

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

SIONYX, LLC,

Plaintiff,

vs.

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

Defendants.

Civil Action No. 2:24-cv-291-JRG

JURY TRIAL DEMANDED

FIRST AMENDED COMPLAINT

Plaintiff SiOnyx, LLC (“SiOnyx” or “Plaintiff”) brings this action against Defendant Samsung Electronics, Co., Ltd. (“SEC”), Defendant Samsung Electronics America, Inc. (“SEA”), and Defendant Samsung Semiconductor, Inc. (“SSI”) (collectively, “Samsung” or “Defendants”) and alleges as follows:

INTRODUCTION

1. This is an action for patent infringement under the patent laws of the United States, 35 U.S.C. §§ 271, *et seq.*, to obtain damages resulting from Defendants’ unauthorized and ongoing actions of making, having made, using, selling, having sold, offering to sell, importing, and/or having imported into the United States products that infringe or enable the infringement of one or more claims of United States Patent No. 9,064,764 (the “764 Patent”), United States Patent No. 9,905,599 (the “599 Patent”), United States Patent No. 10,224,359 (the “359 Patent”), United States Patent No. 11,069,737 (the “737 Patent”), and United States Patent No. 11,721,714 (the “714 Patent”) (collectively, the “Asserted Patents”), including, without limitation, digital

imaging sensors and mobile phones and tablet computers that contain those sensors (the “Accused Products”).

I. THE PARTIES

2. Plaintiff SiOnyx, LLC is a Delaware limited liability corporation with its principal place of business at 100 Cummings Center, Suite 243F Beverly, MA 01915.

3. Upon information and belief, Samsung Electronics, Co., Ltd. (“SEC”) is a corporation organized and existing under the laws of the Republic of Korea, with its principal place of business at 129 Samsung-ro, Yeongtong-gu, Suwon, Gyeonggi, 16677, Republic of Korea. On information and belief, SEC is the worldwide parent corporation for SEA and SSI, and is responsible for the infringing activities identified in this complaint. SEC may be served with process under Fed. R. Civ. P. 4(f)(3) and 4(h)(2).

4. Upon information and belief, Defendant Samsung Electronics America, Inc. (“SEA”) is a corporation organized and existing under the laws of the State of New York. SEA maintains facilities in Texas at least at 6625 Excellence Way, Plano, Texas 75023. SEA may be served with process through its registered agent CT Corporation Systems, 1999 Bryan Street, Suite 900, Dallas Texas 75201-3136.

5. Upon information and belief, SEA oversees domestic sales and distribution of Samsung’s consumer electronics products, including the products accused of infringement in this case.

6. Upon information and belief, Defendant Samsung Semiconductor, Inc. (“SSI”) is a corporation organized and existing under the laws of the State of California, with its principal place of business at 3655 North First Street San Jose, California 95134. SSI maintains facilities at 6625 Excellence Way, Plano, Texas 75023. SSI may be served with process through its

registered agent for service in Texas: National Registered Agents, Inc., 1999 Bryan St., Suite 900, Dallas, TX 75201.

7. Defendants SEC, SEA, and SSI have acted in concert with respect to the facts alleged herein such that any act of SEA, or SSI is attributable to SEC, and vice versa.

8. Samsung offers its products and services, including the products accused of infringement in this Complaint, to customers and potential customers located in the Eastern District of Texas.

II. JURISDICTION AND VENUE

9. This Court has jurisdiction over the subject matter of this action pursuant to 28 U.S.C. §§ 1331, 1338(a), 1367, and 2201.

10. This Court also has jurisdiction pursuant to 28 U.S.C. § 1332, as complete diversity among the parties exists, and the amount in controversy exceeds \$75,000.

11. Venue is proper in this district pursuant to 28 U.S.C. § 1391(b) and (d). Samsung is registered to do business in Texas, and upon information and belief, Samsung has transacted business in this District, has committed acts of direct infringement in this District, and has regular and established places of business in this District as set forth above.

12. Samsung is subject to this Court's jurisdiction pursuant to due process and the Texas Long Arm Statute due at least to its substantial business in this State and District, including (a) at least part of its past infringing activities, (b) regularly doing or soliciting business in Texas, and/or (c) engaging in persistent conduct and/or deriving substantial revenue from goods and services provided to customers in Texas.

III. BACKGROUND

13. SiOnyx was co-founded in 2006 by Prof. Eric Mazur and Dr. James Carey to pursue commercialization of black silicon, which they discovered and developed at Harvard

University. Since its founding, SiOnyx has continued Prof. Mazur and Dr. Carey's work, employing world-class scientists to help develop and manufacture proprietary ultra-low-light complimentary metal-oxide-semiconductor ("CMOS") image sensors and high-performance night vision camera systems. The significant advantages of silicon-based photonics allow for smaller, lower cost, higher performance photonic devices, which can be used in a variety of applications, including, in the consumer, industrial, medical, and defense industries. All of these applications depend on the high-performance infrared imaging found in SiOnyx's image sensors.

14. SiOnyx has sought to commercialize and protect its numerous inventions through patents in the United States and abroad. SiOnyx's engineers disclosed and then assigned the invention to SiOnyx pursuant to their employment agreements and then SiOnyx filed a number of patents including the Asserted Patents, four of which are entitled "Pixel Isolation Elements, Devices, and Associated Methods," and one of which is entitled "Shallow Trench Textured Regions and Associated Methods." The Asserted Patents teach photosensitive devices that are designed for improved performance.

**IV. COUNT I
(Infringement of U.S. Patent No. 9,064,764)**

15. SiOnyx incorporates by reference the foregoing paragraphs as if fully set forth herein.

16. SiOnyx owns by assignment, all rights, title, and interest, including the right to recover damages for past, present, and future infringement, in U.S. Patent No. 9,064,764, titled "Pixel Isolation Elements, Devices, and Associated Methods." The 764 Patent was duly and legally issued by the United States Patent and Trademark Office on June 23, 2015. A true and correct copy of the 764 Patent is attached as Exhibit A.

17. Upon information and belief, Defendants have directly infringed and continue to directly infringe one or more claims of the 764 Patent in the state of Texas, in this judicial district, and elsewhere in the United States by, among other things, making, using, selling, offering for sale, and/or importing into the United States products that embody one or more of the inventions claimed in the 764 Patent, including but not limited to the Accused Products, including Samsung Galaxy smartphones, as well as similar products, in violation of 35 U.S.C. § 271(a). By way of example, the Accused Products are an end device, such as the Galaxy S23 Ultra and Galaxy Z Flip5 smartphones that include the Samsung ISOCELL image sensors.

18. Samsung has actual notice of the 764 Patent and the infringing nature of its products since at least the date of filing of the Complaint in this action, April 30, 2024. Since having notice, Samsung has indirectly infringed and continues to indirectly infringe the 764 Patent in violation of 35 U.S.C. § 371(b). Samsung has actively induced product makers, distributors, partners, agents, affiliates, service providers, importers, resellers, customers, retailers, and/or end users to directly infringe the 764 Patent by, among other things, disseminating, manufacturing, distributing, importing, and maintaining the Accused Products with knowledge and specific intent to cause that infringement. For example, Samsung named its sensors “ISOCELL,” referring to the pixel isolation technology claimed in the 764 Patent.

19. In addition, Samsung has indirectly infringed and continues to indirectly infringe the 764 Patent in violation of 35 U.S.C. § 271(c) by selling or offering to sell in the United States, or importing into the United States, the Accused Products with knowledge of the 764 Patent. The Accused Products are not a staple article of commerce suitable for substantial non-infringing use.

20. The Accused Products satisfy all claim limitations of one or more claims of the 764 Patent, including exemplary claim 1, 8, 17 and 21 as shown in claim chart attached as Exhibit F and Exhibit G.

21. On information and belief, Samsung's infringement of the 764 Patent is and has been willful.

**V. COUNT II
(Infringement of U.S. Patent No. 9,905,599)**

22. SiOnyx incorporates by reference the foregoing paragraphs as if fully set forth herein.

23. SiOnyx owns by assignment, all rights, title, and interest, including the right to recover damages for past, present, and future infringement, in U.S. Patent No. 9,905,599, titled "Pixel Isolation Elements, Devices, and Associated Methods." The 599 Patent was duly and legally issued by the United States Patent and Trademark Office on February 27, 2015. A true and correct copy of the 599 Patent is attached as Exhibit B.

24. Upon information and belief, Defendants have directly infringed and continue to directly infringe one or more claims of the 599 Patent in the state of Texas, in this judicial district, and elsewhere in the United States by, among other things, making, using, selling, offering for sale, and/or importing into the United States products that embody one or more of the inventions claimed in the 599 Patent, including but not limited to the Accused Products, including Samsung Galaxy S24 smartphones, as well as similar products, in violation of 35 U.S.C. § 271(a). By way of example, the Accused Products are an end device, such as the Galaxy S23 Ultra and Galaxy Z Flip5 smartphones that include Samsung's ISOCELL sensors.

25. Samsung has actual notice of the 599 Patent and the infringing nature of its products since at least the date of filing of the Complaint in this action, April 30, 2024. Since

having notice, Samsung has indirectly infringed and continues to indirectly infringe the 599 Patent in violation of 35 U.S.C. § 371(b). Samsung has actively induced product makers, distributors, partners, agents, affiliates, service providers, importers, resellers, customers, retailers, and/or end users to directly infringe the 599 Patent by, among other things, disseminating, manufacturing, distributing, importing, and maintaining the Accused Products with knowledge and specific intent to cause that infringement. For example, Samsung named its sensors “ISOCELL,” referring to the pixel isolation technology claimed in the 599 Patent.

26. In addition, Samsung has indirectly infringed and continues to indirectly infringe the 599 Patent in violation of 35 U.S.C. § 271(c) by selling or offering to sell in the United States, or importing into the United States, the Accused Products with knowledge of the 599 Patent. The Accused Products are not a staple article of commerce suitable for substantial non-infringing use.

27. The Accused Products satisfy all claim limitations of one or more claims of the 599 Patent, including exemplary claim 1, as shown in claim chart attached as Exhibit H.

28. On information and belief, Samsung’s infringement of the 599 Patent is and has been willful.

**VI. COUNT III
(Infringement of U.S. Patent No. 10,224,359)**

29. SiOnyx incorporates by reference the foregoing paragraphs as if fully set forth herein.

30. SiOnyx owns by assignment, all rights, title, and interest, including the right to recover damages for past, present, and future infringement, in U.S. Patent No. 10,224,359, titled “Pixel Isolation Elements, Devices, and Associated Methods.” The 359 Patent was duly and

legally issued by the United States Patent and Trademark Office on March 5, 2019. A true and correct copy of the 359 Patent is attached as Exhibit C.

31. Upon information and belief, Defendants have directly infringed and continue to directly infringe one or more claims of the 359 Patent in the state of Texas, in this judicial district, and elsewhere in the United States by, among other things, making, using, selling, offering for sale, and/or importing into the United States products that embody one or more of the inventions claimed in the 359 Patent, including but not limited to the Accused Products, including Samsung Galaxy smartphones, as well as similar products, in violation of 35 U.S.C. § 271(a). By way of example, the Accused Products are an end device, such as the Galaxy S23 Ultra and Galaxy Z Flip5 smartphones that include Samsung's ISOCELL sensors.

32. Samsung has actual notice of the 359 Patent and the infringing nature of its products since at least the date of filing of the Complaint in this action, April 30, 2024. Since having notice, Samsung has indirectly infringed and continues to indirectly infringe the 359 Patent in violation of 35 U.S.C. § 371(b). Samsung has actively induced product makers, distributors, partners, agents, affiliates, service providers, importers, resellers, customers, retailers, and/or end users to directly infringe the 359 Patent by, among other things, disseminating, manufacturing, distributing, importing, and maintaining the Accused Products with knowledge and specific intent to cause that infringement. For example, Samsung named its sensors "ISOCELL," referring to the pixel isolation technology claimed in the 359 Patent.

33. In addition, Samsung has indirectly infringed and continues to indirectly infringe the 359 Patent in violation of 35 U.S.C. § 271(c) by selling or offering to sell in the United States, or importing into the United States, the Accused Products with knowledge of the 359

Patent. The Accused Products are not a staple article of commerce suitable for substantial non-infringing use.

34. The Accused Products satisfy all claim limitations of one or more claims of the 359 Patent, including exemplary claims 1 and 18, as shown in claim chart attached as Exhibit I and Exhibit J.

35. On information and belief, Samsung's infringement of the 359 Patent is and has been willful.

**VII. COUNT IV
(Infringement of U.S. Patent No. 11,069,737)**

36. SiOnyx incorporates by reference the foregoing paragraphs as if fully set forth herein.

37. SiOnyx owns by assignment, all rights, title, and interest, including the right to recover damages for past, present, and future infringement in U.S. Patent No. 11,069,737, titled "Shallow Trench Textured Regions and Associated Methods." The 737 Patent was duly and legally issued by the United States Patent and Trademark Office on July 20, 2021. A true and correct copy of the 737 Patent is attached as Exhibit D.

38. Upon information and belief, Defendants have directly infringed and continue to directly infringe one or more claims of the 737 Patent in the state of Texas, in this judicial district, and elsewhere in the United States by, among other things, making, using, selling, offering for sale, and/or importing into the United States products that embody one or more of the inventions claimed in the 737 Patent, including but not limited to the Accused Products, including Samsung Galaxy smartphones, as well as similar products, in violation of 35 U.S.C. § 271(a). By way of example, the Accused Products are an end device, such as the Galaxy S23 Ultra and Galaxy Z Flip5 smartphones that include Samsung's ISOCELL sensors.

39. Samsung has actual notice of the 737 Patent and the infringing nature of its products since at least the date of filing of the Complaint in this action, April 30, 2024. Since having notice, Samsung has indirectly infringed and continues to indirectly infringe the 737 Patent in violation of 35 U.S.C. § 371(b). Samsung has actively induced product makers, distributors, partners, agents, affiliates, service providers, importers, resellers, customers, retailers, and/or end users to directly infringe the 737 Patent by, among other things, disseminating, manufacturing, distributing, importing and maintaining the Accused Products with knowledge and specific intent to cause that infringement. For example, Samsung publishes articles discussing and describing how its sensors meet the limitations of the claims of the 737 patent, as cited in Exhibits K and L.

40. In addition, Samsung has indirectly infringed and continues to indirectly infringe the 737 Patent in violation of 35 U.S.C. § 271(c) by selling or offering to sell in the United States, or importing into the United States, the Accused Products with knowledge of the 737 Patent. The Accused Products are not a staple article of commerce suitable for substantial non-infringing use.

41. The Accused Products satisfy all claim limitation of one or more claims of the 737 Patent, including exemplary claims 1, 26, and 32 as shown in the claim chart attached as Exhibit K and Exhibit L.

42. On information and belief, Samsung's infringement of the 737 Patent is and has been willful.

**VIII. COUNT V
(Infringement of U.S. Patent No. 11,721,714)**

43. SiOnyx incorporates by reference the foregoing paragraphs as if fully set forth herein.

44. SiOnyx owns by assignment, all rights, title, and interest, including the right to recover damages for past, present, and future infringement, in U.S. Patent No. 11,721,714, titled “Pixel Isolation Elements, Devices, and Associated Methods.” The 714 Patent was duly and legally issued by the United States Patent and Trademark Office on August 8, 2023. A true and correct copy of the 714 Patent is attached as Exhibit E.

45. Upon information and belief, Defendants have directly infringed and continue to directly infringe one or more claims of the 714 Patent in the state of Texas, in this judicial district, and elsewhere in the United States by, among other things, making, using, selling, offering for sale, and/or importing into the United States products that embody one or more of the inventions claimed in the 714 Patent, including but not limited to the Accused Products, including Samsung Galaxy smartphones, as well as similar products, in violation of 35 U.S.C. § 271(a). By way of example, the Accused Products are an end device, such as the Galaxy S23 Ultra and Galaxy Z Flip5 smartphones that include Samsung’s ISOCELL sensor.

46. Samsung has actual notice of the 714 Patent and the infringing nature of its products since at least the date of filing of the Complaint in this action, April 30, 2024. Since having notice, Samsung has indirectly infringed and continues to indirectly infringe the 714 Patent in violation of 35 U.S.C. § 371(b). Samsung has actively induced product makers, distributors, partners, agents, affiliates, service providers, importers, resellers, customers, retailers, and/or end users to directly infringe the 714 Patent by, among other things, disseminating, manufacturing, distributing, importing and maintaining the Accused Products with knowledge and specific intent to cause that infringement. For example, Samsung named its product “ISOCELL,” referring to the pixel isolation technology claimed in the 714 Patent.

47. In addition, Samsung has indirectly infringed and continues to indirectly infringe the 714 Patent in violation of 35 U.S.C. § 271(c) by selling or offering to sell in the United States, or importing into the United States, the Accused Products with knowledge of the 714 Patent. The Accused Products are not a staple article of commerce suitable for substantial non-infringing use.

48. The Accused Products satisfy all claim limitations of one or more claims of the 714 Patent, including exemplary claim 1 as shown in claim chart attached as Exhibit M and Exhibit N.

49. On information and belief, Samsung's infringement of the 714 Patent is and has been willful.

PRAYER FOR RELIEF

WHEREFORE, SiOnyx respectfully requests that the Court:

- A. Enter a judgment that Defendants infringe each of the Asserted Patents;
- B. Enter a judgment that Defendants infringement is and has been willful;
- C. Permanently enjoin Defendants, their parents, subsidiaries, affiliates, agents, servants, employees, attorneys, representatives, successors and assigns, and all others in active concert or participation with them from infringing the Asserted Patents;
- D. Order an award of damages to SiOnyx in an amount no less than a reasonable royalty, together with pre-judgment and post-judgment interest and costs;
- E. Order and award trebling damages awarded to SiOnyx for willful infringement under 35 U.S.C. § 284;
- F. Find that this case is exceptional and award SiOnyx its costs, expenses, and reasonable attorneys' fees under 35 U.S.C. § 285; and

G. Grant such other and further relief as the Court may deem proper and just.

IX. DEMAND FOR JURY TRIAL

50. Plaintiffs hereby demand a jury in accordance with Rule 38 of the Federal Rules of Civil Procedure.

Date: June 3, 2024

Respectfully submitted,

/s/ Max Ciccarelli

Max Ciccarelli

State Bar No. 00787242

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*Application to appear pro hac vice to be filed.