to, actively induce infringement. By way of example only, Defendants have induced infringement and continue to induce infringement of, in addition to other claims, at least claim 1 of the '321 patent by selling in the United States, without SVVTI's authority, infringing products and providing instructional materials. These actions have induced and continue to induce the direct infringement of the '321 patent by end-users. Defendants performed the acts that constitute induced infringement, and would induce actual infringement, with the knowledge of the '321 patent and with the knowledge, or willful blindness to the probability, that the induced acts would constitute infringement. Upon information and belief, Defendants specifically intended (and intend) that their actions will result in infringement of at least claim 1 of the '321 patent, or subjectively believe that its actions will result in infringement of the '321 patent but took deliberate actions to avoid learning of those facts, as set forth above. Upon information and belief, Defendants knew of the '321 patent and knew of their infringement, including by way of this lawsuit and earlier as described above.

66. Defendants' infringement has been and continues to be willful and deliberate. Upon information and belief, Defendants deliberately infringed the '321 patent and acted recklessly and in disregard to the '321 patent by making, having made, using, importing, and offering for sale products that infringe the '321 patent. Upon information and belief, the risks of infringement were known to Defendants and/or were so obvious under the circumstances that the infringement risks should have been known. Upon information and belief, Defendants have no reasonable non-infringement theories. Upon information and belief, Defendants have not attempted any design/sourcing change to avoid infringement. Defendants have acted despite an objectively high likelihood that its actions constituted infringement of the '321 patent. In addition, this objectively-defined risk was known or should have been known to Defendants. Upon information and belief, Defendants have willfully infringed and/or continues to willfully infringe the '321 patent. Defendants' actions of being made aware of its infringement, not developing any non-infringement theories, not attempting any design/sourcing change, and not ceasing its infringement constitute egregious behavior beyond typical infringement.

COUNT IV

DEFENDANTS' INFRINGEMENT OF U.S. PATENT NO. 9,880,342

67. SVVTI incorporates by reference the paragraphs above as if fully set forth herein.

68. On January 30, 2018, United States Patent No. 9,880,342 entitled "Collimating Illumination Systems Employing Planar Waveguide" was duly and legally issued after full and fair examination. SVVTI is the owner of all right, title, and interest in and to the patent by assignment, with full right to bring suit to enforce the patent, including the right to recover for past infringement damages and the right to recover future royalties, damages, and income. A true copy of the '342 patent is attached as Exhibit 4.

69. The '342 patent is valid and enforceable.

70. Defendants have directly infringed, and are continuing to directly infringe, literally or under the doctrine of equivalents, at least independent claim 1 of the '342 patent by importing into the United States, making, using, selling, and/or offering for sale, at least, its QLED TV and other products containing LED-illuminated LCD displays, including televisions, computer monitors, tablets, and handheld devices, in the United States, in violation of 35 U.S.C. § 271(a).

71. Exemplary charts comparing the asserted claims of the '342 patent to exemplars of Defendants' products are attached as Exhibits 28-36.

72. Defendants had knowledge of the '342 patent since, at least, March 25, 2019 when SEA received SVVTI's letter disclosing and attaching each of these patents, and identifying several of Samsung's products utilizing claims of such patents which were also identified in SVVTI's letter.

73. Defendants had knowledge of the '342 patent since, at least, the filing date of the original complaint in this action.

74. Defendants' affirmative acts of selling the Accused Products, causing the Accused Products to be sold, advertised, offered for sale, and/or distributed, and providing instruction manuals for the Accused Products have induced and continue to induce Defendants' customers, and/or end-users to use the Accused Products in their normal and customary way to infringe the '342 patent. For example, it can be reasonably inferred that end-users will use the infringing products, which will cause the end-users to use the elements that are the subject of the claimed invention. Defendants specifically intended and were aware that these normal and customary activities would infringe the '342 Patent. In addition, Defendants provide marketing and/or instructional materials, such as user guides, that specifically teach end-users to use the Accused Products in an infringing manner. By providing such instructions, Defendants know (and have known), or were willfully blind to the probability that its actions have, and continue to, actively induce infringement. By way of example only, Defendants have induced infringement and

continue to induce infringement of, in addition to other claims, at least claim 1 of the '342 patent by selling in the United States, without SVVTI's authority, infringing products and providing instructional materials. These actions have induced and continue to induce the direct infringement of the '342 patent by end-users. Defendants performed the acts that constitute induced infringement, and would induce actual infringement, with the knowledge of the '342 patent and with the knowledge, or willful blindness to the probability, that the induced acts would constitute infringement. Upon information and belief, Defendants specifically intended (and intend) that their actions will result in infringement of at least claim 1 of the '342 patent, or subjectively believe that its actions will result in infringement of the '342 patent but took deliberate actions to avoid learning of those facts, as set forth above. Upon information and belief, Defendants knew of the '342 patent and knew of their infringement, including by way of this lawsuit and earlier as described above.

75. Defendants' infringement has been and continues to be willful and deliberate. Upon information and belief, Defendants deliberately infringed the '342 patent and acted recklessly and in disregard to the '342 patent by making, having made, using, importing, and offering for sale products that infringe the '342 patent. Upon information and belief, the risks of infringement were known to Defendants and/or were so obvious under the circumstances that the infringement risks should have been known. Upon information and belief, Defendants have no reasonable non-infringement theories. Upon information and belief, Defendants have not attempted any design/sourcing change to avoid infringement. Defendants have acted despite an objectively high likelihood that its actions constituted infringement of the '342 patent. In addition, this objectively-defined risk was known or should have been known to Defendants. Upon information and belief, Defendants have willfully infringed and/or continues to willfully infringe the '342 patent. Defendants' actions of being made aware of its infringement, not developing any non-infringement

theories, not attempting any design/sourcing change, and not ceasing its infringement constitute egregious behavior beyond typical infringement.

COUNT V

DEFENDANTS' INFRINGEMENT OF U.S. PATENT NO. 10,269,999

76. SVVTI incorporates by reference the paragraphs above as if fully set forth herein.

77. On April 23, 2019, United States Patent No. 10,269,999 entitled "Light Trapping Optical Structures Employing Light Converting and Light Guiding Layers" was duly and legally issued after full and fair examination. SVVTI is the owner of all right, title, and interest in and to the patent by assignment, with full right to bring suit to enforce the patent, including the right to recover for past infringement damages and the right to recover future royalties, damages, and income. A true copy of the '999 patent is attached as Exhibit 5.

78. The '999 patent is valid and enforceable.

79. Defendants have directly infringed, and are continuing to directly infringe, literally or under the doctrine of equivalents, at least independent claim 1 of the '999 patent by importing into the United States, making, using, selling, and/or offering for sale, at least, its QLED TV and other products containing LED-illuminated LCD displays, including televisions, computer monitors, tablets, and handheld devices, in the United States, in violation of 35 U.S.C. § 271(a).

80. Exemplary charts comparing the asserted claims of the '999 patent to exemplars of Defendants' products are attached as Exhibits 37-39.

81. Defendants had knowledge of the '999 patent since, at least, the filing date of the original complaint in this action.

82. Defendants' affirmative acts of selling the Accused Products, causing the Accused Products to be sold, advertised, offered for sale, and/or distributed, and providing instruction manuals for the Accused Products have induced and continue to induce Defendants' customers,

and/or end-users to use the Accused Products in their normal and customary way to infringe the '999 patent. For example, it can be reasonably inferred that end-users will use the infringing products, which will cause the end-users to use the elements that are the subject of the claimed invention. Defendants specifically intended and were aware that these normal and customary activities would infringe the '999 Patent. In addition, Defendants provide marketing and/or instructional materials, such as user guides, that specifically teach end-users to use the Accused Products in an infringing manner. By providing such instructions, Defendants know (and have known), or were willfully blind to the probability that its actions have, and continue to, actively induce infringement. By way of example only, Defendants have induced infringement and continue to induce infringement of, in addition to other claims, at least claim 1 of the '999 patent by selling in the United States, without SVVTI's authority, infringing products and providing instructional materials. These actions have induced and continue to induce the direct infringement of the '999 patent by end-users. Defendants performed the acts that constitute induced infringement, and would induce actual infringement, with the knowledge of the '999 patent and with the knowledge, or willful blindness to the probability, that the induced acts would constitute infringement. Upon information and belief, Defendants specifically intended (and intend) that their actions will result in infringement of at least claim 1 of the '999 patent, or subjectively believe that its actions will result in infringement of the '999 patent but took deliberate actions to avoid learning of those facts, as set forth above. Upon information and belief, Defendants knew of the '999 patent and knew of their infringement, including by way of this lawsuit as described above.

83. Defendants' infringement has been and continues to be willful and deliberate. Upon information and belief, Defendants deliberately infringed the '999 patent and acted recklessly and in disregard to the '999 patent by making, having made, using, importing, and offering for sale

products that infringe the '999 patent. Upon information and belief, the risks of infringement were known to Defendants and/or were so obvious under the circumstances that the infringement risks should have been known. Upon information and belief, Defendants have no reasonable non-infringement theories. Upon information and belief, Defendants have not attempted any design/sourcing change to avoid infringement. Defendants have acted despite an objectively high likelihood that its actions constituted infringement of the '999 patent. In addition, this objectively-defined risk was known or should have been known to Defendants. Upon information and belief, Defendants have willfully infringed and/or continues to willfully infringe the '999 patent. Defendants' actions of being made aware of its infringement, not developing any non-infringement theories, not attempting any design/sourcing change, and not ceasing its infringement constitute egregious behavior beyond typical infringement.

COUNT VI

DEFENDANTS' INFRINGEMENT OF U.S. PATENT NO. 10,439,088

84. SVVTI incorporates by reference the paragraphs above as if fully set forth herein.

85. On October 8, 2019, United States Patent No. 10,439,088 entitled "Light Converting System Employing Planar Light Trapping and Light Absorbing Structures" was duly and legally issued after full and fair examination. SVVTI is the owner of all right, title, and interest in and to the patent by assignment, with full right to bring suit to enforce the patent, including the right to recover for past infringement damages and the right to recover future royalties, damages, and income. A true copy of the '088 patent is attached as Exhibit 6.

86. The '088 patent is valid and enforceable.

87. Defendants have directly infringed, and are continuing to directly infringe, literally or under the doctrine of equivalents, at least independent claim 1 of the '088 patent by importing into the United States, making, using, selling, and/or offering for sale, at least, its QLED TV and

other products containing LED-illuminated LCD displays, including televisions, computer monitors, tablets, and handheld devices, in the United States, in violation of 35 U.S.C. § 271(a).

88. Exemplary charts comparing the asserted claims of the '088 patent to exemplars of Defendants' products are attached as Exhibits 40-43.

89. Defendants had knowledge of the '088 patent since, at least, the filing date of the original complaint in this action.

90. Defendants' affirmative acts of selling the Accused Products, causing the Accused Products to be sold, advertised, offered for sale, and/or distributed, and providing instruction manuals for the Accused Products have induced and continue to induce Defendants' customers, and/or end-users to use the Accused Products in their normal and customary way to infringe the '088 patent. For example, it can be reasonably inferred that end-users will use the infringing products, which will cause the end-users to use the elements that are the subject of the claimed invention. Defendants specifically intended and were aware that these normal and customary activities would infringe the '088 Patent. In addition, Defendants provide marketing and/or instructional materials, such as user guides, that specifically teach end-users to use the Accused Products in an infringing manner. By providing such instructions, Defendants know (and have known), or were willfully blind to the probability that its actions have, and continue to, actively induce infringement. By way of example only, Defendants have induced infringement and continue to induce infringement of, in addition to other claims, at least claim 1 of the '088 patent by selling in the United States, without SVVTI's authority, infringing products and providing instructional materials. These actions have induced and continue to induce the direct infringement of the '088 patent by end-users. Defendants performed the acts that constitute induced infringement, and would induce actual infringement, with the knowledge of the '088 patent and with the knowledge, or willful blindness to the probability, that the induced acts would constitute

infringement. Upon information and belief, Defendants specifically intended (and intend) that their actions will result in infringement of at least claim 1 of the '088 patent, or subjectively believe that its actions will result in infringement of the '088 patent but took deliberate actions to avoid learning of those facts, as set forth above. Upon information and belief, Defendants knew of the '088 patent and knew of their infringement, including by way of this lawsuit as described above.

91. Defendants' infringement has been and continues to be willful and deliberate. Upon information and belief, Defendants deliberately infringed the '088 patent and acted recklessly and in disregard to the '088 patent by making, having made, using, importing, and offering for sale products that infringe the '088 patent. Upon information and belief, the risks of infringement were known to Defendants and/or were so obvious under the circumstances that the infringement risks should have been known. Upon information and belief, Defendants have no reasonable non-infringement theories. Upon information and belief, Defendants have not attempted any design/sourcing change to avoid infringement. Defendants have acted despite an objectively high likelihood that its actions constituted infringement of the '088 patent. In addition, this objectively-defined risk was known or should have been known to Defendants. Upon information and belief, Defendants have willfully infringed and/or continues to willfully infringe the '088 patent. Defendants' actions of being made aware of its infringement, not developing any non-infringement theories, not attempting any design/sourcing change, and not ceasing its infringement constitute egregious behavior beyond typical infringement.

COUNT VII

DEFENDANTS' INFRINGEMENT OF U.S. PATENT NO. 10,439,089

92. SVVTI incorporates by reference the paragraphs above as if fully set forth herein.

93. On October 8, 2019, United States Patent No. 10,439,089 entitled “Light Converting System Employing Planar Light Trapping and Light Absorbing Structures” was duly and legally issued after full and fair examination. SVVTI is the owner of all right, title, and interest in and to the patent by assignment, with full right to bring suit to enforce the patent, including the right to recover for past infringement damages and the right to recover future royalties, damages, and income. A true copy of the ’089 patent is attached as Exhibit 7.

94. The ’089 patent is valid and enforceable.

95. Defendants have directly infringed, and are continuing to directly infringe, literally or under the doctrine of equivalents, at least independent claim 1 of the ’089 patent by importing into the United States, making, using, selling, and/or offering for sale, at least, its QLED TV and other products containing LED-illuminated LCD displays, including televisions, computer monitors, tablets, and handheld devices, in the United States, in violation of 35 U.S.C. § 271(a).

96. Defendants have directly infringed, and are continuing to directly infringe, literally or under the doctrine of equivalents, at least independent claim 20 of the ’089 patent by importing into the United States, at least, its QLED TV and other products containing LED-illuminated LCD displays, including televisions, computer monitors, tablets, and handheld devices, in violation of 35 U.S.C. § 271(g).

97. Exemplary charts comparing the asserted claims of the ’089 patent to exemplars of Defendants’ products are attached as Exhibits 44-47.

98. Defendants had knowledge of the ’089 patent since, at least, the filing date of the original complaint in this action.

99. Defendants’ affirmative acts of selling the Accused Products, causing the Accused Products to be sold, advertised, offered for sale, and/or distributed, and providing instruction manuals for the Accused Products have induced and continue to induce Defendants’ customers,

and/or end-users to use the Accused Products in their normal and customary way to infringe the '089 patent. For example, it can be reasonably inferred that end-users will use the infringing products, which will cause the end-users to use the elements that are the subject of the claimed invention. Defendants specifically intended and were aware that these normal and customary activities would infringe the '089 Patent. In addition, Defendants provide marketing and/or instructional materials, such as user guides, that specifically teach end-users to use the Accused Products in an infringing manner. By providing such instructions, Defendants know (and have known), or were willfully blind to the probability that its actions have, and continue to, actively induce infringement. By way of example only, Defendants have induced infringement and continue to induce infringement of, in addition to other claims, at least claim 1 of the '089 patent by selling in the United States, without SVVTI's authority, infringing products and providing instructional materials. These actions have induced and continue to induce the direct infringement of the '089 patent by end-users. Defendants performed the acts that constitute induced infringement, and would induce actual infringement, with the knowledge of the '089 patent and with the knowledge, or willful blindness to the probability, that the induced acts would constitute infringement. Upon information and belief, Defendants specifically intended (and intend) that their actions will result in infringement of at least claim 1 of the '089 patent, or subjectively believe that its actions will result in infringement of the '089 patent but took deliberate actions to avoid learning of those facts, as set forth above. Upon information and belief, Defendants knew of the '089 patent and knew of their infringement, including by way of this lawsuit as described above.

Defendants' infringement has been and continues to be willful and deliberate. Upon information and belief, Defendants deliberately infringed the '089 patent and acted recklessly and in disregard to the '089 patent by making, having made, using, importing, and offering for sale products that

infringe the '089 patent. Upon information and belief, the risks of infringement were known to Defendants and/or were so obvious under the circumstances that the infringement risks should have been known. Upon information and belief, Defendants have no reasonable non-infringement theories. Upon information and belief, Defendants have not attempted any design/sourcing change to avoid infringement. Defendants have acted despite an objectively high likelihood that its actions constituted infringement of the '089 patent. In addition, this objectively-defined risk was known or should have been known to Defendants. Upon information and belief, Defendants have willfully infringed and/or continues to willfully infringe the '089 patent. Defendants' actions of being made aware of its infringement, not developing any non-infringement theories, not attempting any design/sourcing change, and not ceasing its infringement constitute egregious behavior beyond typical infringement.

COUNT VIII

DEFENDANTS' INFRINGEMENT OF U.S. PATENT NO. 10,613,306

100. SVVTI incorporates by reference the paragraphs above as if fully set forth herein.

101. On April 7, 2020, United States Patent No. 10,613,306 entitled "Light Distribution System Employing Planar Microstructured Waveguide" was duly and legally issued after full and fair examination. SVVTI is the owner of all right, title, and interest in and to the patent by assignment, with full right to bring suit to enforce the patent, including the right to recover for past infringement damages and the right to recover future royalties, damages, and income. A true copy of the '306 patent is attached as Exhibit 8.

102. The '306 patent is valid and enforceable.

103. Defendants have directly infringed, and are continuing to directly infringe, literally or under the doctrine of equivalents, at least independent claim 1 of the '306 patent by importing into the United States, making, using, selling, and/or offering for sale, at least, its QLED TV and

other products containing LED-illuminated LCD displays, including televisions, computer monitors, tablets, and handheld devices, in the United States, in violation of 35 U.S.C. § 271(a).

104. Exemplary charts comparing the asserted claims of the '306 patent to exemplars of Defendants' products are attached as Exhibit 48.

105. Defendants had knowledge of the '306 patent since, at least, May 15, 2020 when SEC received SVVTI's letter disclosing the '306 patent and identifying several of Samsung's products utilizing claims of such patents which were also identified in SVVTI's letter. Defendants had knowledge of the '306 patent since, at least, the filing date of this First Amended Complaint.

106. Defendants' affirmative acts of selling the Accused Products, causing the Accused Products to be sold, advertised, offered for sale, and/or distributed, and providing instruction manuals for the Accused Products have induced and continue to induce Defendants' customers, and/or end-users to use the Accused Products in their normal and customary way to infringe the '306 patent. For example, it can be reasonably inferred that end-users will use the infringing products, which will cause the end-users to use the elements that are the subject of the claimed invention. Defendants specifically intended and were aware that these normal and customary activities would infringe the '306 Patent. In addition, Defendants provide marketing and/or instructional materials, such as user guides, that specifically teach end-users to use the Accused Products in an infringing manner. By providing such instructions, Defendants know (and have known), or were willfully blind to the probability that its actions have, and continue to, actively induce infringement. By way of example only, Defendants have induced infringement and continue to induce infringement of, in addition to other claims, at least claim 1 of the '306 patent by selling in the United States, without SVVTI's authority, infringing products and providing instructional materials. These actions have induced and continue to induce the direct infringement of the '306 patent by end-users. Defendants performed the acts that constitute induced

infringement, and would induce actual infringement, with the knowledge of the '306 patent and with the knowledge, or willful blindness to the probability, that the induced acts would constitute infringement. Upon information and belief, Defendants specifically intended (and intend) that their actions will result in infringement of at least claim 1 of the '306 patent, or subjectively believe that its actions will result in infringement of the '306 patent but took deliberate actions to avoid learning of those facts, as set forth above. Upon information and belief, Defendants knew of the '306 patent and knew of their infringement, including by way of this lawsuit as described above.

107. Defendants' infringement has been and continues to be willful and deliberate. Upon information and belief, Defendants deliberately infringed the '306 patent and acted recklessly and in disregard to the '306 patent by making, having made, using, importing, and offering for sale products that infringe the '306 patent. Upon information and belief, the risks of infringement were known to Defendants and/or were so obvious under the circumstances that the infringement risks should have been known. Upon information and belief, Defendants have no reasonable non-infringement theories. Upon information and belief, Defendants have not attempted any design/sourcing change to avoid infringement. Defendants have acted despite an objectively high likelihood that its actions constituted infringement of the '306 patent. In addition, this objectively-defined risk was known or should have been known to Defendants. Upon information and belief, Defendants have willfully infringed and/or continues to willfully infringe the '306 patent. Defendants' actions of being made aware of its infringement, not developing any non-infringement theories, not attempting any design/sourcing change, and not ceasing its infringement constitute egregious behavior beyond typical infringement.

COUNT IX

DEFENDANTS' INFRINGEMENT OF U.S. PATENT NO. 10,627,562

108. SVVTI incorporates by reference the paragraphs above as if fully set forth herein.

109. On April 21, 2020, United States Patent No. 10,627,562 entitled “Illumination System Using Edge-Lit Waveguide and Microstructured Surfaces” was duly and legally issued after full and fair examination. SVVTI is the owner of all right, title, and interest in and to the patent by assignment, with full right to bring suit to enforce the patent, including the right to recover for past infringement damages and the right to recover future royalties, damages, and income. A true copy of the ’562 patent is attached as Exhibit 9.

110. The ’562 patent is valid and enforceable.

111. Defendants have directly infringed, and are continuing to directly infringe, literally or under the doctrine of equivalents, at least independent claim 1 of the ’562 patent by importing into the United States, making, using, selling, and/or offering for sale, at least, its QLED TV and other products containing LED-illuminated LCD displays, including televisions, computer monitors, tablets, and handheld devices, in the United States, in violation of 35 U.S.C. § 271(a).

112. Exemplary charts comparing the asserted claims of the ’562 patent to exemplars of Defendants’ products are attached as Exhibits 49-50.

113. Defendants had knowledge of the ’562 patent since, at least, May 15, 2020 when SEC received SVVTI’s letter disclosing the ’562 patent and identifying several of Samsung’s products utilizing claims of such patents which were also identified in SVVTI’s letter. Defendants had knowledge of the ’562 patent since, at least, the filing date of this First Amended Complaint.

114. Defendants’ affirmative acts of selling the Accused Products, causing the Accused Products to be sold, advertised, offered for sale, and/or distributed, and providing instruction manuals for the Accused Products have induced and continue to induce Defendants’ customers, and/or end-users to use the Accused Products in their normal and customary way to infringe the ’562 patent. For example, it can be reasonably inferred that end-users will use the infringing

products, which will cause the end-users to use the elements that are the subject of the claimed invention. Defendants specifically intended and were aware that these normal and customary activities would infringe the '562 Patent. In addition, Defendants provide marketing and/or instructional materials, such as user guides, that specifically teach end-users to use the Accused Products in an infringing manner. By providing such instructions, Defendants know (and have known), or were willfully blind to the probability that its actions have, and continue to, actively induce infringement. By way of example only, Defendants have induced infringement and continue to induce infringement of, in addition to other claims, at least claim 1 of the '562 patent by selling in the United States, without SVVTI's authority, infringing products and providing instructional materials. These actions have induced and continue to induce the direct infringement of the '562 patent by end-users. Defendants performed the acts that constitute induced infringement, and would induce actual infringement, with the knowledge of the '562 patent and with the knowledge, or willful blindness to the probability, that the induced acts would constitute infringement. Upon information and belief, Defendants specifically intended (and intend) that their actions will result in infringement of at least claim 1 of the '562 patent, or subjectively believe that its actions will result in infringement of the '562 patent but took deliberate actions to avoid learning of those facts, as set forth above. Upon information and belief, Defendants knew of the '562 patent and knew of their infringement, including by way of this lawsuit as described above.

115. Defendants' infringement has been and continues to be willful and deliberate. Upon information and belief, Defendants deliberately infringed the '562 patent and acted recklessly and in disregard to the '562 patent by making, having made, using, importing, and offering for sale products that infringe the '562 patent. Upon information and belief, the risks of infringement were known to Defendants and/or were so obvious under the circumstances that the infringement risks

should have been known. Upon information and belief, Defendants have no reasonable non-infringement theories. Upon information and belief, Defendants have not attempted any design/sourcing change to avoid infringement. Defendants have acted despite an objectively high likelihood that its actions constituted infringement of the '562 patent. In addition, this objectively-defined risk was known or should have been known to Defendants. Upon information and belief, Defendants have willfully infringed and/or continues to willfully infringe the '562 patent. Defendants' actions of being made aware of its infringement, not developing any non-infringement theories, not attempting any design/sourcing change, and not ceasing its infringement constitute egregious behavior beyond typical infringement.

116. To the extent any marking or notice was required by 35 U.S.C. § 287, Plaintiff has complied with the applicable marking and/or notice requirements of 35 U.S.C. § 287.

DEMAND FOR JURY TRIAL

Plaintiff hereby demands a jury for all issues so triable.

PRAYER

WHEREFORE, Plaintiff prays for judgment that:

1. Defendants have infringed and continue to infringe, one or more claims of United States Patent Nos. 8,290,318; 8,740,397; 9,678,321; 9,880,342; 10,269,999; 10,439,088; 10,439,089; 10,613,306; and 10,627,562;
2. Defendants be ordered to pay damages caused to Plaintiff by Defendants' unlawful acts of infringement;
3. Defendants' acts of infringement have been, and are, willful;
4. Plaintiff recover actual damages under 35 U.S.C. § 284;
5. Plaintiff be awarded supplemental damages for any continuing post-verdict infringement up until final judgment;

6. Plaintiff be awarded a compulsory ongoing royalty;
7. Plaintiff be awarded an accounting of damages;
8. Plaintiff be awarded enhanced damages for willful infringement as permitted under the law;
9. A judgment and order requiring Defendants to pay to Plaintiff pre-judgment and post-judgment interest on the damages awarded, including an award of pre-judgment interest, pursuant to 35 U.S.C. § 284, from the date of each act of infringement by Defendants to the day a damages judgment is entered, and a further award of post-judgment interest, pursuant to 28 U.S.C. § 1961, continuing until such judgment is paid, at the maximum rate allowed by law;
10. An award to Plaintiff of the costs of this action and its reasonable attorneys' fees pursuant to 35 U.S.C. §285; and
11. Such other and further relief as the Court deems just and equitable.

DATED: June 8, 2020

Respectfully submitted,

/s/Robert D. Katz

Robert D. Katz

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ATTORNEY FOR PLAINTIFF

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