

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

LONGITUDE LICENSING LTD., and
MARLIN SEMICONDUCTOR LIMITED.

Plaintiffs,

V.

QUALCOMM INC.,
Defendant.

C.A. No.

JURY TRIAL DEMANDED

**LONGITUDE LICENSING LTD. AND MARLIN SEMICONDUCTOR LTD'S
COMPLAINT FOR PATENT INFRINGEMENT**

Plaintiffs Longitude Licensing Ltd. (“Longitude”) and Marlin Semiconductor Limited (“Marlin”) (collectively, “Plaintiffs”) bring this Complaint for patent infringement (“Complaint”) and for jury trial against Qualcomm Inc. (“Qualcomm” or “Defendant”). Plaintiffs allege as follows:

THE PARTIES

1. Plaintiff Longitude Licensing Ltd. (“Longitude”) is an Irish company and has a principal place of business at Blanchardstown Corporate Park 2, Plaza 255, Suite 2A, Dublin D15 YH6H, Ireland.

2. Plaintiff Marlin Semiconductor Limited (“Marlin Semiconductor”) is an Irish company and has a principal place of business at Blanchardstown Corporate Park 2, Plaza 255, Suite 2A, Dublin D15 YH6H, Ireland.

3. Marlin Semiconductor is the owner by way of assignment of U.S. Patent No.

7,705,666 (“the ’666 Patent”), attached as Exhibit A, U.S. Patent No. 8,461,890 (“the ’890 Patent”), attached as Exhibit B, U.S. Patent No. 10,102,475 (“the ’475 Patent”), attached as Exhibit C, and U.S. Patent No. 8,368,442 (“the ’442 Patent”), attached as Exhibit D. All aforementioned patents are collectively the “Asserted Patents.” Longitude is the exclusive licensee of the Asserted Patents.

Qualcomm

4. Qualcomm Inc. (“Qualcomm”) is a corporation organized under the laws of the State of Delaware and has regular and established places of business within this judicial district including at least the following locations: 9600 N. Mopac, Ste 900, Stonebridge Plaza II, Austin TX 78759, and 13929 Center Lake Dr. Building 1, Suite 100, Austin, TX 78753. Upon information and belief, Qualcomm employs individuals in this judicial district involved in the research, development, sales, and marketing of its products and services that infringe the Asserted Patents.

5. Qualcomm does business in Texas, directly and through intermediaries, and offers its products and/or services, including those accused herein of infringement, to customers and potential customers located in Texas, including in this judicial district.

6. Qualcomm may be served with process through its registered agent, Prentice Hall Corp. System, at 211 E. 7th Street, Suite 620, Austin, TX 78701.

THE ASSERTED PATENTS

7. The ’666 Patent is entitled “Filler Circuit Cell,” and issued on April 27, 2010 to inventors Chen-Hsien Hsu and Chien-Kuo Wang. The ’666 Patent issued from U.S. Patent Application No. 12/365,874, which was filed on Feb. 4, 2009.

8. The ’890 Patent is entitled “Phase and/or Frequency Detector, Phase-Locked Loop and Operation Method for the Phase-Locked Loop,” and issued on June 11, 2013 to inventor Chien-Liang Chen. The ’890 Patent issued from U.S. Patent Application No. 13/186,557, which was filed on July 20, 2011.

9. The '475 Patent is entitled "Control Circuit for Generating Linear Term Signals," and issued on October 16, 2018 to inventor Yun-Yuan Wang and Saho-Hui Wu. The '475 Patent issued from U.S. Patent Application 15/800,083, which was filed on November 1, 2017, and claims priority to a Taiwanese patent application 106133669, which was filed on September 29, 2017.

10. The '442 Patent is entitled "Charge Pump," and issued on February 5, 2013 to inventor Chien-Liang Chen. The '442 Patent issued from U.S. Patent Application No. 13/209,502, which was filed on August 15, 2011.

11. The Asserted Patents are each valid and enforceable.

JURISDICTION AND VENUE

12. This is an action for patent infringement under the patent laws of the United States, Title 35 of the United States Code. Accordingly, this Court has exclusive subject matter jurisdiction over this action under 28 U.S.C. §§ 1331 and 1338(a).

13. This Court has specific personal jurisdiction over Defendant, at least in part, because Defendant conducts business in this judicial district, including the manufacture, use, sale, offer for sale, and/or importation of products that infringe, or that are made using processes that infringe, the Asserted Patents, and other activities related the design, manufacture, distribution, and/or support of those products and processes.

14. This Court has general jurisdiction over Defendant Qualcomm, in part due to its continuous and systematic contacts with the State of Texas and this judicial district. Plaintiffs' causes of action arise, at least in part, from the Defendant's contacts with and activities in the State of Texas and this judicial district. Upon information and belief, the Defendant has committed acts of infringement within the State of Texas and this judicial district by, *inter alia*, directly and/or indirectly making, having made, using, selling, offering to sell, and/or importing products that infringe, or that are manufactured using processes that infringe, one or more claims of the Asserted

Patents.

15. Defendant Qualcomm has regular and established places of business in this district and regularly sells, markets, and supports its products and services within this judicial district. Defendant Qualcomm is subject to this Court's specific and general personal jurisdiction pursuant to due process and/or the Texas Long Arm Statute, due at least to its substantial and pervasive business in this State and judicial district, including: (i) at least part of its infringing activities alleged herein; and (ii) regularly doing or soliciting business, engaging in other persistent conduct, and/or deriving substantial revenue from goods sold and services provided to Texas residents.

16. Defendant has committed acts within this judicial district giving rise to this action, and have established sufficient minimum contacts with the State of Texas such that the exercise of jurisdiction would not offend traditional notions of fair play and substantial justice.

17. Venue is proper in this district pursuant to 28 U.S.C. §§ 1391 (b) – (c) and 28 U.S.C. § 1400 (b) because Qualcomm, Inc. has a regular and established place of business in this judicial district, including at 9600 N. Mopac, Ste 900, Stonebridge Plaza II, Austin TX 78759 and 13929 Center Lake Dr Building 4.1, Suite 100, Austin, TX 78753, and has committed and continues to commit acts of patent infringement in this judicial district by, *inter alia*, directly and/or indirectly using, selling, offering to sell, or importing products that infringe one or more claims of the Asserted Patents.

18. On information and belief, Qualcomm has thousands of employees based in the Western District of Texas and does business in this judicial district and across the State of Texas.¹

19. This Court has specific personal jurisdiction over Qualcomm at least in part because Qualcomm conducts business in this judicial district. Plaintiffs' causes of action arise, at least in

¹ <https://www.qualcomm.com/company/facilities/offices?country=USA®ion=TX> (accessed Aug. 21, 2025).

part, from Qualcomm's contacts with and activities in the State of Texas and this judicial district. On information and belief, Qualcomm has committed acts of patent infringement within the State of Texas and this judicial district by, among other things, directly and/or indirectly using, selling, offering for sale, or importing products that infringe one or more claims of the Asserted Patents.

20. On information and belief, Qualcomm conducts business in this judicial district and maintains a regular and established place of business within this judicial district. For example, Qualcomm has maintained regular and established places of business in this judicial district, including at least such offices and/or facilities at: 9600 N. Mopac, Ste 900, Stonebridge Plaza II, Austin TX 78759 and 13929 Center Lake Dr Building 4.1, Suite 100, Austin, TX 78753. On information and belief, personnel working at these facilities in Austin engage in activities directly related to the products accused herein. The business conducted at these facilities is steady, uniform, orderly, and/or methodical, and is settled and not transient, including, but not limited to, distribution, sales, and/or offers for sale of infringing products. On information and belief, Defendant Qualcomm has customers/users who are residents of this District and who purchase, acquire, and/or use Defendant Qualcomm's infringing products in this District.

21. On information and belief, Qualcomm's employees in this judicial district include, for example, CPU security architects, CPU power & performance analysis engineers, physical design engineers, SoC performance architects, FEA engineers, CPU verification engineers, and power integrity engineers.² On information and belief, these personnel work on, among other aspects of the accused products, CPU power & performance, design, verification, and power systems of the Accused Products.. Accordingly, on information and belief, witnesses and

² See, e.g., https://careers.qualcomm.com/careers/*/austin_tx?query=%2A&location=austin%20tx&pid=446702355183&domain=qualcomm.com&sort_by=relevance.

documents relevant to this action are located in this judicial district.

22. On information and belief, Qualcomm has placed or contributed to placing infringing products, including the products accused herein, into the stream of commerce knowing or understanding that such products would be sold and used in the United States, including in this judicial district. For example, apart from other Qualcomm activities within this judicial district described above, Qualcomm also sells its products (including, but not limited to, the accused Qualcomm Snapdragon X Elite (on information and belief, incorporated into, at least, the Lenovo yoga Slim 7X laptop), Qualcomm Snapdragon 8 Elite (on information and belief, incorporated into, at least, OnePlus 13 smartphone), Qualcomm Snapdragon 8 Gen 3 (on information and belief, incorporated into, at least, OnePlus 13R smartphone), and Qualcomm Snapdragon 865 (on information and belief, incorporated into, at least, Samsung Galaxy S20 series) directly into the stream of commerce within this judicial district including, at least, the following Best Buy locations: 4970 US-290, Austin, TX 78735, 9607 Research Blvd Ste 500, Austin, TX 78759, and 1201 Barbara Jordan Blvd Ste 100, Austin, TX 78723.

23. On information and belief, Qualcomm derives substantial revenues from infringing acts in this judicial district, including from the sale and use of infringing products including, but not limited to, those accused herein.

24. Qualcomm has committed acts within this judicial district giving rise to this action, and have established sufficient minimum contacts with the State of Texas such that the exercise of jurisdiction would not offend traditional notions of fair play and substantial justice.

25. Venue in this judicial district is proper under 28 U.S.C. §§ 1391(b), (c), and 1400 with respect to Qualcomm because Qualcomm (1) has committed and continues to commit acts of patent infringement in this judicial district by, among other things, directly and/or indirectly using,

selling, offering for sale, or importing products that infringe (or products manufactured using infringing processes) one or more claims of the Asserted Patents, and (2) has done and continues to do business in this judicial district by maintaining regular and established places of business, including, at least, 9600 N. Mopac, Ste 900, Stonebridge Plaza II, Austin TX 78759 and 13929 Center Lake Dr. Building 1, Suite 100, Austin, TX 78753. *In re Cray Inc.*, 871 F.3d 1355, 1362–63 (Fed. Cir. 2017).

ALLEGATIONS OF PATENT INFRINGEMENT

26. Plaintiffs incorporate the allegations of all the foregoing paragraphs as if fully restated herein.

27. As set forth below, the infringing products consist of and/or incorporate, without any license from Plaintiffs, semiconductor circuits protected by patents owned by Plaintiffs. Plaintiffs respectfully seek relief from this Court for Defendant’s infringement.

28. Plaintiffs are the sole and exclusive owner of all right, title, and interest in and to the Asserted Patents, and hold the exclusive right to take all actions necessary to enforce their rights to the Asserted Patents, including the filing of this action. Plaintiffs also have the right to recover all damages for past, present, and future infringement of the Asserted Patents.

29. Marlin Semiconductor, the present owner of the Asserted Patents, Longitude, the exclusive licensee of the Asserted Patents, and the prior owner of the Asserted Patents, have complied with 35 U.S.C. §§ 286 and 287(a), and are therefore entitled to past damages for Defendant’s infringement beginning six years prior to the filing date of the present Complaint. Plaintiffs are also entitled to damages for Defendant’s continuing infringement until the expiration of the last to expire of the Asserted Patents.

30. Qualcomm has and continues to make, have made, use, sell, offer for sale, import, has imported, test, design, and/or market in the United States semiconductor devices, integrated

circuits, and products containing the same that infringe the Asserted Patents.

31. Qualcomm has directly infringed, and continues to directly infringe, the Asserted Patents under 35 U.S.C. § 271(a) by making, having made, using, selling and/or offering for sale, in this district and elsewhere in the United States, and/or importing into this district and elsewhere in the United States, certain semiconductor devices that infringe (or that are manufactured by processes that infringe) the Asserted Patents, as described in further described in Counts I-IV *infra*.

32. Qualcomm has been placed on actual notice of the Asserted Patents at least as early as the filing of this Complaint, which constitutes notice of the Asserted Patents in accordance with 35 U.S.C. § 287. *See, e.g., Universal Connectivity Techs. Inc. v. Dell Techs. Inc.*, No. 1:23-CV-01506-RP, 2024 WL 3035627, at *6 (W.D. Tex. June 17, 2024), report and recommendation adopted, No. 1:23-CV-1506-RP, 2024 WL 3282501 (W.D. Tex. July 2, 2024) *Elec. Scripting Prods., Inc. v. Andromeda Ent., Ltd.*, No. WA-23-CV-00649-AM/DTG, 2024 WL 4341329 (W.D. Tex. Sept. 27, 2024) *Adaptive Spectrum & Signal Alignment, Inc. v. Charter Commc'ns, Inc.*, No. 2:24-CV-00124-JRG-RSP, 2025 WL 1341892, at *11 (E.D. Tex. Mar. 31, 2025), report and recommendation adopted, No. 2:24-CV-00124-JRG-RSP, 2025 WL 1539838 (E.D. Tex. May 29, 2025).

33. Qualcomm has also indirectly infringed and continues to indirectly infringe the Asserted Patents under 35 U.S.C. § 271(b) and (c). Qualcomm knew and intended to induce the infringement of the Asserted Patents by its subsidiaries, affiliates, retail partners, customers, and/or other third parties. *See, e.g., Universal*, 2024 WL 3035627 at *6-7. After receiving actual notice of the Asserted Patents, Qualcomm proceeded to actively induce infringement of the Asserted Patents by inducing its subsidiaries, affiliates, retail partners, customers, and/or other third parties to make, use, sell, offer for sale, market, advertise, and/or import semiconductor devices that

infringe (or that are manufactured by processes that infringe) the Asserted Patents, as described in detail in Counts I-IV *infra*.

34. Additionally, Qualcomm has indirectly infringed, and continues to indirectly infringe, the Asserted Patents under 35 U.S.C. § 271(c) by materially contributing to infringement of the Asserted Patents after receiving actual notice of the Asserted Patents by offering to sell or selling within the United States or importing into the United States semiconductor devices that infringe the Asserted Patents, as described in detail in Counts I-IV *infra*. *See, e.g., Universal*, 2024 WL 3035627 at *7-8. The accused products comprise the entirety of, or, at a minimum, a material part of, the invention. Defendant knew and knows the accused products were and are especially made or especially adapted for use in an infringement of the Asserted Patents. Defendant further knew and knows that the accused products are not staple articles or commodity of commerce suitable for substantial non-infringing use, and they in fact have no substantially non-infringing use. As Defendant knew and knows, the only use of the accused products use is in the products in which they are incorporated (*e.g.*, cellular telephones), and they infringe both in and of themselves and also within the products in which they are incorporated.

35. The scope of infringing products includes, but is not limited to, Qualcomm semiconductor devices, integrated circuits, and other products.

36. Plaintiffs reserve the right to accuse any forthcoming Qualcomm products not yet commercially available, and any products about which it learns additional relevant information.

37. On information and belief, Qualcomm's SDR865 integrated circuit is designed in the United States and manufactured by third party foundries, including TSMC, and sold throughout the United States and abroad and is an infringing product.

38. Qualcomm's acts of infringement have caused damage to Plaintiffs. Plaintiffs are

entitled to recover from Qualcomm the damages incurred by Plaintiffs as a result of Qualcomm's wrongful acts.

39. Qualcomm's acts of direct and indirect infringement are willful and have caused, and will continue to cause, substantial damage and irreparable harm to Plaintiffs, and Plaintiffs have no adequate remedy at law. Qualcomm performed and continues to perform the acts that constitute direct and/or indirect infringement, with knowledge or willful blindness that the acts would constitute direct and/or indirect infringement of the Asserted Patents. Notwithstanding Qualcomm's knowledge of the Asserted Patents since at least as early as the filing of the present Complaint, Qualcomm has and continues to willfully infringe the Asserted Patents.

COUNT I

Infringement of the '666 Patent

40. Plaintiffs incorporate the allegations of all of the foregoing paragraphs as if fully restated herein.

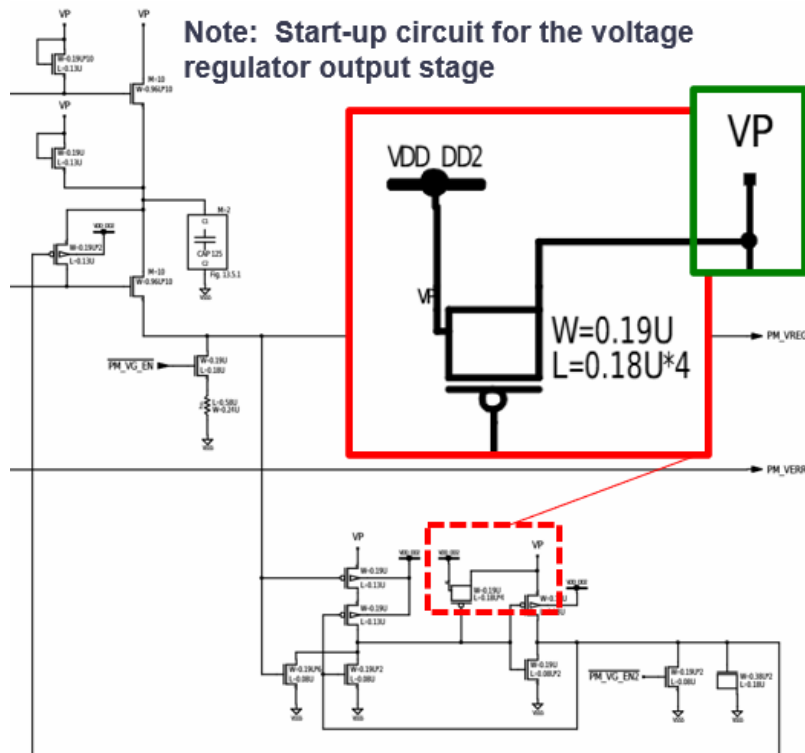
41. Defendant has directly and indirectly infringed, and continues to directly and indirectly infringe, the '666 Patent by making, having made, using, selling, offering for sale, and/or importing into the United States products that infringe (or that are manufactured using processes that infringe) the '666 Patent including, but not limited to, the Qualcomm SDR865 and semiconductor devices including the Snapdragon 8 Series, 800 Series, X Elite Series and X Plus Series. The products that infringe one or more claims of the '666 Patent include, but are not limited to, at least the products identified herein. Further discovery may reveal additional infringing products and/or models.

42. For example, and without limitation, the infringing products infringe one or more claims of the '666 Patent, including but not limited to claim 12. The infringing products fall within

the scope of and include, either literally or under the doctrine of equivalents, all of the elements of at least claim 12 of the '666 Patent.

43. The infringing products include all the limitations of at least claim 12 of the '666 Patent. Specifically, the '666 Patent claims, e.g., “A filler circuit cell, comprising: a decoupled capacitor comprising a first MOS transistor, wherein the source and drain of the first MOS transistor is connected to a first voltage source; and a voltage stabilizing unit disposed between the first voltage source, a gate of the first MOS transistor and a second voltage source to prevent damage for the gate of the first MOS transistor caused by sudden glitches, wherein the voltage stabilizing unit comprises a second MOS transistor and a third MOS transistor.”

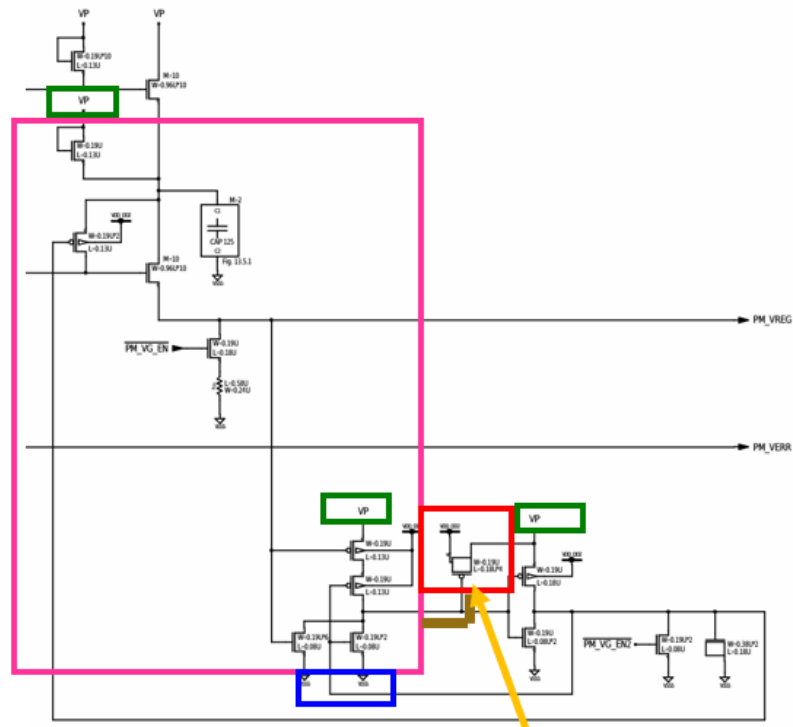
44. The Qualcomm SDR865 includes a filler cell within the start-up circuit for its voltage regulator output stage.



Qualcomm SDR865 CircuitVision Analysis, Figure 13.14.4.

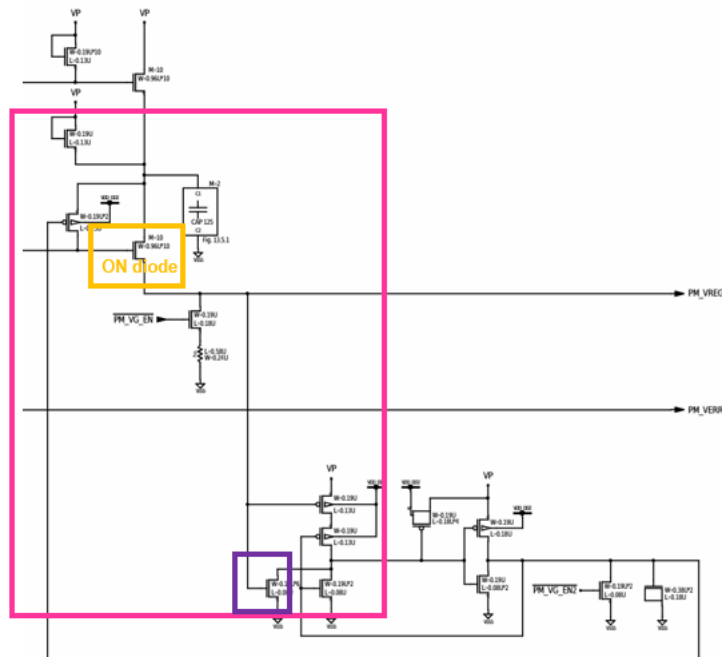
45. The Qualcomm SDR865 includes “a decoupled capacitor comprising a first MOS transistor, wherein the source and drain of the first MOS transistor is connected to a first voltage source.” Specifically, the P-type MOS transistor within the red dotted line box is a decoupled capacitor comprising a first MOS transistor. *See supra* (Qualcomm SDR865 CircuitVision Analysis, Figure 13.14.4). Both the source and the drain of the P-type MOS transistor are connected to a first voltage source, VP. *Id.*

46. The Qualcomm SDR865 also includes “a voltage stabilizing unit disposed between the first voltage source, a gate of the first MOS transistor and a second voltage source.” The voltage stabilizing unit is shown below by the pink box. *See infra.* (Qualcomm SDR865 CircuitVision Analysis, Figure 13.14.4). The voltage stabilizing unit is disposed between the first voltage source (VP), shown within the green boxes, a gate of the first MOS transistor, shown by the orange arrow, and a second voltage source (VSS), shown by the blue box. *See id.*



Qualcomm SDR865 CircuitVision Analysis, Figure 13.14.4.

47. The identified voltage stabilizing unit “prevent[s] damage for the gate of the first MOS transistor caused by sudden glitches, wherein the voltage stabilizing unit comprises a second MOS transistor and a third MOS transistor.” The gate of the first MOS transistor is protected from sudden glitches in the voltage sources (VP or VSS) because the gate of the first MOS transistor is not directly connected to either the first voltage source or the second voltage source. Instead, the gate of the first MOS transistor is connected to the voltage stabilization unit, which is, in turn, connected to the first voltage source (VP) and the second voltage source (VSS). The second MOS transistor shown below within the orange box and the third MOS transistor is shown below within the purple box. *See infra*. (Qualcomm SDR865 CircuitVision Analysis, Figure 13.14.4).



Qualcomm SDR865 CircuitVision Analysis, Figure 13.14.4.

48. Defendant has, and continues to, indirectly infringe the '666 Patent by actively inducing and contributing to the infringement of the '666 Patent by others, such as fabless companies, original equipment manufacturers, customers, resellers, and retailers who, for example,

incorporate products that infringe into downstream products made, sold, offered for sale, and/or imported throughout the United States, including in this judicial district. For example, Defendant hired permanent sales and/or marketing personnel located throughout the United States, and in this judicial district. On information and belief, these sales and/or marketing activities are targeted to original equipment manufacturers, including original equipment manufacturers based in the United States.

49. The Defendant specifically intended these others, such as original equipment manufacturers, customers, resellers, and retailers, to infringe the '666 Patent and knew that these others perform acts that constituted direct infringement. For example, Defendant designed the products that infringe such that they would each infringe the '666 Patent if made, used, sold, offered for sale, or imported into the United States. Defendant provided, directly or indirectly, products that infringe to others, such as, but not limited to, customers, knowing and intending that those others would use, sell, offer for sale, and/or import in and into the United States downstream products that include the products that infringe (or that are manufactured using processes that infringe), thereby directly infringing one or more claims of the '666 Patent.

50. The accused products have no substantial non-infringing uses and are a material part of the invention. Any manufacture, use, sale, offer for sale, or importation in or into the United States of a product that infringes or a downstream product incorporating a product that infringes the '666 Patent is a direct infringement. The products that infringe are semiconductor devices and integrated circuits that provide vital functionality to downstream products. The products that infringe cannot be used without being incorporated into a downstream product. Thus, the products that infringe have no substantial non-infringing uses. Moreover, the accused products provide vital functionality to the downstream products, and either directly meet the limitations of the '666 patent

claims, or, even if found not to, constitute a material part of the invention claimed in the '666 Patent.

51. With respect to exemplary devices, the Samsung Galaxy S20 series, made or sold by Best Buy, incorporating the TSMC-made Qualcomm Snapdragon 865 integrated circuit, made or sold by Qualcomm, made or sold by Qualcomm, each directly infringes at least claim 12 of the '666 Patent.

52. Upon information and belief, this exemplary device utilizes circuits that incorporate the claimed technology and are substantially similar in structures and features of other semiconductor products that Qualcomm designs, including the Snapdragon 8 Series, 800 Series, X Elite Series and X Plus Series.

53. As a result of Defendant's infringement of the '666 Patent, Plaintiffs are entitled to monetary damages in an amount adequate to compensate for Defendant's infringement, but in no event less than a reasonable royalty for the use made of the invention by Defendant, together with interest and costs as fixed by the Court.

54. Defendant's acts of direct and indirect infringement of the '666 Patent are deliberate and willful, and have caused, and will continue to cause, substantial damage and irreparable harm to Plaintiffs, and Plaintiffs have no adequate remedy at law.

COUNT II

Infringement of the '890 Patent

1. Plaintiffs incorporate the allegations of all of the foregoing paragraphs as if fully restated herein.

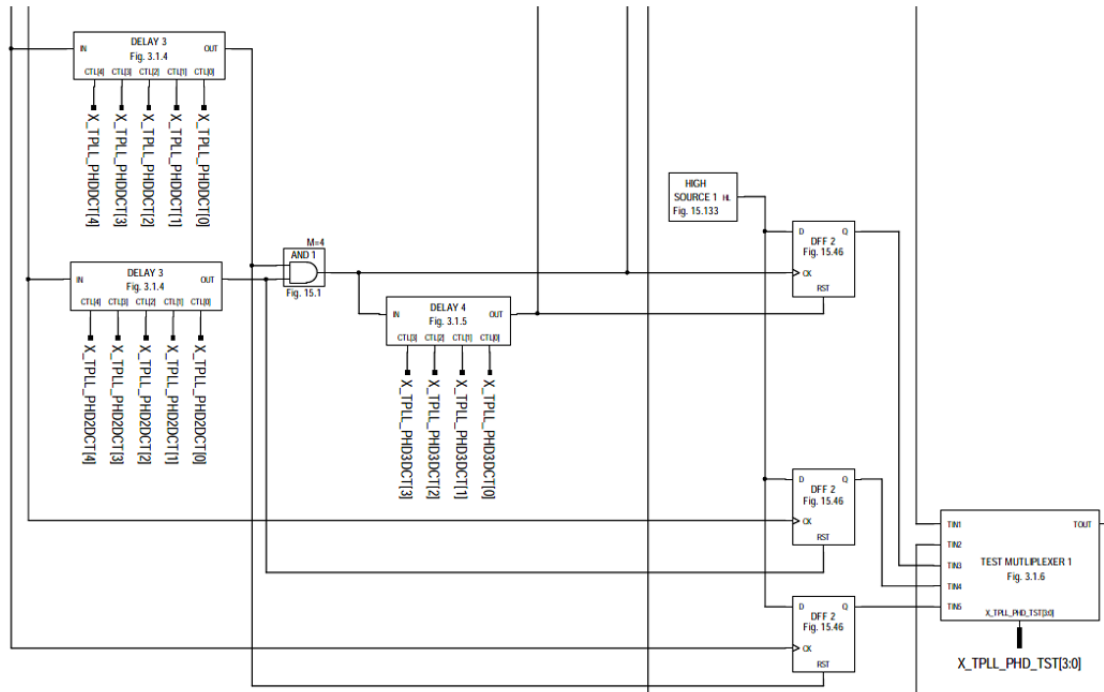
2. Defendant has directly and indirectly infringed, and continues to directly and indirectly infringe, the '890 Patent by making, having made, using, selling, offering for sale, and/or importing into the United States products that infringe the '890 Patent including, but not limited

to, the Qualcomm SDR865 and semiconductor devices including the Snapdragon 8 Series, 800 Series, X Elite Series and X Plus Series. The products that infringe one or more claims of the '890 Patent include, but are not limited to, at least the products identified herein. Further discovery may reveal additional infringing products and/or models.

3. For example, and without limitation, the infringing products infringe one or more claims of the '890 Patent, including but not limited to claim 1. The infringing products fall within the scope of and include, either literally or under the doctrine of equivalents, all of the elements of at least claim 1 of the '890 Patent.

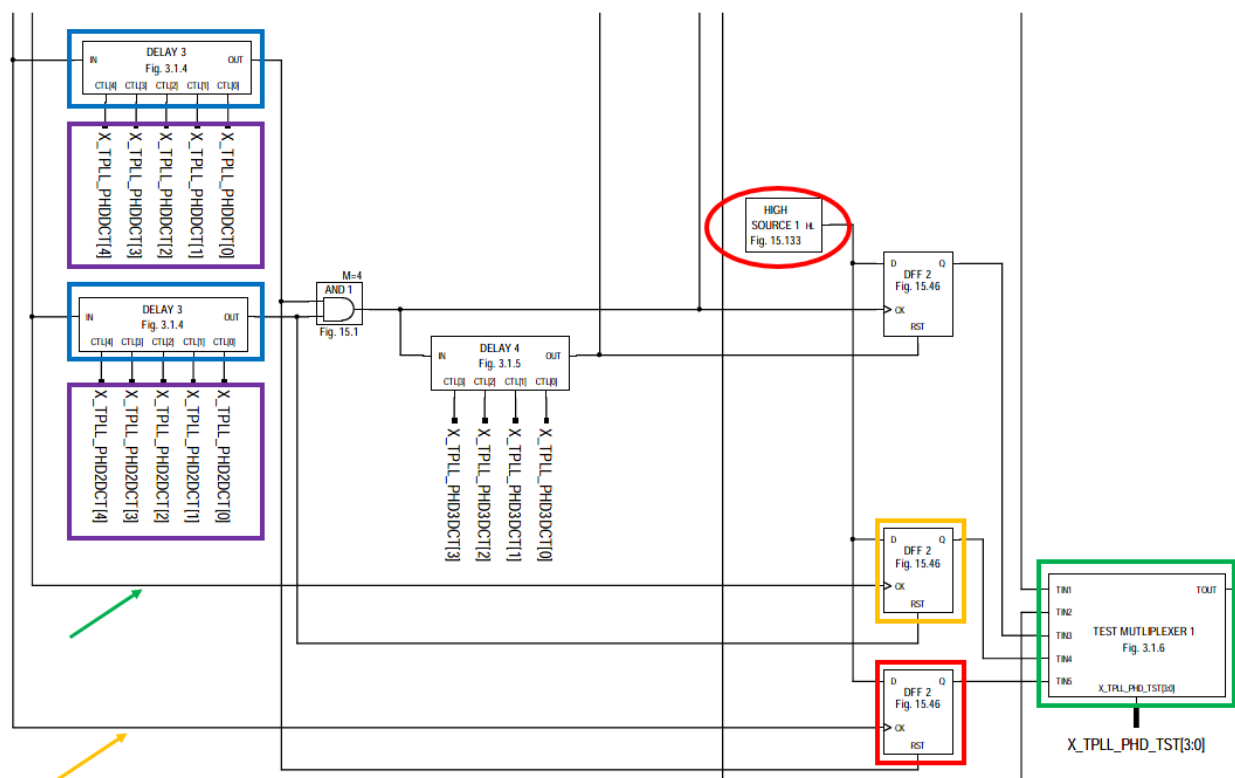
4. The infringing products include all the limitations of at least claim 1 of the '890 Patent. Specifically, the '890 Patent claims, e.g., “a phase and/or frequency detector, comprising a first flip-flop having a first data-input terminal, a first data-output terminal, a first clock-input terminal and a first reset terminal, the first data-input terminal being electrically coupled to a power source, and the first clock-input terminal being configured for receiving a reference signal with a reference frequency; a second flip-flop having a second data-input terminal, a second data-output terminal, a second clock-input terminal and a second reset terminal, the second data-input terminal being electrically coupled to the power source, the second clock-input terminal being configured for receiving a frequency-divided signal, and the frequency-divided signal being generated by performing a frequency-divided operation on an oscillating signal with an oscillating frequency; a logic gate configured for receiving signals outputted from the first data-output terminal and the second data-output terminal; a control circuit configured for generating a delay control signal according to the oscillating frequency of the oscillating signal; and a delay circuit configured for altering a prolonged period according to the delay control signal to generate a reset signal to be outputted to the first reset terminal and the second reset terminal.”

5. The Qualcomm SDR865 includes a frequency phase detector as shown below:



Qualcomm SDR865 CircuitVision Analysis, Figure 3.1

6. The Qualcomm SDR865 includes “a first flip-flop,” at least in the form of the lower DFF2 flip-flop shown within the red box, which has “a first data-input terminal” D, “a first data-output terminal” Q, “a first clock-input terminal” CK and “a first reset terminal” RST, “the first data-input terminal being electrically coupled to a power source,” High Source 1 shown within the red oval, “and the first clock-input terminal being configured for receiving a reference signal with a reference frequency” identified by the orange arrow, which wire carries the signal X_PLL_REFCK+ to the CK input of the first flip-flop.

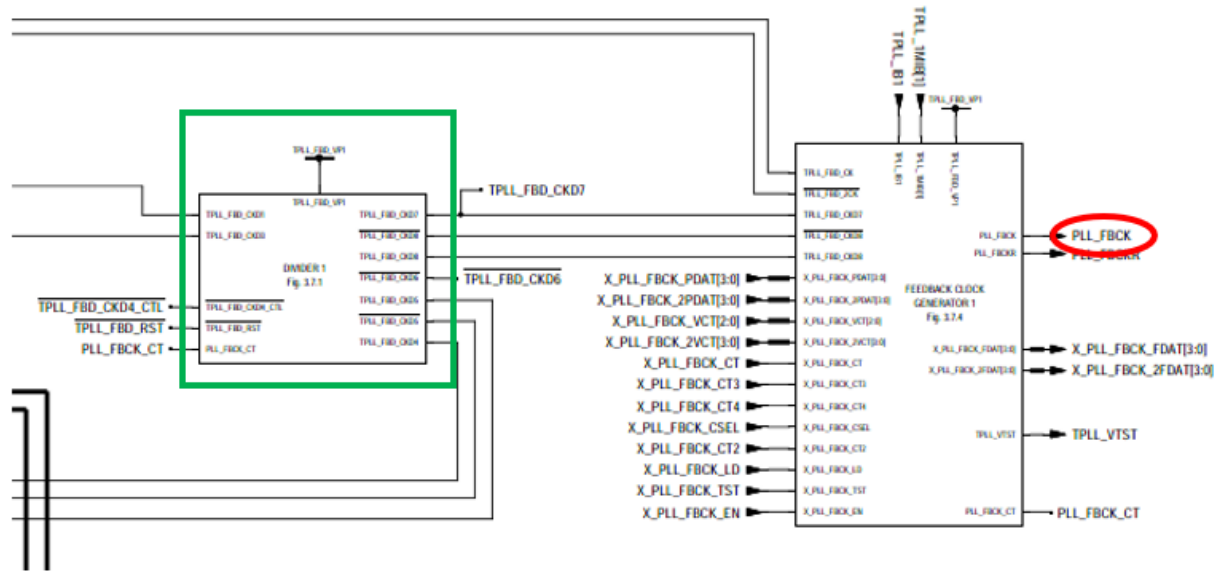


Qualcomm SDR865 CircuitVision Analysis, Figure 3.1.

7. The Qualcomm SDR865 includes “a second flip-flop,” at least in the form of the upper DFF2 flip-flop shown within the orange box, which has “a second data-input terminal” D, “a second data-output terminal” Q, “a second clock-input terminal” CK and “a second reset terminal” RST, “the second data-input terminal being electrically coupled to the power source,” High Source 1 shown within the red oval, “the second clock-input terminal being configured for receiving a frequency-divided signal” identified by the green arrow, which wire carries the signal PLL_FBCK to the CK input of the second flip-flop. *See supra* (Qualcomm SDR865 CircuitVision Analysis, Figure 3.1).

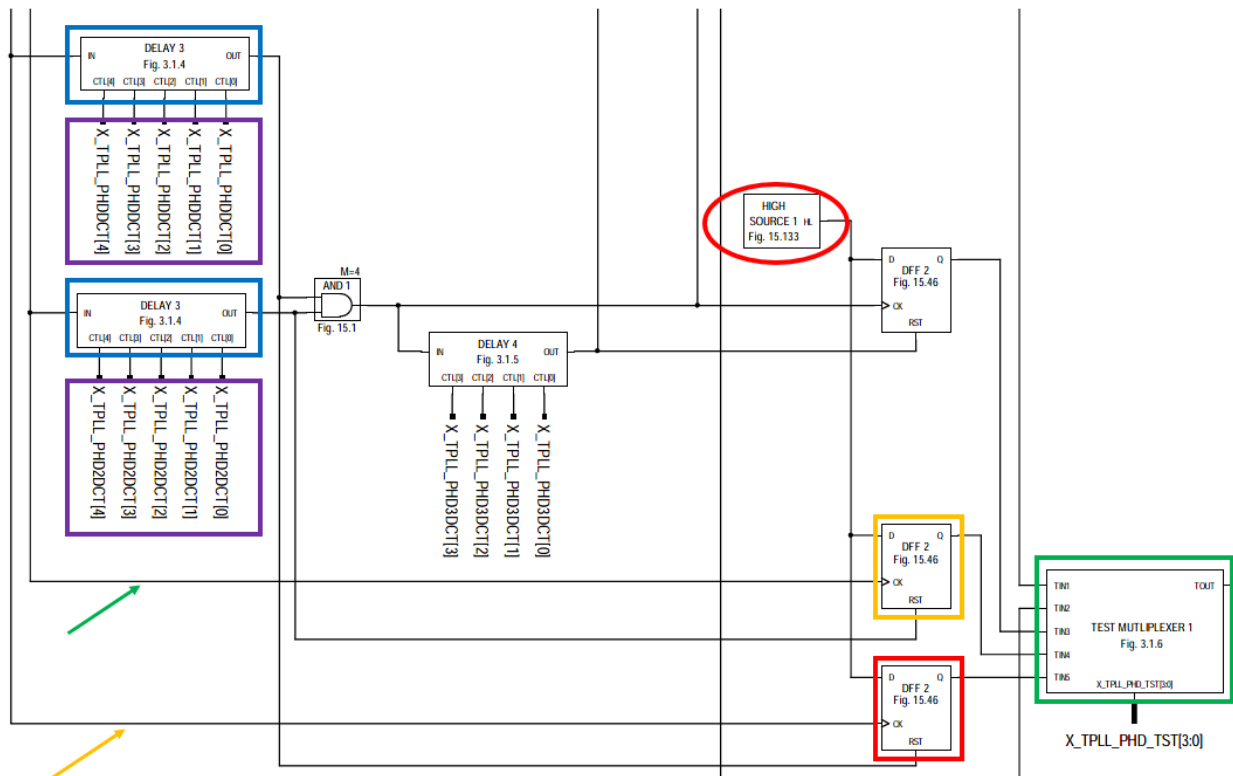
8. The PLL_FBCK signal from Figure 3.1 of the Qualcomm SDR865 TechInsights CircuitVision Report is a “the frequency-divided signal being generated by performing a frequency-divided operation on an oscillating signal with an oscillating frequency.” Specifically,

the signal PLL_FBCK shown within the red oval (*infra* at Figure 3.7) comes from three frequency dividers (one of which is shown within the green box (Divider 1, Figure 3.7.1), but two additional frequency dividers (Divider 2, Figure 3.7.2, and Divider 3, Figure 3.7.3) are also part of Figure 3.7 and may be part of the circuitry performing the frequency-divided operation).



Qualcomm SDR865 CircuitVision Analysis, Figure 3.7, *supra*.

9. Further, the Qualcomm SDR865 also includes “a logic gate configured for receiving signals outputted from the first data-output terminal and the second data-output terminal,” at least in the form of “Test Multiplexer 1” shown within the green box below.



Qualcomm SDR865 CircuitVision Analysis, Figure 3.1, *supra*.

10. Upon information and belief, the Qualcomm SDR865 also includes “a control circuit configured for generating a delay control signal according to the oscillating frequency of the oscillating signal.” The delay control signal(s) are X_TPLL_PHDDCT[0] through [4] and X_TPLL_PHD2DCT[0] through [4] shown within the purple box. *See* Qualcomm SDR865 CircuitVision Analysis, Figure 3.1, *supra*.

11. The Qualcomm SDR865 also includes “a delay circuit configured for altering a prolonged period according to the delay control signal to generate a reset signal to be outputted to the first reset terminal and the second reset terminal,” at least in the form of the “Delay 3” circuits depicted above within the blue boxes. *See* Qualcomm SDR865 CircuitVision Analysis, Figure 3.1, *supra*.

12. Defendant has, and continues to, indirectly infringe the '890 Patent by actively

inducing and contributing to the infringement of the '890 Patent by others, such as fabless companies that Defendant relies on for manufacturing (such as TSMC), original equipment manufacturers, customers, resellers, and retailers who, for example, incorporate products that infringe into downstream products made, sold, offered for sale, and/or imported throughout the United States, including in this judicial district. For example, Defendant hired permanent sales and/or marketing personnel located throughout the United States, and in this judicial district. On information and belief, these sales and/or marketing activities are targeted to original equipment manufacturers, including original equipment manufacturers based in the United States.

13. Defendant has had actual notice of the Asserted Patents at least as early as the filing of this Complaint.

14. The Defendant specifically intended and induced these others, such as original equipment manufacturers, customers, resellers, and retailers, to infringe the '890 Patent and knew that these others perform acts that constituted direct infringement. For example, Defendant designed the products that infringe such that they would each infringe the '890 Patent if made, used, sold, offered for sale, or imported into the United States. Defendant provided, directly or indirectly, products that infringe to others, such as, but not limited to, customers, knowing and intending that those others would use, sell, offer for sale, and/or import in and into the United States downstream products that include the products that infringe (or that are manufactured using processes that infringe), thereby directly infringing one or more claims of the '890 Patent.

15. The accused products have no substantial non-infringing uses and are a material part of the invention. Any manufacture, use, sale, offer for sale, or importation in or into the United States of a product that infringes or a downstream product incorporating a product that infringes the '890 Patent is a direct infringement. The products that infringe are semiconductor devices and

integrated circuits that provide vital functionality to downstream products. The products that infringe cannot be used without being incorporated into a downstream product. Thus, the products that infringe have no substantial non-infringing uses. Moreover, the accused products provide vital functionality to the downstream products, and either directly meet the limitations of the '890 patent claims, or, even if found not to, constitute a material part of the invention claimed in the '890 Patent.

16. With respect to exemplary devices, the Samsung Galaxy S20 series, made or sold by Best Buy, incorporating the TSMC-made Qualcomm Snapdragon 865 integrated circuit, made or sold by Qualcomm, each directly infringes at least claim 1 of the '890 Patent.

17. As a result of Defendant's infringement of the '890 Patent, Plaintiffs are entitled to monetary damages in an amount adequate to compensate for Defendant's infringement, but in no event less than a reasonable royalty for the use made of the invention by Defendant, together with interest and costs as fixed by the Court.

18. Defendant's acts of direct and indirect infringement of the '890 Patent are deliberate and willful, and have caused, and will continue to cause, substantial damage and irreparable harm to Plaintiffs, and Plaintiffs have no adequate remedy at law.

COUNT III

Infringement of the '475 Patent

19. Plaintiffs incorporate the allegations of all of the foregoing paragraphs as if fully restated herein.

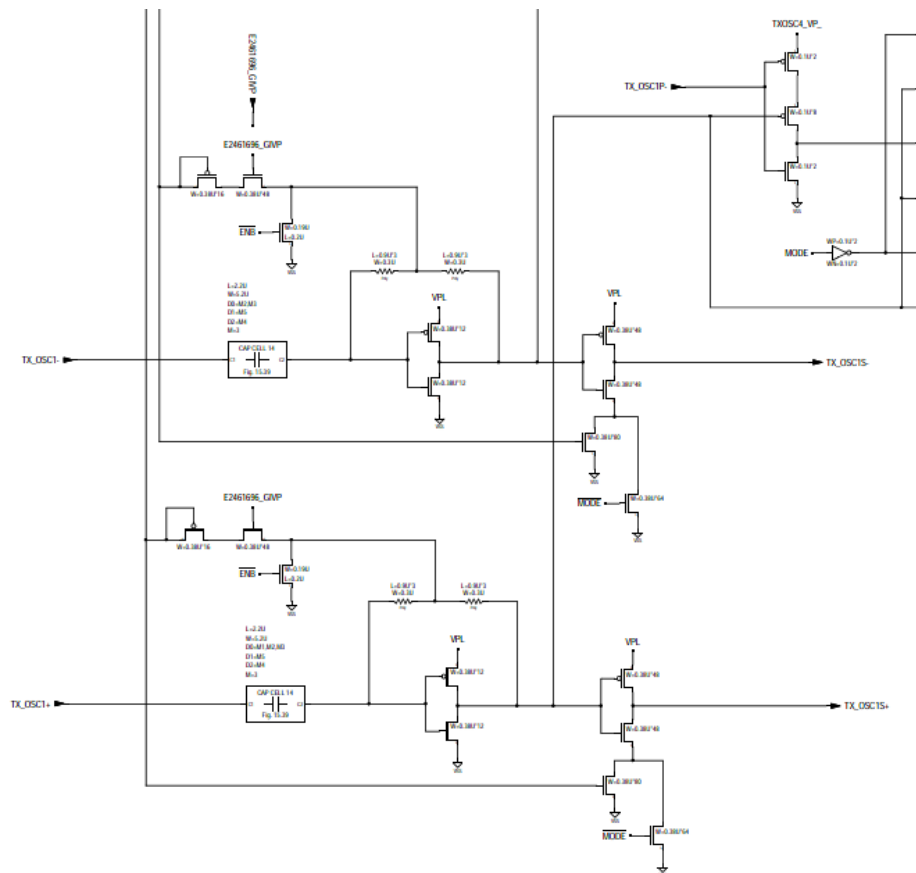
20. Defendant has directly and indirectly infringed, and continues to directly and indirectly infringe, the '475 Patent by making, having made, using, selling, offering for sale, and/or importing into the United States products that infringe (or that are manufactured using processes that infringe) the '475 Patent including, but not limited to, the Qualcomm SDR865 and

semiconductor devices including the Snapdragon 8 Series, 800 Series, X Elite Series and X Plus Series. The products that infringe one or more claims of the '475 Patent include, but are not limited to, at least the products identified herein. Further discovery may reveal additional infringing products and/or models.

21. For example, and without limitation, the infringing products infringe one or more claims of the '475 Patent, including but not limited to claim 1. The infringing products fall within the scope of and include, either literally or under the doctrine of equivalents, all of the elements of at least claim 1 of the '475 Patent.

22. The infringing products include all the limitations of at least claim 1 of the '475 Patent. Specifically, claim 1 of the '475 Patent claims, e.g., “A control circuit comprising: a first switch including a first terminal configured to receive a weighting signal, and a second terminal; a second switch comprising a first terminal, a control terminal coupled to the second terminal of the first switch, and a second terminal coupled to a reference voltage terminal; a third switch comprising a first terminal coupled to the reference voltage terminal, a control terminal, and a second terminal; an inverter comprising an input terminal coupled to a data input terminal, and an output terminal; a first capacitor comprising a first terminal coupled to the data input terminal, and a second terminal coupled to the control terminal of the second switch; and a second capacitor comprising a first terminal coupled to the output terminal of the inverter, and a second terminal coupled to the control terminal of the third switch.”

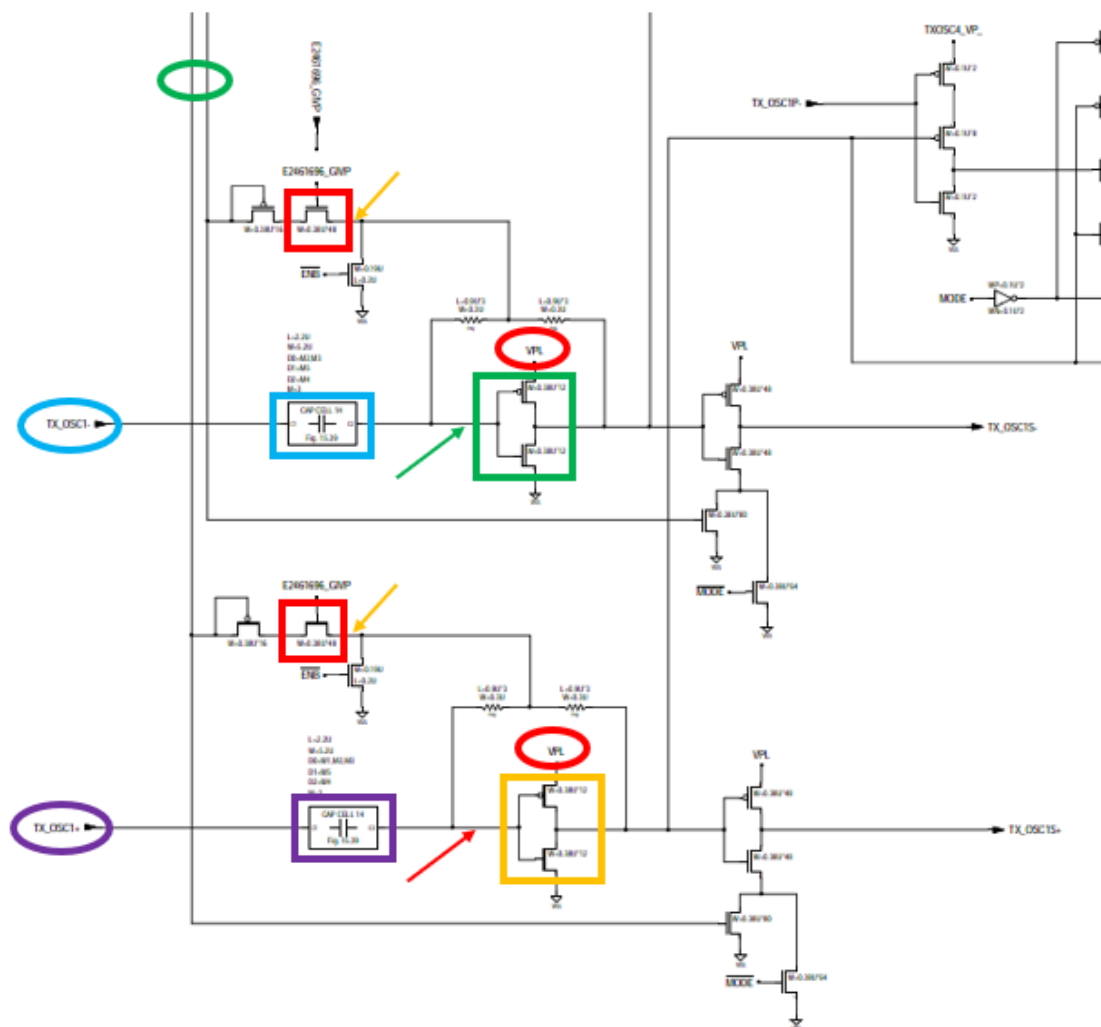
23. The Qualcomm SDR865 includes a control circuit within the clock buffer and selector circuit of the Accused Product shown below, which is an excerpt of Figure 3.6.5 of the Circuit Vision report of the Qualcomm SDR865.



Qualcomm SDR865 CircuitVision Analysis, Figure 3.6.5.

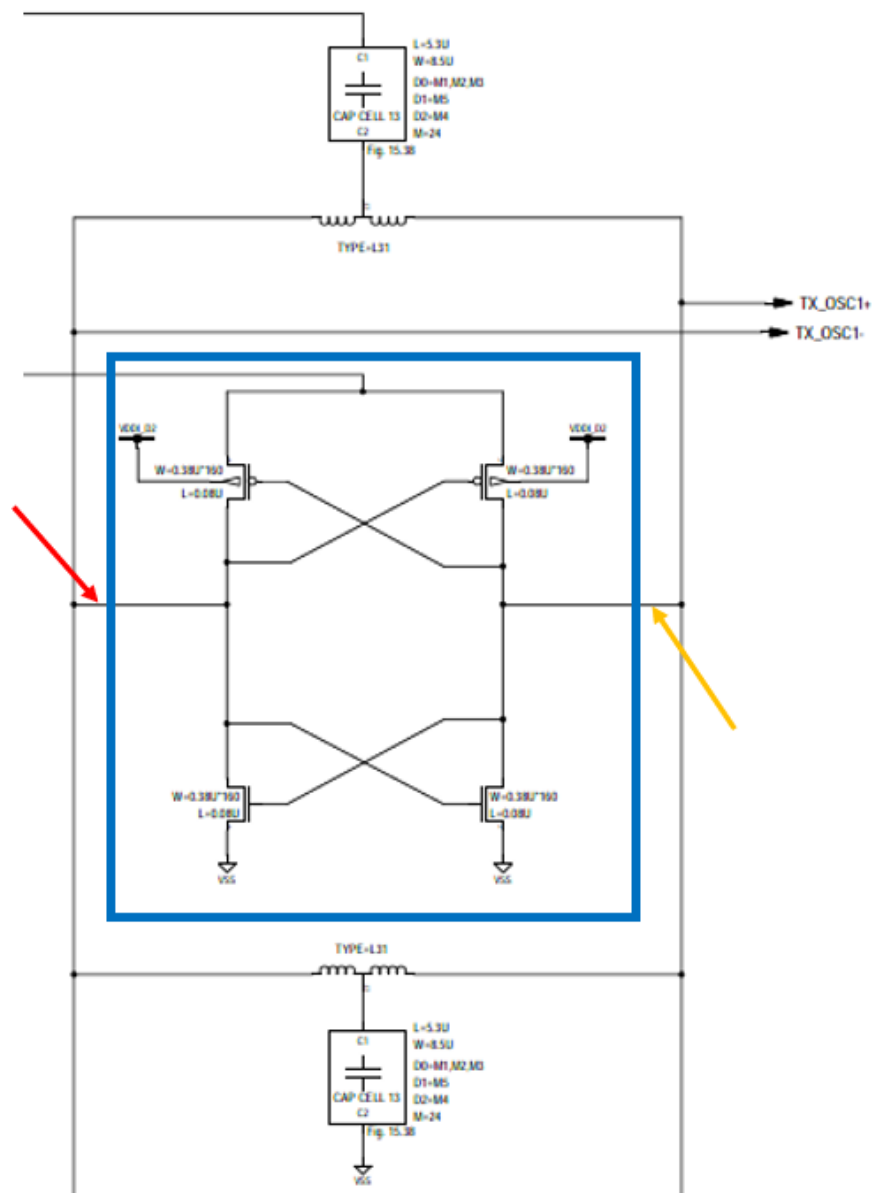
24. The Qualcomm SDR865 includes a first switch, which is shown in the red boxes, having a first terminal connected to and receiving a weighting signal, which weighting signal is shown by the green oval, and a second terminal (indicated by the orange arrows). The Qualcomm SDR865 also includes a second switch (indicated by the orange box) comprising a first terminal, a control terminal (indicated by the red arrow) coupled to the second terminal of the first switch (indicated by the lower orange arrow), and a second terminal coupled to a reference voltage terminal, i.e., VPL, (indicated by the red oval). The Qualcomm SDR865 also includes a third switch (indicated by the green box) comprising a first terminal coupled to the reference voltage terminal, i.e., VPL, (indicated by the red oval), a control terminal (indicated by the green arrow), and a second terminal; a first capacitor (indicated by the purple box) comprising a first terminal

coupled to the data input terminal (indicated by the purple oval, which is a signal named TX_OSC1+), and a second terminal coupled to the control terminal of the second switch (indicated by the red arrow); and a second capacitor (indicated by the light blue box) comprising a first terminal coupled to the output terminal of the inverter (indicated by the light blue oval, which is a signal named TX_OSC1-), and a second terminal coupled to the control terminal of the third switch (indicated by the green arrow).” *See infra* (Qualcomm SDR865 CircuitVision Analysis, Figure 3.6.5).



Qualcomm SDR865 CircuitVision Analysis, Figure 3.6.5.

25. The Qualcomm SDR865 also includes “an inverter comprising an input terminal coupled to a data input terminal, and an output terminal.” The signals TX_OSC1+ and TX_OSC1- originate within Figure 3.5.1 of the TechInsights Circuit Vision report for the Qualcomm SDR 865. Figure 3.5.1 shows an LC circuit for tuning the oscillating signal. The circuit includes an inverter (shown in the blue box) with an input terminal (indicated by the red arrow) connected to the signal TX_OSC1+ and an output terminal (indicated by the orange arrow) connected to the signal TX_OSC1-. *See infra.* (Qualcomm SDR865 CircuitVision Analysis, Figure 3.5.1).



Qualcomm SDR865 CircuitVision Analysis, Figure 3.5.1.

26. Defendant has, and continues to, indirectly infringe the '475 Patent by actively inducing and contributing to the infringement of the '475 Patent by others, such as companies that Defendant relies on for manufacturing (such as TSMC), original equipment manufacturers, customers, resellers, and retailers who, for example, incorporate products that infringe into downstream products made, sold, offered for sale, and/or imported throughout the United States, including in this judicial district. For example, Defendant hired permanent sales and/or marketing personnel located throughout the United States, and in this judicial district. On information and belief, these sales and/or marketing activities are targeted to original equipment manufacturers, including original equipment manufacturers based in the United States.

27. Defendant has had actual notice of the Asserted Patents at least as early as the filing of this Complaint.

28. The Defendant specifically intended and induced these others, such as original equipment manufacturers, customers, resellers, and retailers, to infringe the '475 Patent and knew that these others perform acts that constituted direct infringement. For example, Defendant designed the products that infringe such that they would each infringe the '475 Patent if made, used, sold, offered for sale, or imported into the United States. Defendant provided, directly or indirectly, products that infringe to others, such as, but not limited to, customers, knowing and intending that those others would use, sell, offer for sale, and/or import in and into the United States downstream products that include the products that infringe (or that are manufactured using processes that infringe), thereby directly infringing one or more claims of the '475 Patent.

29. The accused products have no substantial non-infringing uses and are a material part of the invention. Any manufacture, use, sale, offer for sale, or importation in or into the United

States of a product that infringes or a downstream product incorporating a product that infringes the '475 Patent is a direct infringement. The products that infringe are semiconductor devices and integrated circuits that provide vital functionality to downstream products. The products that infringe cannot be used without being incorporated into a downstream product. Thus, the products that infringe have no substantial non-infringing uses. Moreover, the accused products provide vital functionality to the downstream products, and either literally and directly meet the limitations of the '475 patent claims, or, even if found not to, constitute a material part of the invention claimed in the '475 Patent.

30. With respect to exemplary devices, the Samsung Galaxy S20 series, made or sold by Best Buy, incorporating the TSMC-made Qualcomm Snapdragon 865 integrated circuit, made or sold by Qualcomm, each directly infringes at least claim 1 of the '475 Patent.

31. As a result of Defendant's infringement of the '475 Patent, Plaintiffs are entitled to monetary damages in an amount adequate to compensate for Defendant's infringement, but in no event less than a reasonable royalty for the use made of the invention by Defendant, together with interest and costs as fixed by the Court.

32. Defendant's acts of direct and indirect infringement of the '475 Patent are deliberate and willful, and have caused, and will continue to cause, substantial damage and irreparable harm to Plaintiffs, and Plaintiffs have no adequate remedy at law.

COUNT IV

Infringement of the '442 Patent

1. Plaintiffs incorporate the allegations of all of the foregoing paragraphs as if fully restated herein.

2. Defendant has directly and indirectly infringed, and continues to directly and indirectly infringe, the '442 Patent by making, having made, using, selling, offering for sale, and/or

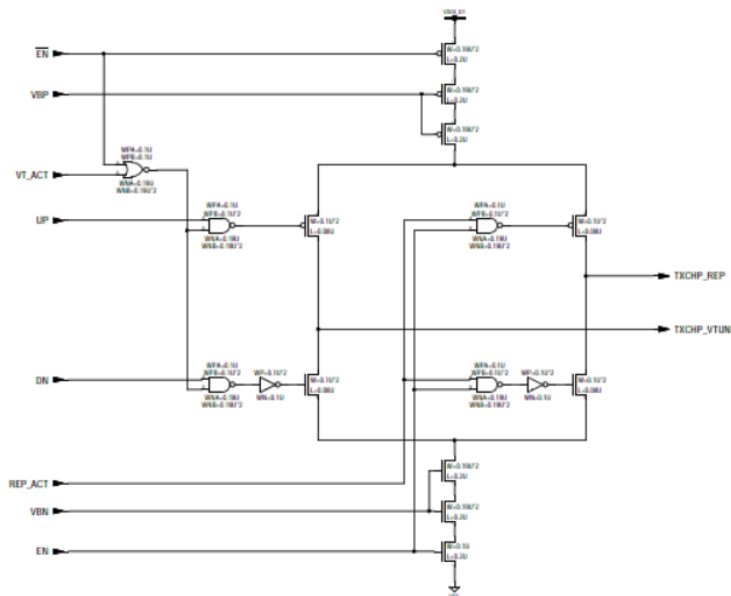
importing into the United States products that infringe (or that are manufactured using processes that infringe) the '442 Patent including, but not limited to, the Qualcomm SDR865 and semiconductor devices including the Snapdragon 8 Series, 800 Series, X Elite Series and X Plus Series. The products that infringe one or more claims of the '442 Patent include, but are not limited to, at least the products identified herein. Further discovery may reveal additional infringing products and/or models.

3. For example, and without limitation, the infringing products infringe one or more claims of the '442 Patent, including but not limited to claim 1. The infringing products fall within the scope of and include, either literally or under the doctrine of equivalents, all of the elements of at least claim 1 of the '442 Patent.

4. The infringing products include all the limitations of at least claim 1 of the '442 Patent. Specifically, the '442 Patent claims the following: A charge pump, comprising: a first current generator electrically connected to a first voltage terminal, and providing a first current; a first semiconductor device electrically connected to the first current generator and a current output node, and optionally conducting flow of the first current to the current output node; a second current generator electrically connected to a second voltage terminal and providing a second current; a second semiconductor device electrically connected to the second current generator and the current output node, and optionally conducting flow of the second current to the current output node; and a voltage regulator electrically connected to the first and second semiconductor devices and the current output node for dynamically adjusting a voltage level at the gate of the first or second semiconductor devices so as to adjust the first current or the second current outputted to the current output node.”

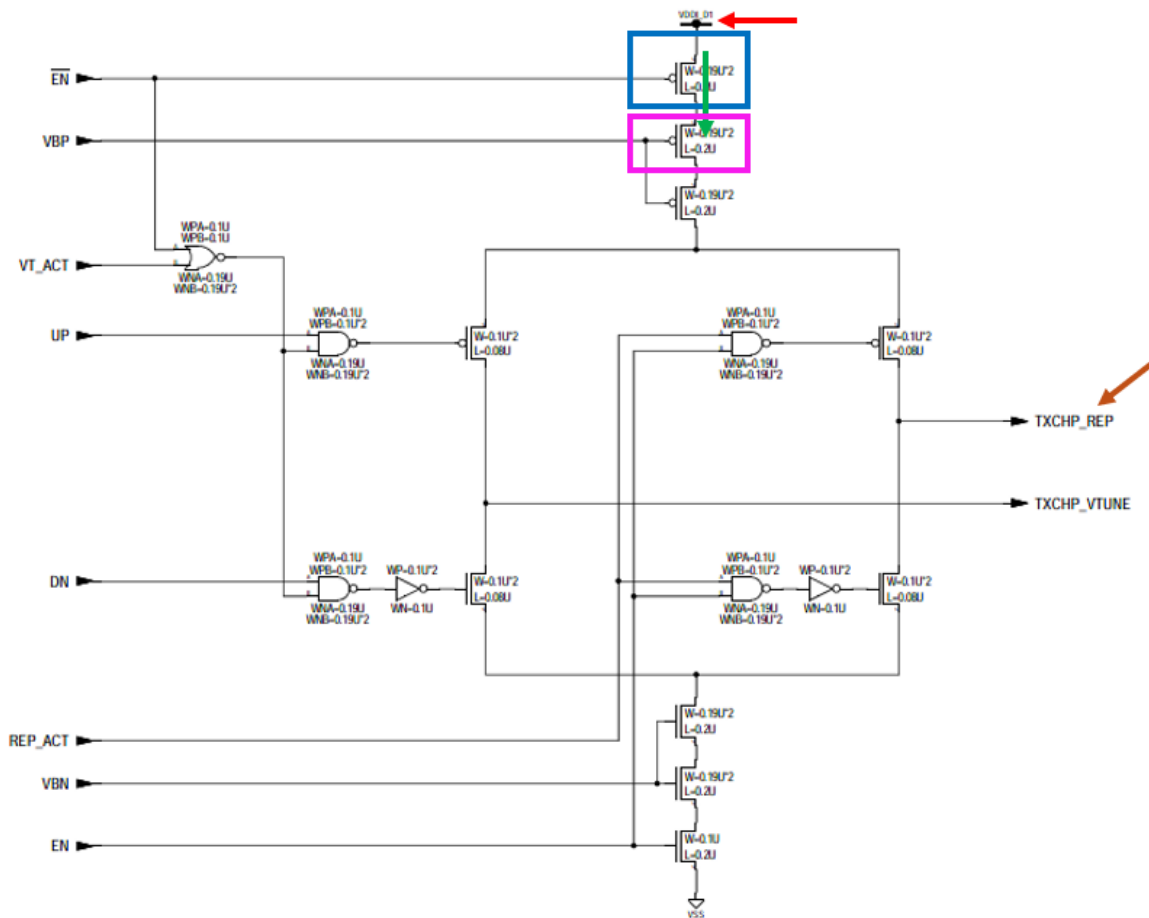
5. The Qualcomm SDR865 includes a charge pump within the transmit path of the

device.



Qualcomm SDR865 CircuitVision Analysis, Figure 3.2.1.

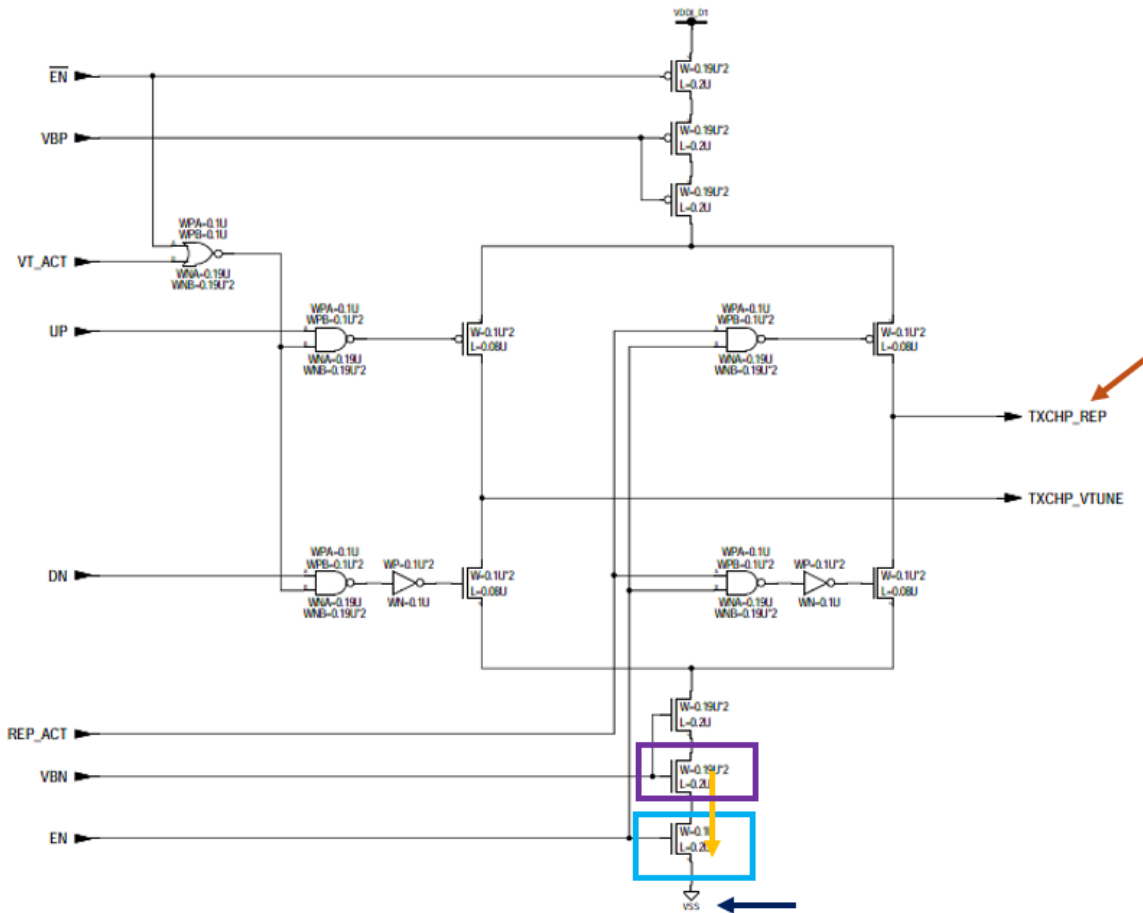
6. The Qualcomm SDR865 includes “a first current generator electrically connected to a first voltage terminal, and providing a first current” and “a first semiconductor device electrically connected to the first current generator and a current output node, and optionally conducting flow of the first current to the current output node.” Specifically, the transistor within the blue box forms a first current generator as claimed. *See infra* at Figure 3.2.1. It is connected to a first voltage terminal, labelled VDDI_D1 (identified by the red arrow), and provides a first current represented by the green arrow. *See id.* The transistor within the pink box is a first semiconductor device as claimed. *See id.* It is connected to the first current generator as shown and a current output node TXCHP_REP (identified by the brown arrow). *See id.* The transistor within the pink box will optionally conduct flow of the first current to the current output node if the control signal (VBP) provided to the gate of the transistor identified within the pink box is enabled. *See id.*



Qualcomm SDR865 CircuitVision Analysis, Figure 3.2.1.

7. The Qualcomm SDR865 also includes “a second current generator electrically connected to a second voltage terminal and providing a second current” and “a second semiconductor device electrically connected to the second current generator and the current output node, and optionally conducting flow of the second current to the current output node.” Specifically, the transistor within the light blue box forms a first current generator as claimed. *See infra* at Figure 3.2.1. It is connected to a second voltage terminal, labelled VSS (identified by the dark blue arrow), and provides a second current represented by the yellow arrow. *See id.* The transistor within the purple box is a second semiconductor device as claimed. *See id.* It is connected to the second current generator as shown and the current output node TXCHP_REP

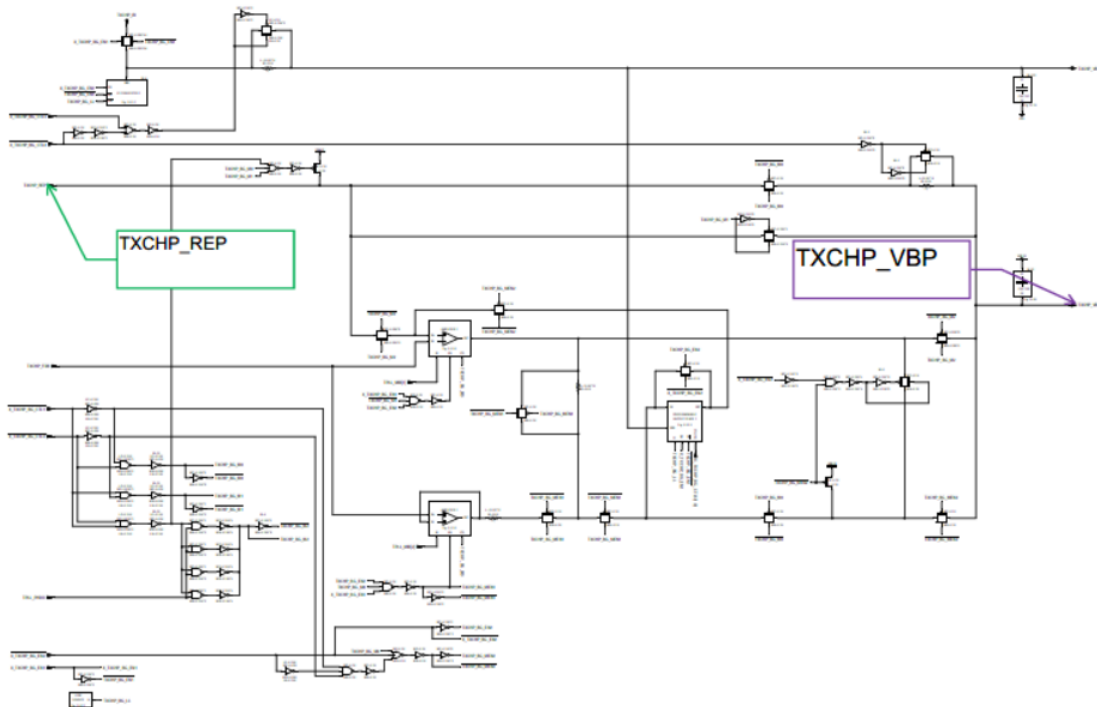
(identified by the brown arrow). *See id.* The transistor within the purple box will optionally conduct flow of the second current to the current output node if the control signal provided to the gate of the transistor (VBN) identified within the purple box is enabled. *See id.*



Qualcomm SDR865 CircuitVision Analysis, Figure 3.2.1.

8. The Qualcomm SDR865 also includes “a voltage regulator electrically connected to the first and second semiconductor devices and the current output node for dynamically adjusting a voltage level at the gate of the first or second semiconductor devices so as to adjust the first current or the second current outputted to the current output node.” Specifically, the charge pump bias generator (Fig. 3.2.3) forms a voltage regulator as claimed. *See infra* at Figure 3.2.3. The charge pump bias generator is connected to the current output node via the signal labelled

TXCHP_REP identified by the green callout box below. The signal TXCHP_REP, along with the circuit provided below, provides an output TXCHP_VBP, which is connected to VBP (identified above) to adjust the first current provided to the current output node as shown above. *See infra* at Figure 3.2.3 and *supra* at Figure 3.2.1.



Qualcomm SDR865 CircuitVision Analysis, Figure 3.2.3.

9. Defendant has, and continues to, indirectly infringe the '442 Patent by actively inducing and contributing to the infringement of the '442 Patent by others, such as companies that Defendant relies on for manufacturing (such as TSMC), original equipment manufacturers, customers, resellers, and retailers who, for example, incorporate products that infringe into downstream products made, sold, offered for sale, and/or imported throughout the United States, including in this judicial district. For example, Defendant hired permanent sales and/or marketing personnel located throughout the United States, and in this judicial district. On information and belief, these sales and/or marketing activities are targeted to original equipment manufacturers,

including original equipment manufacturers based in the United States.

10. Defendant has had actual notice of the Asserted Patents at least as early as the filing of this Complaint.

11. The Defendant specifically intended and induced these others, such as original equipment manufacturers, customers, resellers, and retailers, to infringe the '442 Patent and knew that these others perform acts that constituted direct infringement. For example, Defendant designed the products that infringe such that they would each infringe the '442 Patent if made, used, sold, offered for sale, or imported into the United States. Defendant provided, directly or indirectly, products that infringe to others, such as, but not limited to, customers, knowing and intending that those others would use, sell, offer for sale, and/or import in and into the United States downstream products that include the products that infringe (or that are manufactured using processes that infringe), thereby directly infringing one or more claims of the '442 Patent.

12. The accused products have no substantial non-infringing uses and are a material part of the invention. Any manufacture, use, sale, offer for sale, or importation in or into the United States of a product that infringes or a downstream product incorporating a product that infringes the '442 Patent is a direct infringement. The products that infringe are semiconductor devices and integrated circuits that provide vital functionality to downstream products. The products that infringe cannot be used without being incorporated into a downstream product. Thus, the products that infringe have no substantial non-infringing uses. Moreover, the accused products provide vital functionality to the downstream products, and either literally and directly meet the limitations of the '442 patent claims, or, even if found not to, constitute a material part of the invention claimed in the '442 Patent.

13. With respect to exemplary devices, the Samsung Galaxy S20 series, made or sold

by Best Buy, incorporating the TSMC-made Qualcomm Snapdragon 865 integrated circuit, made or sold by Qualcomm, each directly infringes at least claim 1 of the '442 Patent.

14. As a result of Defendant's infringement of the '442 Patent, Plaintiffs are entitled to monetary damages in an amount adequate to compensate for Defendant's infringement, but in no event less than a reasonable royalty for the use made of the invention by Defendant, together with interest and costs as fixed by the Court.

15. Defendant's acts of direct and indirect infringement of the '442 Patent are deliberate and willful, and have caused, and will continue to cause, substantial damage and irreparable harm to Plaintiffs, and Plaintiffs have no adequate remedy at law.

PRAYER FOR RELIEF

WHEREFORE, Plaintiffs request the Court grant the relief set forth below:

- a. Enter a judgment that the Defendant has directly or indirectly infringed, and continue to directly or indirectly infringe one or more claims of each of the Asserted Patents;
- b. Enter a judgment that Defendant's acts of patent infringement are willful;
- c. Order Defendant to account for and pay damages caused to Plaintiffs by Defendant's unlawful acts of patent infringement;
- d. Award Plaintiffs increased damages and attorney fees pursuant to 35 U.S.C. §§ 284 and 285;
- e. Award Plaintiffs the interest and costs incurred in action; and
- f. Grant Plaintiffs other and further relief, including equitable relief, as the Court finds just and proper.

DEMAND FOR JURY TRIAL

Pursuant to Fed. R. Civ. P. 38, Plaintiffs hereby demand a jury trial for all claims and issues deemed to be triable by a jury.

Dated: October 08, 2025

Respectfully submitted,

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Michael T. Renaud (629783)
Adam Rizk (688305)
Michael McNamara
Matthew Karambelas (691034)
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