

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

IMBERATEK LLC,

Plaintiff,

vs.

SAMSUNG ELECTRONICS CO., LTD,
SAMSUNG ELECTRONICS AMERICA,
INC., and SAMSUNG AUSTIN
SEMICONDUCTOR, LLC.,

Defendants.

Civil Action No.: 2:22cv233

JURY TRIAL DEMANDED

COMPLAINT FOR PATENT INFRINGEMENT

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

NATURE OF THE ACTION

1. This is a civil action for patent infringement (hereinafter the “Action”), brought under the patent laws of the United States, 35 U.S.C. § 1 *et seq.*, seeking damages and other relief arising out of Defendants’ infringement of United States Patent Nos. 7,609,527 (“527 Patent”), 8,222,723 (“723 Patent”), 8,368,201 (“201 Patent”), 7,989,944 (“944 Patent”), 8,238,113 (“113 Patent”), and 9,107,324 (“324 Patent”) (collectively, the “Asserted Patents”).

2. ImberaTek owns the entire right, title, and interest in and to each of the Asserted Patents.

3. ImberaTek asserts that Defendants infringe each Asserted Patent by, without ImberaTek's authorization, making, using, offering to sell, and selling in, and/or importing into the United States of certain semiconductor technology.

THE PARTIES

4. Plaintiff ImberaTek is a Texas corporation with its principal place of business at 3000 Polar Lane, Suite 202, Cedar Park, Texas, 78613.

5. Defendant SEC is a company organized under the laws of the Republic of Korea with its principal place of business located at 129 Samsung-ro, Maetan-3dong, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-742 in the Republic of Korea.

6. Defendant SEA is a New York corporation with its principal place of business at 85 Challenger Road, Ridgefield Park, New Jersey 07660. SEA is a wholly-owned subsidiary of SEC. SEA's registered agent, The Corporation Trust Company, is located at Corporation Trust Center, 111 Eighth Avenue, New York, New York, 10011. SEA maintains a 216,000 square-foot campus at 6625 Excellence Way, Plano, Texas 75023. SEA may be served with process through its registered agent for service in Texas: CT Corporation System, 1999 Bryan Street, Suite 900, Dallas, Texas 75201.

7. Defendant SAS is a limited liability company organized and existing under the laws of Delaware, with its principal place of business at 12100 Samsung Boulevard, Austin, Texas 78754. SAS may be served with process through its registered agent for service in Texas: CT Corporation System, 1999 Bryan Street, Suite 900, Dallas, Texas 75201.

8. Defendants SEC, SEA, and SAS are related entities that work in concert to design, make, manufacture, import, advertise, distribute, offer for sale, sell, and/or use the infringing technology in the United States.

JURISDICTION AND VENUE

9. This Court has subject matter jurisdiction over ImberaTek's claims of infringement of the Asserted Patents pursuant to 28 U.S.C. §§ 1331 (federal question), 1338 (action arising under an Act of Congress relating to patents), 2201 (creation of remedy), and 2202 (further relief). Certain claims in this Action arise under the patent laws of the United States, 35 U.S.C. § 1 *et seq.*

10. The Court has personal jurisdiction over each Defendant consistent with the requirements of the Due Process Clause of the United States Constitution and the Texas Long Arm Statute. TEX. CIV. PRAC. & REM. CODE § 17.042(2). On information and belief, each Defendant has regularly and systematically transacted business in Texas, including in this Judicial District, directly or indirectly through subsidiaries or intermediaries, and/or committed acts of patent infringement in Texas as alleged in detail below. Defendants have also placed infringing products into the stream of commerce by shipping the infringing products into Texas or elsewhere with knowledge that those products would be shipped into Texas. Further, Defendants are registered with the Secretary of State to do business in Texas. Defendants make, use, sell, offer for sale, import, advertise, make available, and/or market products within Texas, and specifically within this Judicial District, that infringe one or more claims of the Asserted Patents, as alleged more particularly below. In addition, Defendant SEA's business operations relating to cellular mobile devices, which are devices accused of infringement in this Action, are conducted primarily at its Texas facilities and (as of February 2015) over 2,000 people worked at SEA's Texas facilities.

11. Defendants have infringed or caused infringement in Texas, including in this Judicial District, by, among other things, promoting, offering for sale, and selling infringing products. Defendants have various physical locations in Texas, including within this Judicial District, at which Defendants transact business, conduct office and research operations, and recruit

and hire employees, including a 216,000 square-foot campus in Plano at 6625 Excellence Way, Plano, Texas 75023.¹ Defendants also have authorized sellers and sales representatives that offer for sale and sell infringing products to consumers at various locations throughout Texas and this Judicial District, including but not limited to: AT&T Store at 1712 E Grand Ave., Marshall, Texas 76570; Verizon Authorized Retailer at Victra at 1006 E End Blvd. N, Marshall, Texas 75670; Best Buy at 422 W TX-281 Loop Suite 100, Longview, Texas 75605; and Amazon.com (which delivers infringing products throughout this Judicial District). On information and belief, Defendants intend for customers to use their products within the Eastern District of Texas. Therefore, the exercise of jurisdiction over Defendants is appropriate under the applicable jurisdictional statutes and would not offend traditional notions of fair play and substantial justice.

12. Venue in this District is proper under 28 U.S.C. § 1400(b) and 28 U.S.C. §§ 1391(b) and (c) because each Defendant is subject to personal jurisdiction in this Judicial District and has committed acts of infringement in this Judicial District. Each Defendant, through its own acts and/or through the acts of each other Defendant acting as its agent, representative, or alter ego, makes, uses, sells, and/or offers to sell infringing products within this Judicial District, has a continuing presence within the Judicial District, and has the requisite minimum contacts with the Judicial District such that this is a fair and reasonable venue. On information and belief, each Defendant has transacted and continues to transact business within this Judicial District.

13. Venue is proper as to Defendant SEC, a Korean company, because suits against foreign entities are proper in any judicial district. 28 U.S.C. § 1391(c)(3).

14. Venue is also proper as to Defendant SEC under 28 U.S.C. § 1391(b)(2) because SEC performs a substantial part of its infringing acts in this Judicial District by making, using,

¹ See, e.g., <https://news.samsung.com/us/samsung-electronics-america-open-flagship-north-texas-campus/>; <https://www.sra.samsung.com/locations/>.

selling, offering to sell, and importing infringing products in this Judicial District. Thus, Defendant SEC has committed and continues to commit acts of patent infringement within the Judicial District.

15. Venue is also proper with respect to Defendant SEA under 28 U.S.C. § 1400(b) because SEA has a regular and established place of business in this Judicial District and has committed acts of infringement in this Judicial District. SEA has a 216,000 square-foot campus in Plano's Legacy Central at 6625 Declaration Drive, Plano, Texas 75023, located within this Judicial District. At this location, SEA owns or rents real estate, hires and pays employees, advertises in the community, and engages in business, including business directed at promoting, offering for sale, and/or selling infringing products. SEA has also committed acts of infringement in this Judicial District by commercializing, marketing, selling, distributing, and servicing certain Samsung branded devices, including but not limited to phones and tablets that are accused of infringement in this Action.

16. Venue is further proper as to Defendant SEA under 28 U.S.C. § 1391(b)(2) because SEA performs a substantial part of its infringing acts in this Judicial District by making, using, selling, and offering to sell infringing products within this Judicial District. Thus, SEA has committed, and continues to commit, acts of patent infringement within the District. In addition, SEA has registered with the Texas Secretary of State's Office to do business in Texas and has appointed a registered agent for service.

17. All three Defendants have admitted or not contested proper venue in this District in other patent infringement actions. *See, e.g., Acorn Semi, LLC v. Samsung Elecs. Co. Ltd.*, No. 2:19-cv-00347-JRG, Dkt. 379 (E.D. Tex. Jul. 13, 2021) (this Court finding that the three Defendants of this Action infringed various claims of four patents).

18. Defendants are properly joined under 35 U.S.C. § 299(a)(1) because, as set forth below, Defendants, through their own acts and/or through the acts of other Defendants acting as their agent(s), representative(s), or alter ego(s), commonly and/or jointly manufacture semiconductors and/or sell infringing processors and consumer products incorporating such processors, such that at least one right to relief is asserted against Defendants jointly, severally, and in the alternative with respect to the same transactions, occurrences, or series of transactions or occurrences relating to the making, using, selling and/or offering to sell in, and/or importing into the United States the same products accused in this Action, including in this Judicial District.

19. Defendants are properly joined under 35 U.S.C. § 299(a)(2) because, as set forth below, Defendants, through their own acts and/or through the acts of other Defendants acting as their agent(s), representative(s), or alter ego(s), make, use, sell, and/or offer to sell in, and/or import into the United States the same or similar accused processors for use in the same or similar products accused in this Action, such that questions of fact will arise that are common to all Defendants.

20. On information and belief, each Defendant serves as agent, representative, and/or alter ego of each other Defendant for the purposes of conducting business in the United States and this Judicial District in relation to making, using, selling, offering to sell, and importing into the United States the infringing processors and products incorporating those processors.

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

FACTUAL ALLEGATIONS

A. Background

22. This lawsuit involves significant, groundbreaking advancements in the manufacturing of semiconductor devices. These innovations were developed by Imbera Electronics Oy, a pioneering Finnish company which started to develop embedded electronics packaging technology and manufacturing solutions decades ago. Over the years, these innovations have enabled significant advancements in the field.

23. The Asserted Patents are generally directed to novel and non-obvious techniques to leverage semiconductors in electronic modules such as printed circuit boards and package substrates. The inventions of the Asserted Patents provide technical, manufacturing, and economical advantages by, for example, designing an electronic module with solid bump contact zones to improve a conductive-pattern layer ('527 Patent at 3:8-5:53), manufacturing an electric module with conductive pattern layers ('723 Patent at 2:56-5:10), embedding microcircuits to a base, such as a circuit board, during manufacturing ('201 Patent at 1:11-3:33 and '944 Patent at 1:11-3:31), designing electronic module substrates with vertical connectors between conductor patterns to provide high routing efficiency ('113 Patent at 1:63-65, 2:6-3:47), and manufacturing components with layered conductors and specific contact surfaces ('324 Patent at 3:10-4:41).

B. The Asserted Patents

24. The '527 Patent is entitled "Electronic Module" and issued on October 27, 2009. The named inventors on the '527 Patent are Risto Tuominen and Petteri Palm. ImberaTek owns the entire right, title, and interest in and to the '527 Patent. A true and correct copy of the '527 Patent is attached hereto as Exhibit 1.

25. The '723 Patent is entitled "Electronic Module Having A Conductive Pattern Layer," and issued on July 17, 2012. The named inventors on the '723 Patent are Risto Tuominen and Petteri Palm. ImberaTek owns the entire right, title, and interest in and to the '723 Patent. A true and correct copy of the '723 Patent is attached hereto as Exhibit 2.

26. The '201 Patent is entitled "Method for Embedding A Component in A Base," and issued on February 5, 2013. The named inventor on the '201 Patent is Risto Tuominen. ImberaTek owns the entire right, title, and interest in and to the '201 Patent. A true and correct copy of the '201 Patent is attached hereto as Exhibit 3.

27. The '944 Patent is entitled "Method for Embedding A Component in A Base," and issued on August 2, 2011. The named inventor on the '944 Patent is Risto Tuominen. ImberaTek owns the entire right, title, and interest in and to the '944 Patent. A true and correct copy of the '944 Patent is attached hereto as Exhibit 4.

28. The '113 Patent is entitled "Electronic Module With Vertical Connector Between Conductor Patterns," and issued on August 7, 2012. The named inventors on the '113 Patent are Antti Iihola and Petteri Palm. ImberaTek owns the entire right, title, and interest in and to the '113 Patent. A true and correct copy of the '113 Patent is attached hereto as Exhibit 5.

29. The '324 Patent is entitled "Circuit Module and Method of Manufacturing the Same," and issued on August 11, 2015. The named inventors on the '324 Patent are Petteri Palm,

Risto Tuominen, and Antti Iihola. ImberaTek owns the entire right, title, and interest in and to the '324 Patent. A true and correct copy of the '324 Patent is attached hereto as Exhibit 6.

30. ImberaTek is the owner of all rights, title, and interest in and to the Asserted Patents. ImberaTek possesses all rights to sue and recover past and future damages for any infringement of the Asserted Patents.

C. The Accused Products and Infringing Activities

31. Defendants offer several products, including, but not limited to Samsung's Meizu PRO 5, Alcatel Vision, Idealens K2, Deepoon M2, Tab Active3, Galaxy A8 (2016), Galaxy Note 5, Galaxy S6 series (including but not limited to Galaxy S6 edge, Galaxy S6 edge+), Galaxy S7 series, Galaxy S8 series, Galaxy S20 series (including but not limited to Galaxy S20 FE), Galaxy S21 series, Galaxy S22 series (including, but not limited to Galaxy S22 Ultra), Galaxy Z Fold3 series, and Galaxy Z Flip3 series that include infringing processors and/or other semiconductor components,² such as, for example, Exynos 7420 and Exynos 9810 system-on-chips ("SoC"), as well as power management integrated circuits embedding PMX55, PM8150C, PM8250, PM8350, and PM8350C (collectively, the "Accused Products").³ See Exhibits 7-14.

32. The Samsung Galaxy Tab Active3 is now selling in the United States.⁴

² See [In-Depth Look] What's Inside the Galaxy S8 and S8+, SAMSUNG GLOBAL NEWSROOM (May 19, 2017), <https://news.samsung.com/global/in-depth-look-whats-inside-the-galaxy-s8-and-s8>.

³ See *Samsung Electronics Co., Ltd. official website*, (<https://semiconductor.samsung.com/processor/mobile-processor/exynos-7-octa-7420/>) (Exynos 7420); *Samsung Electronics Co., Ltd. official website*, (<https://web.archive.org/web/20200414130259/https://www.samsung.com/semiconductor/minisite/exynos/products/mobileprocessor/exynos-7-octa-7420/>) (Exynos 7420); *Samsung Electronics Co., Ltd. official website* (<https://news.samsung.com/global/samsung-announces-the-galaxy-tab-active3-a-smart-new-tablet-built-for-demanding-environments>) (Exynos 9810); *Samsung Electronics Co. Ltd. Official website* (<https://www.samsung.com/us/mobile/galaxy-s20-5g/specs/>) (Galaxy S20 FE, Galaxy S20 Ultra); *Tear Down of Galaxy S20 Ultra* (<https://www.techinsights.com/blog/samsung-galaxy-s20-teardown-analysis>) (PMX55, PM8150C, PM8250).

⁴ See *Amazon.com website* (https://www.amazon.com/Enterprise-Enterprise-Unlocked-Unlocked-Biometric-Biometric-Security-Security-SM-T577UZKDN14/dp/B08T7RMRY9/ref=sr_1_3?dchild=1&keywords=samsung+galaxy+tab+active+3&qid=1629333428&sr=8-8-3); *Samsung Electronics Co., Ltd. US website* (<https://www.samsung.com/us/business/mobile/tablets/galaxy-tab->

33. Defendants are infringing the Asserted Patents by making, using, offering to sell, importing, and selling (directly or through intermediaries) at least the Accused Products in this Judicial District and elsewhere in the United States.

34. As detailed below, each element of at least one claim of each of the Asserted Patents is literally present in the Accused Products. To the extent that any element is not literally present, each such element is present under the doctrine of equivalents because it performs substantially the same function in substantially the same way to achieve substantially the same result, and any differences between the accused product and claim element are insubstantial.

D. Defendants' Knowledge of the Accused Patents

35. Defendants have been aware of the Asserted Patents at least since February 4, 2020, when ImberaTek provided a letter to Defendants asserting that Defendants' products infringed the '527, '723, '201, and '944 Patents. In the same letter, ImberaTek provided an exemplary listing of its U.S. patents, including the '527, '723, '201, '944, '113, and '324 Patents.

36. In light of the foregoing, Defendants, on information and belief, knew or should have known of each of the Asserted Patents by at least February 4, 2020 or about the issue date of each of the Asserted Patents, and knew or should have known that its manufacture use, importation, offer for sale, and/or sale of the Accused Products infringed each of the Asserted Patents on February 4, 2020 or about the issue date of each such patent that issued afterwards. At a minimum, Defendants have knowledge of the Asserted Patents and their infringement by the date on which this Complaint was filed.

E. Claims for Patent Infringement

37. The allegations provided below are exemplary and without prejudice to ImberaTek's infringement contentions provided pursuant to the Court's scheduling order and local rules. In providing these allegations, ImberaTek does not convey or imply any particular claim constructions or the precise scope of the claims. ImberaTek's claim construction contentions regarding the meaning and scope of the claim terms will be provided under the Court's scheduling order and local rules.

38. The below infringement allegations are based on publicly available information and a reasonable investigation of the structure and operation of the Accused Products. ImberaTek reserves the right to modify this description, including, for example, on the basis of information that it obtains during discovery about the Accused Products and the Asserted Patents.

COUNT I: INFRINGEMENT OF U.S. PATENT NO. 7,609,527

39. ImberaTek repeats and realleges each and every allegation set forth in the preceding paragraphs as if fully set forth herein.

40. Defendants have been and continue to, without ImberaTek's authority, make, use, offer to sell, sell, and import into the United States at least the Accused Products, which directly infringe one or more claims of the '527 Patent, literally or under the doctrine of equivalents.

41. The claims of the '527 Patent are valid and enforceable.

42. The Accused Products include electronic components that infringe at least one claim of the '527 Patent. For example, Claim 1 recites:

An electronic module, comprising:

a first conductive-pattern layer having a first surface,

first solid contact bumps solderlessly made on the first surface of the first conductive-pattern layer and metallurgically and electrically connected thereto,

a component having flat contact zones,

second solid contact bumps solderlessly made on the flat contact zones and metallurgically and electrically connected thereto, and

an insulating-material layer on the first surface of the first conductive-pattern layer,

wherein the component is embedded in the insulating-material layer and wherein the second solid contact bumps made on the flat contact zones of the component are metallurgically, electrically and solderlessly connected to the first solid contact bumps made on the first surface of the first conductive-pattern layer.

43. The Accused Products and Defendants' infringing activities violate one or more subsections of 35 U.S.C. § 271.

44. On information and belief, Defendants have infringed and continue to infringe in violation of 35 U.S.C. § 271(a), literally or under the doctrine of equivalents, one or more claims of the '527 Patent, including at least Claim 1, by making, using, offering to sell, selling, and importing the Accused Products without authority or license. The Accused Products, and/or Defendants' manufacturing thereof, satisfies each and every limitation of one or more claims of the '527 Patent. Defendants thereby directly infringe one or more claims of the '527 Patent.

45. The Accused Products include each of the elements of Claim 1 of the '527 Patent. To illustrate, the Accused Products include "[a]n electronic module, comprising: a first conductive-pattern layer having a first surface." For example, cross sections of both Exynos 7420 and PM8350 from the Accused Products show a first conductive-pattern layer having a first surface, where a copper Energy Dispersive X-Ray ("EDX")⁵ map shows the specified layer is conductive. Exhibits 7-8 ('527 Claim Chart for Exynos 7420 and PM8350).

46. The Accused Products infringe at least Claim 1 of the '527 Patent by including "first solid contact bumps solderlessly made on the first surface of the first conductive-pattern

⁵ "EDX" and "EDS" are both abbreviations of the same term, "Energy Dispersive X-Ray Spectroscopy." These abbreviations may be used interchangeably.

layer and metallurgically and electrically connected thereto.” For example, cross sections of both Exynos 7420 and PM8350 from the Accused Products show the first solid contact bump is solderlessly made metallurgically connected to the first surface of the first conductive-pattern layer, as shown by the absence of tin in a tin EDX map and presence of copper in a copper EDX map. Exhibits 7-8 (’527 Claim Chart for Exynos 7420 and PM8350).

47. The Accused Products infringe at least Claim 1 of the ’527 Patent by including “a component having flat contact zones.” For example, cross sections of both Exynos 7420 and PM8350 from the Accused Products show a component having flat contact zones. Exhibits 7-8 (’527 Claim Chart for Exynos 7420 and PM8350).

48. The Accused Products infringe at least Claim 1 of the ’527 Patent by including “second solid contact bumps solderlessly made on the flat contact zones and metallurgically and electrically connected thereto.” For example, cross sections of both Exynos 7420 and PM8350 from the Accused Products show the second solid contact bump is solderlessly made and metallurgically and electrically connected to the flat contact zone, as shown by the absence of tin in a tin EDX map and presence of copper in a copper EDX map. Exhibits 7-8 (’527 Claim Chart for Exynos 7420 and PM8350).

49. The Accused Products infringe at least Claim 1 of the ’527 Patent by including “an insulating-material layer on the first surface of the first conductive-pattern layer.” For example, cross sections of both Exynos 7420 and PM8350 from the Accused Products show an insulating material layer on the first surface of the first conductive-pattern layer, where the insulating material layer contains insulating, i.e. non-conductive, materials (O, Si) as shown in the EDX maps. Exhibits 7-8 (’527 Claim Chart for Exynos 7420 and PM8350).

50. The Accused Products infringe at least Claim 1 of the '527 Patent by including “wherein the component is embedded in the insulating-material layer and wherein the second solid contact bumps made on the flat contact zones of the component are metallurgically, electrically and solderlessly connected to the first solid contact bumps made on the first surface of the first conductive-pattern layer.” For example, cross sections of both Exynos 7420 and PM8350 from the Accused Products show the component is embedded in the insulating-material layer and the second solid contact bumps and first solid contact bumps are metallurgically, electrically and solderlessly connected as shown by the absence of tin in a tin EDX map and presence of copper in a copper EDX map. Exhibits 7-8 ('527 Claim Chart for Exynos 7420 and PM8350).

51. By at least February 4, 2020, ImberaTek disclosed the existence of the '527 Patent to Defendants and identified at least some of Defendants' activities that infringe the '527 Patent. Thus, Defendants have had knowledge of the '527 Patent and that its activities infringe the '527 Patent since at least February 4, 2020. Based on ImberaTek's disclosures, Defendants have also known or should have known since at least February 4, 2020 that their customers, distributors, and other purchasers of the Accused Products are infringing the '527 Patent at least because Defendants have known that they are infringing the '527 Patent.

52. In addition and in the alternative, by at least the date on which this Complaint was filed, ImberaTek disclosed the existence of the '527 Patent to Defendants and identified at least some of Defendants' activities that infringe the '527 Patent. Thus, Defendants have had knowledge of the '527 Patent and that its activities infringe the '527 Patent since at least the date on which this Complaint was filed. Based on ImberaTek's disclosures, Defendants have also known or should have known since at least the date on which this Complaint was filed that their

customers, distributors, and other purchasers of the Accused Products are infringing the '527 Patent at least because Defendants have known that they are infringing the '527 Patent.

53. Defendants' acts of infringement of the '527 Patent have been committed and are being committed with full knowledge of ImberaTek's patent rights and full knowledge of infringement. On information and belief, Defendants monitor ImberaTek's patent portfolio and have acted and are continuing to act despite an objectively high likelihood that their actions constitute direct and/or indirect infringement of a valid patent, and knew or should have known of that objectively high risk since before the filing of this Action. Defendants' acts constitute willful, intentional, and deliberate infringement, entitling ImberaTek to enhanced damages under 35 U.S.C. § 284 and reasonable attorneys' fees and costs.

54. On information and belief, in violation of 35 U.S.C. § 271(b), literally or under the doctrine of equivalents, Defendants have and continue to actively, knowingly, and intentionally induce infringement of one or more claims of the '527 Patent under 35 U.S.C. § 271(b) by actively encouraging others to import, make, use, sell, and/or offer to sell the Accused Products in the United States. For example, Defendants actively promote the sale, use, and importation of its infringing chips in marketing materials, technical specifications, data sheets, web pages on its website (e.g., www.samsung.com), press releases, and user manuals, as well as at trade shows (e.g., CES and Mobile World Congress) and through its sales and distribution channels that encourage infringing sales, offers to sell, and importation of the Accused Products or products containing infringing chips in the Accused Products.⁶ As mentioned above, Defendants have had knowledge of the '527 Patent and their infringement since at least at least February 4, 2020, and

⁶ See, e.g., <https://semiconductor.samsung.com/processor/showcase/>.

either knew that the induced acts constituted patent infringement or, alternatively, were willfully blind to the infringement.

55. On information and belief, in violation of 35 U.S.C. § 271(c), literally or under the doctrine of equivalents, Defendants have contributorily infringed and continue to contributorily infringe one or more claims of the '527 Patent, by offering to sell, selling, and/or importing into the United States material components of the Accused Products that constitute a material part of the inventions, knowing the same to be especially made or especially adapted for use in an infringement of the '527 Patent, and which are not a staple article or commodity of commerce suitable for substantial non-infringing use. For example, the Accused Products include infringing processors, integrated circuits, and other semiconductor components that are a material part of at least the invention of Claim 1 of the '527 Patent for the reasons set forth above.

56. The infringing semiconductor chips of the Accused Products are neither materially changed by subsequent processes nor become trivial and nonessential components of another product.

57. ImberaTek has suffered and continues to suffer damages as a result of Defendants' infringement of the '527 Patent.

COUNT II: INFRINGEMENT OF U.S. PATENT NO. 8,222,723

58. ImberaTek repeats and realleges each and every allegation set forth in the preceding paragraphs as if fully set forth herein.

59. Defendants have been and continue to, without ImberaTek's authority, make, use, offer to sell, sell, and import into the United States at least the Accused Products, which directly infringe one or more claims of the '723 Patent, literally or under the doctrine of equivalents.

60. The claims of the '723 Patent are valid and enforceable.

61. Defendants' Accused Products infringe at least one claim of the '723 Patent. For example, Claim 1 recites:

An electronic module, comprising:

a conductive-pattern layer;

an insulating-material layer supporting the conductive-pattern layer;

at least one component inside the insulating-material layer, the at least one component comprising a first surface and contact zones on the first surface;

a first hardened adhesive layer on the first surface of the at least one component;

a second hardened adhesive layer in contact with the conductive-pattern layer and the first hardened adhesive layer;

holes in the first and second hardened adhesive layer at the locations of the contact zones; and

conductive material in the holes and in electrical connection with the contact zones of the component and the conductive-pattern layer,

wherein the first hardened adhesive layer has a first composition and the second hardened adhesive layer has a second composition different from the first composition.

62. On information and belief, Defendants have infringed and continue to infringe in violation of 35 U.S.C. § 271(a), literally or under the doctrine of equivalents, one or more claims of the '723 Patent, including at least Claim 1, by making, using, offering to sell, selling, and importing the Accused Products without authority or license. The Accused Products, and/or Defendants' manufacturing thereof, satisfies each and every limitation of one or more claims of the '723 Patent. Defendants thereby directly infringe one or more claims of the '723 Patent.

63. The Accused Products infringe at least Claim 1 by including “[a]n electronic module, comprising: a conductive-pattern layer.” For ample, cross sections of both Exynos 7420 and PM8350 from the Accused Products show a conductive-pattern layer, where a copper EDX

map shows the specified layer is conductive. Exhibits 9-10 ('723 Claim Chart for Exynos 7420 and PM8350).

64. The Accused Products infringe at least Claim 1 by including “an insulating-material layer supporting the conductive-pattern layer.” For example, cross sections of both Exynos 7420 and PM8350 from the Accused Products show an insulating-material layer supports the conductive-pattern layer and consists of insulating (i.e., non-conductive) polymer dielectrics containing atoms of oxygen and silicon, as detected in EDX scans. Exhibits 9-10 ('723 Claim Chart for Exynos 7420 and PM8350).

65. The Accused Products infringe at least Claim 1 by including “at least one component inside the insulating-material layer, the at least one component comprising a first surface and contact zones on the first surface.” For example, cross sections of both Exynos 7420 and PM8350 from the Accused Products show at least one component inside the insulating-material layer, the at least one component comprising a first surface and contact zones on the first surface. Exhibits 9-10 ('723 Claim Chart for Exynos 7420 and PM8350).

66. The Accused Products infringe at least Claim 1 by including “a first hardened adhesive layer on the first surface of the at least one component.” For example, cross sections of both Exynos 7420 and PM8350 from the Accused Products show a first hardened adhesive layer on the first surface of the at least one component. Exhibits 9-10 ('723 Claim Chart for Exynos 7420 and PM8350).

67. The Accused Products infringe at least Claim 1 by including “a second hardened adhesive layer in contact with the conductive-pattern layer and the first hardened adhesive layer.” For example, cross sections of both Exynos 7420 and PM8350 from the Accused Products show a

second hardened adhesive layer in contact with the conductive-pattern layer and the first hardened adhesive layer. Exhibits 9-10 ('723 Claim Chart for Exynos 7420 and PM8350).

68. The Accused Products infringe at least Claim 1 by including “holes in the first and second hardened adhesive layer at the locations of the contact zones.” For example, cross sections of both Exynos 7420 and PM8350 from the Accused Products show holes in the first and second hardened adhesive layer at the locations of the contact zones. Exhibits 9-10 ('723 Claim Chart for Exynos 7420 and PM8350).

69. The Accused Products infringe at least Claim 1 by including “conductive material in the holes and in electrical connection with the contact zones of the component and the conductive-pattern layer[.]” For example, cross sections of both Exynos 7420 and PM8350 from the Accused Products show conductive material in the holes and in electrical connection with the contact zones of the component and the conductive-pattern layer, where the electrical connection formed between the contact zone and the conductive-pattern layer is shown in a copper EDX map. Exhibits 9-10 ('723 Claim Chart for Exynos 7420 and PM8350).

70. The Accused Products infringe at least Claim 1 by including “wherein the first hardened adhesive layer has a first composition and the second hardened adhesive layer has a second composition different from the first composition.” For example, cross sections of both Exynos 7420 and PM8350 from the Accused Products show the first hardened adhesive layer has a first composition and the second hardened adhesive layer has a second composition different from the first composition, where compositions of the first hardened adhesive layer and the second hardened adhesive layer are different as can be seen by different textures in a Scanning Electron Microscope (“SEM”) image and different colors in an EDX layered map. Exhibits 9-10 ('723 Claim Chart for Exynos 7420 and PM8350).

71. By at least February 4, 2020, ImberaTek disclosed the existence of the '723 Patent to Defendants and identified at least some of Defendants' activities that infringe the '723 Patent. Thus, Defendants have had knowledge of the '723 Patent and that its activities infringe the '723 Patent since at least February 4, 2020. Based on ImberaTek's disclosures, Defendants have also known or should have known since at least February 4, 2020 that their customers, distributors, and other purchasers of the Accused Products are infringing the '723 Patent at least because Defendants have known that they are infringing the '723 Patent.

72. In addition and in the alternative, by at least the date on which this Complaint was filed, ImberaTek disclosed the existence of the '723 Patent to Defendants and identified at least some of Defendants' activities that infringe the '723 Patent. Thus, Defendants have had knowledge of the '723 Patent and that its activities infringe the '723 Patent since at least the date on which this Complaint was filed. Based on ImberaTek's disclosures, Defendants have also known or should have known since at least the date on which this Complaint was filed that their customers, distributors, and other purchasers of the Accused Products are infringing the '723 Patent at least because Defendants have known that they are infringing the '723 Patent.

73. Defendants' acts of infringement of the '723 Patent have been committed and are being committed with full knowledge of ImberaTek's patent rights and full knowledge of infringement. On information and belief, Defendants monitor ImberaTek's patent portfolio and have acted and are continuing to act despite an objectively high likelihood that their actions constitute direct and/or indirect infringement of a valid patent, and knew or should have known of that objectively high risk since before the filing of this Action. Defendants' acts constitute willful, intentional, and deliberate infringement, entitling ImberaTek to enhanced damages under 35 U.S.C. § 284 and reasonable attorneys' fees and costs.

74. On information and belief, in violation of 35 U.S.C. § 271(b), literally or under the doctrine of equivalents, Defendants actively, knowingly, and intentionally induce infringement of one or more claims of the '723 Patent under 35 U.S.C. § 271(b) by actively encouraging others to import, make, use, sell, and/or offer to sell the Accused Products in the United States. For example, Defendants actively promote the sale, use, and importation of its infringing chips in marketing materials, technical specifications, data sheets, web pages on its website (e.g., www.samsung.com), press releases, and user manuals, as well as at trade shows (e.g., CES and Mobile World Congress) and through its sales and distribution channels that encourage infringing sales, offers to sell, and importation of the Accused Products or products containing infringing chips in the Accused Products.⁷ As mentioned above, Defendants have had knowledge of the '723 Patent and their infringement since at least February 4, 2020, and either knew that the induced acts constituted patent infringement or, alternatively, were willfully blind to the infringement.

75. On information and belief, in violation of 35 U.S.C. § 271(c), literally or under the doctrine of equivalents, Defendants have contributorily infringed and continue to contributorily infringe one or more claims of the '723 Patent, by offering to sell, selling, and/or importing into the United States material components of the Accused Products that constitute a material part of the inventions, knowing the same to be especially made or especially adapted for use in an infringement of the '723 Patent, and which are not a staple article or commodity of commerce suitable for substantial non-infringing use. For example, the Accused Products include infringing processors, integrated circuits, and other semiconductor components that are a material part of at least the invention of Claim 1 of the '723 Patent for the reasons set forth above.

⁷ See, e.g., <https://semiconductor.samsung.com/processor/showcase/>.

76. The infringing semiconductor chips of the Accused Products are neither materially changed by subsequent processes nor become trivial and nonessential components of another product.

77. ImberaTek has suffered and continues to suffer damages as a result of Defendants' infringement of the '723 Patent.

COUNT III: INFRINGEMENT OF U.S. PATENT NO. 8,368,201

78. ImberaTek repeats and realleges each and every allegation set forth in the preceding paragraphs as if fully set forth herein.

79. Defendants have been and continue to, without ImberaTek's authority, make, use, offer to sell, sell, and import into the United States at least the Accused Products, which directly infringe one or more claims of the '201 Patent, literally or under the doctrine of equivalents.

80. The claim of the '201 Patent are valid and enforceable.

81. The Accused Products infringe Claim 1 of the '201 Patent, which recites:

An electronic module, comprising

a baseboard having a first surface and a second surface;

a hardened insulating polymer layer on the second surface of the baseboard;

at least one component within the baseboard, the component having contact areas on a first surface of the component, said first surface of the component being against the hardened insulating polymer layer;

conductive patterns on the hardened insulating polymer layer; and

conductors within the hardened insulating polymer layer for forming electrical contacts between at least some of the conductive patterns and at least some of the contact areas of the component.

82. The Accused Products and Defendants' infringing activities violate one or more subsections of 35 U.S.C. § 271.

83. On information and belief, Defendants have infringed and continue to infringe in violation of 35 U.S.C. § 271(a), literally or under the doctrine of equivalents Claim 1 of the '201 Patent by making, using, offering to sell, selling, and importing the Accused Products without authority or license. The Accused Products, and/or Defendants' manufacturing thereof, satisfies each and every limitation of Claim 1 of the '201 Patent. Defendants thereby directly infringe Claim 1 of the '201 Patent.

84. The Accused Products include each of the elements of Claim 1 of the '201 Patent. To illustrate, the Accused Products include “[a]n electronic module, comprising: a baseboard having a first surface and a second surface.” For example, package cross sections of PM8350 from the Accused Products show an electronic module with a baseboard having a first surface and second surface. Exhibit 11 ('201 Claim Chart for PM8350).

85. The Accused Products infringe Claim 1 of the '201 Patent by including “a hardened insulating polymer layer on the second surface of the baseboard.” For example, cross sections of PM8350 from the Accused Products show a hardened insulating polymer layer on the second surface of the baseboard, as indicated by the polymer layer mainly consisting of carbon, as shown in the EDX maps. Exhibit 11 ('201 Claim Chart for PM8350).

86. The Accused Products infringe Claim 1 of the '201 Patent by including “at least one component within the baseboard, the component having contact areas on a first surface of the component, said first surface of the component being against the hardened insulating polymer layer.” For example, cross sections of PM8350 from the Accused Products show at least one component within the baseboard, the component having contact areas on a first surface of the component, said first surface of the component being against the hardened insulating polymer layer. Exhibit 11 ('201 Claim Chart for PM8350).

87. The Accused Products infringe Claim 1 of the '201 Patent by including “conductive patterns on the hardened insulating polymer layer.” For example, cross sections of PM8350 from the Accused Products show the conductive patterns on the hardened insulating polymer layer. Exhibit 11 ('201 Claim Chart for PM8350).

88. The Accused Products infringe Claim 1 of the '201 Patent by including “conductors within the hardened insulating polymer layer for forming electrical contacts between at least some of the conductive patterns and at least some of the contact areas of the component.” For example, cross sections of PM8350 from the Accused Products show conductors within the hardened insulating polymer layer for forming electrical contacts between at least some of the conductive patterns and at least some of the contact areas of the component, i.e., conductive electrical contacts as shown in the EDX map. Exhibit 11 ('201 Claim Chart for PM8350).

89. By at least February 4, 2020, ImberaTek disclosed the existence of the '201 Patent to Defendants and identified at least some of Defendants' activities that infringe the '201 Patent. Thus, Defendants have had knowledge of the '201 Patent and that its activities infringe the '201 Patent since at least February 4, 2020. Based on ImberaTek's disclosures, Defendants have also known or should have known since at least February 4, 2020 that their customers, distributors, and other purchasers of the Accused Products are infringing the '201 Patent at least because Defendants have known that they are infringing the '201 Patent.

90. In addition and in the alternative, by at least the date on which this Complaint was filed, ImberaTek disclosed the existence of the '201 Patent to Defendants and identified at least some of Defendants' activities that infringe the '201 Patent. Thus, Defendants have had knowledge of the '201 Patent and that its activities infringe the '201 Patent since at least the date on which this Complaint was filed. Based on ImberaTek's disclosures, Defendants have also

known or should have known since at least the date on which this Complaint was filed that their customers, distributors, and other purchasers of the Accused Products are infringing the '201 Patent at least because Defendants have known that they are infringing the '201 Patent.

91. Defendants' acts of infringement of the '201 Patent have been committed and are being committed with full knowledge of ImberaTek's patent rights and full knowledge of infringement. On information and belief, Defendants monitor ImberaTek's patent portfolio and have acted and are continuing to act despite an objectively high likelihood that their actions constitute direct and/or indirect infringement of a valid patent, and knew or should have known of that objectively high risk since before the filing of this Action. Defendants' acts constitute willful, intentional, and deliberate infringement, entitling ImberaTek to enhanced damages under 35 U.S.C. § 284 and reasonable attorneys' fees and costs.

92. On information and belief, in violation of 35 U.S.C. § 271(b), literally or under the doctrine of equivalents, Defendants actively, knowingly, and intentionally induce infringement of one or more claims of the '201 Patent under 35 U.S.C. § 271(b) by actively encouraging others to import, make, use, sell, and/or offer to sell the Accused Products in the United States. For example, Defendants actively promote the sale, use, and importation of its infringing chips in marketing materials, technical specifications, data sheets, web pages on its website (e.g., www.samsung.com), press releases, and user manuals, as well as at trade shows (e.g., CES and Mobile World Congress) and through its sales and distribution channels that encourage infringing sales, offers to sell, and importation of the Accused Products or products containing infringing chips in the Accused Products.⁸ As mentioned above, Defendants have had knowledge of the '201 Patent and their infringement since at least at least February 4, 2020, and either knew that the

⁸ See, e.g., <https://semiconductor.samsung.com/processor/showcase/>.

induced acts constituted patent infringement or, alternatively, were willfully blind to the infringement.

93. On information and belief, in violation of 35 U.S.C. § 271(c), literally or under the doctrine of equivalents, Defendants have contributorily infringed and continue to contributorily infringe one or more claims of the '201 Patent, by offering to sell, selling, and/or importing into the United States material components of the Accused Products that constitute a material part of the inventions, knowing the same to be especially made or especially adapted for use in an infringement of the '201 Patent, and which are not a staple article or commodity of commerce suitable for substantial non-infringing use. For example, the Accused Products include infringing processors, integrated circuits, and other semiconductor components that are a material part of at least the invention of Claim 1 of the '201 Patent for the reasons set forth above.

94. The infringing semiconductor chips of the Accused Products are neither materially changed by subsequent processes nor become trivial and nonessential components of another product.

95. ImberaTek has suffered and continues to suffer damages as a result of Defendants' infringement of the '201 Patent.

COUNT IV: INFRINGEMENT OF U.S. PATENT NO. 7,989,944

96. ImberaTek repeats and realleges each and every allegation set forth in the preceding paragraphs as if fully set forth herein.

97. Defendants have been and continue to, without ImberaTek's authority, make, use, offer to sell, sell, and import into the United States at least the Accused Products, which directly infringe one or more claims of the '944 Patent, literally or under the doctrine of equivalents.

98. The claims of the '944 Patent are valid and enforceable.

99. The Accused Products infringe at least one claim of the '944 Patent. For example, Claim 1 recites:

A circuit board comprising

an insulating material layer having a first side and a second side,

at least one first conductive pattern layer on the first side of the insulating material layer, at least one of the first conductive pattern layers defining a first metal plate,

at least one second conductive pattern layer on the second side of the insulating material layer, at least one of the second conductive pattern layers defining a second metal plate,

a component inside the insulating material layer and between the first and second metal plates, the component having a first surface facing towards the second metal plate, and contact areas on the first surface,

a hardened insulating polymer layer between the first surface of the component and at least one conductive pattern of said at least one second conductive pattern layer, and

contact openings in the hardened insulating polymer layer and conductors in the contact openings for forming electrical contacts between the contact areas of the component and the at least one second conductive pattern layer or layers.

100. The Accused Products and Defendants' infringing activities violate one or more subsections of 35 U.S.C. § 271.

101. On information and belief, Defendants have infringed and continue to infringe in violation of 35 U.S.C. § 271(a), literally or under the doctrine of equivalents, one or more claims of the '944 Patent, including at least Claim 1, by making, using, offering to sell, selling, and importing the Accused Products without authority or license. The Accused Products, and/or Defendants' manufacturing thereof, satisfies each and every limitation of one or more claims of the '944 Patent. Defendants thereby directly infringe one or more claims of the '944 Patent.

102. The Accused Products include each of the elements of Claim 1 of the '944 Patent. To illustrate, the Accused Products include “[a] circuit board, comprising: an insulating material layer having a first side and a second side.” For example, cross sections of Exynos 7420 from the Accused Products show an insulating material layer having a first side and a second side, wherein the insulated material layer contains insulating (i.e., non-conductive) materials such as oxygen and silicon as recognized in an EDX map. Exhibit 12 ('944 Claim Chart for Exynos 7420).

103. The Accused Products infringe at least Claim 1 of the '944 Patent by including “at least one first conductive pattern layer on the first side of the insulating material layer, at least one of the first conductive pattern layers defining a first metal plate.” For example, cross sections of Exynos 7420 from the Accused Products show at least one first conductive pattern layer on the first side of the insulating material layer, and at least one of the first conductive pattern layers defining a first metal plate, as shown by a copper EDX map that indicates, upon information and belief, that these layers are metal plates that make conductive patterns in each layer. Exhibit 12 ('944 Claim Chart for Exynos 7420).

104. The Accused Products infringe at least Claim 1 of the '944 Patent by including “at least one second conductive pattern layer on the second side of the insulating material layer, at least one of the second conductive pattern layers defining a second metal plate.” For example, cross sections of Exynos 7420 from the Accused Products show at least one second conductive pattern layer on the second side of the insulating material layer, and at least one of the second conductive pattern layers defining a second metal plate, as shown by a copper EDX map that indicates, upon information and belief, that these layers are metal plates that make conductive patterns in each layer. Exhibit 12 ('944 Claim Chart for Exynos 7420).

105. The Accused Products infringe at least Claim 1 of the '944 Patent by including “a component inside the insulating material layer and between the first and second metal plates, the component having a first surface facing towards the second metal plate, and contact areas on the first surface.” For example, cross sections of the Exynos 7420 from the Accused Products show a component inside the insulating material layer and between the first and second metal plates, the component having a first surface facing towards the second metal plate, and contact areas on the first surface. Exhibit 12 ('944 Claim Chart for Exynos 7420).

106. The Accused Products infringe at least Claim 1 of the '944 Patent by including “a hardened insulating polymer layer between the first surface of the component and at least one conductive pattern of said at least one second conductive pattern layer.” For example, cross sections of the Exynos 7420 from the Accused Products show a hardened insulating polymer layer between the first surface of the component and at least one conductive pattern of said at least one second conductive pattern layer, as seen in carbon, silicon, and oxygen EDX maps. Exhibit 12 ('944 Claim Chart for Exynos 7420).

107. The Accused Products infringe at least Claim 1 of the '944 Patent by including “contact openings in the hardened insulating polymer layer and conductors in the contact openings for forming electrical contacts between the contact areas of the component and the at least one second conductive pattern layer or layers.” For example, cross sections of Exynos 7420 from the Accused Products show contact openings in the hardened insulating polymer layer and conductors in the contact openings for forming electrical contacts between the contact areas of the component and the at least one second conductive pattern layer or layers, as seen in the copper EDX map which shows contact opening are filled with copper, a conducting material, for forming electrical

contacts between the contact areas of the component and the second conductive pattern layer. Exhibit 12 ('944 Claim Chart for Exynos 7420).

108. By at least February 4, 2020, ImberaTek disclosed the existence of the '944 Patent to Defendants and identified at least some of Defendants' activities that infringe the '944 Patent. Thus, Defendants have had knowledge of the '944 Patent and that its activities infringe the '944 Patent since at least February 4, 2020. Based on ImberaTek's disclosures, Defendants have also known or should have known since at least February 4, 2020 that their customers, distributors, and other purchasers of the Accused Products are infringing the '944 Patent at least because Defendants have known that they are infringing the '944 Patent.

109. In addition and in the alternative, by at least the date on which this Complaint was filed, ImberaTek disclosed the existence of the '944 Patent to Defendants and identified at least some of Defendants' activities that infringe the '944 Patent. Thus, Defendants have had knowledge of the '944 Patent and that its activities infringe the '944 Patent since at least the date on which this Complaint was filed. Based on ImberaTek's disclosures, Defendants have also known or should have known since at least the date on which this Complaint was filed that their customers, distributors, and other purchasers of the Accused Products are infringing the '944 Patent at least because Defendants have known that they are infringing the '944 Patent.

110. Defendants' acts of infringement of the '944 Patent have been committed and are being committed with full knowledge of ImberaTek's patent rights and full knowledge of infringement. On information and belief, Defendants monitor ImberaTek's patent portfolio and have acted and are continuing to act despite an objectively high likelihood that their actions constitute direct and/or indirect infringement of a valid patent, and knew or should have known of that objectively high risk since before the filing of this Action. Defendants' acts constitute willful,

intentional, and deliberate infringement, entitling ImberaTek to enhanced damages under 35 U.S.C. § 284 and reasonable attorneys' fees and costs.

111. On information and belief, in violation of 35 U.S.C. § 271(b), literally or under the doctrine of equivalents, Defendants actively, knowingly, and intentionally induce infringement of one or more claims of the '944 Patent under 35 U.S.C. § 271(b) by actively encouraging others to import, make, use, sell, and/or offer to sell the Accused Products in the United States. For example, Defendants actively promote the sale, use, and importation of its infringing chips in marketing materials, technical specifications, data sheets, web pages on its website (e.g., www.samsung.com), press releases, and user manuals, as well as at trade shows (e.g., CES and Mobile World Congress) and through its sales and distribution channels that encourage infringing sales, offers to sell, and importation of the Accused Products or products containing infringing chips in the Accused Products.⁹ As mentioned above, Defendants have had knowledge of the '944 Patent and their infringement since at least at least February 4, 2020, and either knew that the induced acts constituted patent infringement or, alternatively, were willfully blind to the infringement.

112. On information and belief, in violation of 35 U.S.C. § 271(c), literally or under the doctrine of equivalents, Defendants have contributorily infringed and continue to contributorily infringe one or more claims of the '944 Patent, by offering to sell, selling, and/or importing into the United States material components of the Accused Products that constitute a material part of the inventions, knowing the same to be especially made or especially adapted for use in an infringement of the '944 Patent, and which are not a staple article or commodity of commerce suitable for substantial non-infringing use. For example, the Accused Products include infringing

⁹ See, e.g., <https://semiconductor.samsung.com/processor/showcase/>.

processors, integrated circuits, and other semiconductor components that are a material part of at least the invention of Claim 1 of the '944 Patent for the reasons set forth above.

113. The infringing semiconductor chips of the Accused Products are neither materially changed by subsequent processes nor become trivial and nonessential components of another product.

114. ImberaTek has suffered and continues to suffer damages as a result of Defendants' infringement of the '944 Patent.

COUNT V: INFRINGEMENT OF U.S. PATENT NO. 8,238,113

115. ImberaTek repeats and realleges each and every allegation set forth in the preceding paragraphs as if fully set forth herein.

116. Defendants have been and continue to, without ImberaTek's authority, make, use, offer to sell, sell, and import into the United States at least the Accused Products, which directly infringe one or more claims of the '113 Patent, literally or under the doctrine of equivalents.

117. The claims of the '113 Patent are valid and enforceable.

118. The Accused Products infringe at least one claim of the '113 Patent. For example, Claim 1 recites:

An electronic module, comprising:

a dielectric substrate having a first surface and a second surface;

a first wiring layer on the first surface of the dielectric substrate;

a second wiring layer on the second surface of the dielectric substrate;

a semiconductor component inside the dielectric substrate and comprising at least two contact pads facing the first wiring layer;

first microvias electrically connecting the at least two contact pads to the first wiring layer; and

at least one conductive trace structure at least partly inside the dielectric substrate, the conductive trace structure comprising:

at least one conductive trace electrically connected to the first wiring layer and the second wiring layer; and

a piece of dielectric supporting said at least one conductive trace.

119. The Accused Products and Defendants' infringing activities violate one or more subsections of 35 U.S.C. § 271.

120. On information and belief, Defendants have infringed and continue to infringe in violation of 35 U.S.C. § 271(a), literally or under the doctrine of equivalents, one or more claims of the '113 Patent, including at least Claim 1, by making, using, offering to sell, selling, and importing the Accused Products without authority or license. The Accused Products, and/or Defendants' manufacturing thereof, satisfies each and every limitation of one or more claims of the '113 Patent. Defendants thereby directly infringe one or more claims of the '113 Patent.

121. The Accused Products include each of the elements of Claim 1 of the '113 Patent. To illustrate, the Accused Products include "[a]n electronic module, comprising: a dielectric substrate having a first surface and a second surface." For example, cross sections of Exynos 7420 from the Accused Products show a dielectric substrate having a first surface and a second surface. Exhibit 13 ('113 Claim Chart for Exynos 7420).

122. The Accused Products infringe at least Claim 1 of the '113 Patent by including "a first wiring layer on the first surface of the dielectric substrate and a second wiring layer on the second surface of the dielectric substrate." For example, cross sections of Exynos 7420 from the Accused Products show a first wiring layer on the first surface of the dielectric substrate and a second wiring layer on the second surface of the dielectric substrate. Exhibit 13 ('113 Claim Chart for Exynos 7420).

123. The Accused Products infringe at least Claim 1 of the '113 Patent by including “a semiconductor component inside the dielectric substrate and comprising at least two contact pads facing the first wiring layer.” For example, cross sections of Exynos 7420 from the Accused Products show a semiconductor component inside the dielectric substrate and comprising at least two contact pads facing the first wiring layer. Exhibit 13 ('113 Claim Chart for Exynos 7420).

124. The Accused Products infringe at least Claim 1 of the '113 Patent by including “first microvias electrically connecting the at least two contact pads to the first wiring layer.” For example, cross sections of Exynos 7420 from the Accused Products show first microvias electrically connecting the at least two contact pads to the first wiring layer. Exhibit 13 ('113 Claim Chart for Exynos 7420).

125. The Accused Products infringe at least Claim 1 of the '113 Patent by including “at least one conductive trace structure at least partly inside the dielectric substrate, the conductive trace structure comprising.” For example, cross sections of Exynos 7420 from the Accused Products show at least one conductive trace structure at least partly inside the dielectric substrate, the conductive trace structure comprising. Exhibit 13 ('113 Claim Chart for Exynos 7420).

126. The Accused Products infringe at least Claim 1 of the '113 Patent by including “at least one conductive trace electrically connected to the first wiring layer and the second wiring layer.” For example, cross sections of Exynos 7420 from the Accused Products show at least one conductive trace electrically connected to the first wiring layer and the second wiring layer. Exhibit 13 ('113 Claim Chart for Exynos 7420).

127. The Accused Products infringe at least Claim 1 of the '113 Patent by including “a piece of dielectric supporting said at least one conductive trace.” For example, cross sections of

Exynos 7420 from the Accused Products show a piece of dielectric supporting said at least one conductive trace. Exhibit 13 ('113 Claim Chart for Exynos 7420).

128. By at least February 4, 2020, ImberaTek disclosed the existence of the '113 Patent to Defendants and identified at least some of Defendants' activities that infringe patents within ImberaTek's patent portfolio, which includes the '113 Patent. Thus, Defendants have had knowledge of the '113 Patent and that its activities infringe the '113 Patent since at least February 4, 2020. Based on ImberaTek's disclosures, Defendants have also known or should have known since at least February 4, 2020 that their customers, distributors, and other purchasers of the Accused Products are infringing the '113 Patent at least because Defendants have known that they are infringing the '113 Patent.

129. In addition and in the alternative, by at least the date on which this Complaint was filed, ImberaTek disclosed the existence of the '113 Patent to Defendants and identified at least some of Defendants' activities that infringe the '113 Patent. Thus, Defendants have had knowledge of the '113 Patent and that its activities infringe the '113 Patent since at least the date on which this Complaint was filed. Based on ImberaTek's disclosures, Defendants have also known or should have known since at least the date on which this Complaint was filed that their customers, distributors, and other purchasers of the Accused Products are infringing the '113 Patent at least because Defendants have known that they are infringing the '113 Patent.

130. Defendants' acts of infringement of the '113 Patent have been committed and are being committed with full knowledge of ImberaTek's patent rights and full knowledge of infringement. On information and belief, Defendants monitor ImberaTek's patent portfolio and have acted and are continuing to act despite an objectively high likelihood that their actions constitute direct and/or indirect infringement of a valid patent, and knew or should have known of

that objectively high risk since before the filing of this Action. Defendants' acts constitute willful, intentional, and deliberate infringement, entitling ImberaTek to enhanced damages under 35 U.S.C. § 284 and reasonable attorneys' fees and costs.

131. On information and belief, in violation of 35 U.S.C. § 271(b), literally or under the doctrine of equivalents, Defendants actively, knowingly, and intentionally induce infringement of one or more claims of the '113 Patent under 35 U.S.C. § 271(b) by actively encouraging others to import, make, use, sell, and/or offer to sell the Accused Products in the United States. For example, Defendants actively promote the sale, use, and importation of its infringing chips in marketing materials, technical specifications, data sheets, web pages on its website (e.g., www.samsung.com), press releases, and user manuals, as well as at trade shows (e.g., CES and Mobile World Congress) and through its sales and distribution channels that encourage infringing sales, offers to sell, and importation of the Accused Products or products containing infringing chips in the Accused Products.¹⁰ As mentioned above, Defendants have had knowledge of the '113 Patent and their infringement since at least February 4, 2020, and either knew that the induced acts constituted patent infringement or, alternatively, were willfully blind to the infringement.

132. On information and belief, in violation of 35 U.S.C. § 271(c), literally or under the doctrine of equivalents, Defendants have contributorily infringed and continue to contributorily infringe one or more claims of the '113 Patent, by offering to sell, selling, and/or importing into the United States material components of the Accused Products that constitute a material part of the inventions, knowing the same to be especially made or especially adapted for use in an infringement of the '113 Patent, and which are not a staple article or commodity of commerce suitable for substantial non-infringing use. For example, the Accused Products include infringing

¹⁰ See, e.g., <https://semiconductor.samsung.com/processor/showcase/>.

processors, integrated circuits, and other semiconductor components that are a material part of at least the invention of Claim 1 of the '113 Patent for the reasons set forth above.

133. The infringing semiconductor chips of the Accused Products are neither materially changed by subsequent processes nor become trivial and nonessential components of another product.

134. ImberaTek has suffered and continues to suffer damages as a result of Defendants' infringement of the '113 Patent.

COUNT VI: INFRINGEMENT OF U.S. PATENT NO. 9,107,324

135. ImberaTek repeats and realleges each and every allegation set forth in the preceding paragraphs as if fully set forth herein.

136. Defendants have been and continue to, without ImberaTek's authority, make, use, offer to sell, sell, and import into the United States at least the Accused Products, which directly infringe one or more claims of the '324 Patent, literally or under the doctrine of equivalents.

137. The claims of the '324 Patent are valid and enforceable.

138. The Accused Products infringe at least one claim of the '324 Patent. For example, Claim 1 recites:

Circuit module, comprising

a first insulator layer having a first surface and a second surface;

at least one second insulator layer on the first surface;

at least one component inside the at least one second insulator layer, the at least one component comprising contact terminals containing a first metal,

conductors on the second surface of the first insulator layer, the conductors comprising at least a first layer and a second layer, in such a way that at least the second layer contains a second metal, and

contact elements between the contact terminals and the conductors for forming electrical contacts, the contact elements comprising an

intermediate layer on the surface of the contact terminal, the intermediate layer containing a third metal, a contact surface area (A_{CONT1}) between the intermediate layer and the contact terminal being less than a surface area (A_{PAD}) of the contact terminal.

139. The Accused Products and Defendants' infringing activities violate one or more subsections of 35 U.S.C. § 271.

140. On information and belief, Defendants has infringed and continue to infringe in violation of 35 U.S.C. § 271(a), literally or under the doctrine of equivalents, one or more claims of the '324 Patent, including at least Claim 1, by making, using, offering to sell, selling, and importing the Accused Products without authority or license. The Accused Products, and/or Defendants' manufacturing thereof, satisfies each and every limitation of one or more claims of the '324 Patent. Defendants thereby directly infringe one or more claims of the '324 Patent.

141. The Accused Products include each of the elements of Claim 1 of the '324 Patent. To illustrate, the Accused Products include a “[c]ircuit module, comprising: a first insulator layer having a first surface and a second surface.” For example, cross sections of PM8350 from the Accused Products show a circuit module with a first insulator layer having a first surface and a second surface, as seen in an EDX map illustrating the first insulator including insulating materials such as oxygen, and carbon. Exhibit 14 ('324 Claim Chart for PM8350).

142. The Accused Products infringe at least Claim 1 of the '324 Patent by including “at least one second insulator layer on the first surface.” For example, cross sections of PM8350 from the Accused Products show at least one second insulator layer on the first surface, as seen in an EDX map illustrating the second insulator including insulating materials such as oxygen, and silicon. Exhibit 14 ('324 Claim Chart for PM8350).

143. The Accused Products infringe at least Claim 1 of the '324 Patent by including “at least one component inside the at least one second insulator layer, the at least one component

comprising contact terminals containing a first metal.” For example, cross sections of PM8350 from the Accused Products show a circuit module with at least one component inside the at least one second insulator layer, the at least one component comprising contact terminals containing a first metal, as seen in an SEM image and copper EDS map that show contact terminals of copper. Exhibit 14 ('324 Claim Chart for PM8350).

144. The Accused Products infringe at least Claim 1 of the '324 Patent by including “conductors on the second surface of the first insulator layer, the conductors comprising at least a first layer and a second layer, in such a way that at least the second layer contains a second metal.” For example, cross sections of PM8350 from the Accused Products show conductors on the second surface of the first insulator layer, the conductors comprising at least a first layer and a second layer, in such a way that at least the second layer contains a second metal, as seen in an EDS copper layer image showing a second layer made of second metal copper and an EDS titanium layer image showing a first layer made of barrier material titanium. Exhibit 14 ('324 Claim Chart for PM8350).

145. The Accused Products infringe at least Claim 1 of the '324 Patent by including “contact elements between the contact terminals and the conductors for forming electrical contacts, the contact elements comprising an intermediate layer on the surface of the contact terminal, the intermediate layer containing a third metal, a contact surface area ($A_{CONT\ 1}$) between the intermediate layer and the contact terminal being less than a surface area (A_{PAD}) of the contact terminal.” For example, cross sections of PM8350 from the Accused Products show contact elements between the contact terminals and the conductors for forming electrical contacts, the contact elements comprising an intermediate layer on the surface of the contact terminal, the intermediate layer containing a third metal, a contact surface area ($A_{CONT\ 1}$) between the intermediate layer and the contact terminal being less than a surface area (A_{PAD}) of the contact

terminal, as seen in EDS images identifying intermediate layer containing third metal titanium. Exhibit 14 ('324 Claim Chart for PM8350).

146. By at least February 4, 2020, ImberaTek disclosed the existence of the '324 Patent to Defendants and identified at least some of Defendants' activities that infringe patents within ImberaTek's patent portfolio, which includes the '324 Patent. Thus, Defendants have had knowledge of the '324 Patent and that its activities infringe the '324 Patent since at least February 4, 2020. Based on ImberaTek's disclosures, Defendants have also known or should have known since at least February 4, 2020 that their customers, distributors, and other purchasers of the Accused Products are infringing the '324 Patent at least because Defendants have known that they are infringing the '324 Patent.

147. In addition and in the alternative, by at least the date on which this Complaint was filed, ImberaTek disclosed the existence of the '324 Patent to Defendants and identified at least some of Defendants' activities that infringe the '324 Patent. Thus, Defendants have had knowledge of the '324 Patent and that its activities infringe the '324 Patent since at least the date on which this Complaint was filed. Based on ImberaTek's disclosures, Defendants have also known or should have known since at least the date on which this Complaint was filed that their customers, distributors, and other purchasers of the Accused Products are infringing the '324 Patent at least because Defendants have known that they are infringing the '324 Patent.

148. Defendants' acts of infringement of the '324 Patent have been committed and are being committed with full knowledge of ImberaTek's patent rights and full knowledge of infringement. On information and belief, Defendants monitor ImberaTek's patent portfolio and have acted and are continuing to act despite an objectively high likelihood that their actions constitute direct and/or indirect infringement of a valid patent, and knew or should have known of

that objectively high risk since before the filing of this Action. Defendants' acts constitute willful, intentional, and deliberate infringement, entitling ImberaTek to enhanced damages under 35 U.S.C. § 284 and reasonable attorneys' fees and costs.

149. On information and belief, in violation of 35 U.S.C. § 271(b), literally or under the doctrine of equivalents, Defendants actively, knowingly, and intentionally induce infringement of one or more claims of the '324 Patent under 35 U.S.C. § 271(b) by actively encouraging others to import, make, use, sell, and/or offer to sell the Accused Products in the United States. For example, Defendants actively promote the sale, use, and importation of its infringing chips in marketing materials, technical specifications, data sheets, web pages on its website (e.g., www.samsung.com), press releases, and user manuals, as well as at trade shows (e.g., CES and Mobile World Congress) and through its sales and distribution channels that encourage infringing sales, offers to sell, and importation of the Accused Products or products containing infringing chips in the Accused Products.¹¹ As mentioned above, Defendants have had knowledge of the '324 Patent and their infringement since at least February 4, 2020, and either knew that the induced acts constituted patent infringement or, alternatively, were willfully blind to the infringement.

150. On information and belief, in violation of 35 U.S.C. § 271(c), literally or under the doctrine of equivalents, Defendants have contributorily infringed and continue to contributorily infringe one or more claims of the '324 Patent, by offering to sell, selling, and/or importing into the United States material components of the Accused Products that constitute a material part of the inventions, knowing the same to be especially made or especially adapted for use in an infringement of the '324 Patent, and which are not a staple article or commodity of commerce

¹¹ See, e.g., *Samsung Electronics Co. Ltd. Official website* (<https://www.samsung.com/us/mobile/galaxy-s20-5g/specs/>) (Galaxy S20 FE, Galaxy S20 Ultra); *Tear Down of Galaxy S20 Ultra* (<https://www.techinsights.com/blog/samsung-galaxy-s20-teardown-analysis>) (PMX55, PM8150C, PM8250).

suitable for substantial non-infringing use. For example, the Accused Products include infringing processors, integrated circuits, and other semiconductor components that are a material part of at least the invention of Claim 1 of the '324 Patent for the reasons set forth above.

151. The infringing semiconductor chips of the Accused Products are neither materially changed by subsequent processes nor become trivial and nonessential components of another product.

152. ImberaTek has suffered and continues to suffer damages as a result of Defendants' infringement of the '324 Patent.

PRAYER FOR RELIEF

WHEREFORE, ImberaTek respectfully requests the following relief:

- (A) The entry of judgment in favor of ImberaTek, and against Defendants, that Defendants have infringed and continue to infringe one or more claims of the Asserted Patents;
- (B) The entry of judgment in favor of ImberaTek, and against Defendants, that Defendants have willfully infringed one or more claims of the Asserted Patents;
- (C) The entry of a judgment awarding ImberaTek all damages resulting from Defendants' infringement, including no less than a reasonable royalty, and that such amount be trebled based on Defendants' willful, intentional, and deliberate infringement pursuant to 35 U.S.C. § 284, including pre-judgment and post-judgment interest and without limitation under 35 U.S.C. § 287;
- (D) The entry of judgment in favor of ImberaTek, and against Defendants, that interest, costs, and expenses be awarded in favor of ImberaTek; and

- (E) An accounting and/or supplemental damages for all damages occurring after any discovery cutoff; and
- (F) That this Court order such other relief as the Court may deem just and proper.

JURY DEMAND

Pursuant to Rule 38(b) of the Federal Rules of Civil Procedure, ImberaTek respectfully demands a trial by jury in this Action on all issues so triable.

Dated: June 24, 2022

Respectfully Submitted,

By: /s/ Kevin C. Wheeler w/permission

Claire Henry

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