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DOCKET NUMBER
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Office of the Secretary
Int'l Trade Commission

WRITER'S DIRECT DIAL NO.
(202) 538-8104

WRITER'S INTERNET ADDRESS
alexlasher@quinnemanuel.com

July 7, 2017

VIA HAND DELIVERY

The Honorable Lisa R. Barton, Secretary
U.S. International Trade Commission
500 E Street, SW – Room 112
Washington, DC 20436

Re: ***Certain Mobile Electronic Devices And Radio Frequency And Processing Components Thereof***

Dear Secretary Barton:

Enclosed for filing, please find documents in support of a request by Qualcomm Incorporated ("Complainant") that the U.S. International Trade Commission institute an investigation pursuant to Section 337 of the Tariff Act of 1930, as amended, concerning certain mobile electronic devices and radio frequency and processing components thereof. Complainant's submission includes the following documents:

1. One (1) original and eight (8) paper copies of Complainant's Verified Complaint, pursuant to Commission Rule 210.8(a)(1)(i).

2. One (1) electronic copy of the public exhibits to the Verified Complaint pursuant to Commission Rules 210.8(a)(1)(i) and 210.12(a)(9), including:

    a. one (1) electronic certified copy of each of United States Patent Nos. 8,633,936 ("the '936 patent"), 8,698,558 ("the '558 patent"), 8,487,658 ("the '658 patent"), 8,838,949 ("the '949 patent"), 9,535,490 ("the '490 patent"), 9,608,675 ("the '675 patent"), copies of which are respectively included as Exhibits 1, 3, 5, 7, 9, and 11 to the Verified Complaint pursuant to Commission Rule 210.12(a)(9)(i); and

b. one (1) electronic copy of the certified assignment records for each of the '936 patent, '558 patent, '658 patent, '949 patent, '490 patent, and '675 patent, copies of which are respectively included as Exhibits 2, 4, 6, 8, 10, and 12 to the Verified Complaint, pursuant to Commission Rule 210.12(a)(9)(ii).

3. One (1) electronic copy of the confidential exhibits to the Verified Complaint, pursuant to Commission Rules 201.6(c) and 210.8(a)(1)(ii).

4. One (1) additional copy of the Verified Complaint and accompanying electronic copies of the public exhibits, for service upon the Proposed Respondent, pursuant to Commission Rules 201.6(c) and 210.8(a)(1)(iii); and one (1) additional copy of electronic copies of the confidential exhibits to the Verified Complaint for service upon the Proposed Respondent's counsel after it has subscribed to the protective order.

5. Four (4) electronic copies each of the certified prosecution history of the '936 patent, '558 patent, '658 patent, '949 patent, '490 patent, and '675 patent, which are respectively identified as Appendices A, C, E, G, I, and K to the Verified Complaint, pursuant to Commission Rule 210.12(c)(1).

6. Four (4) electronic copies each of each patent and applicable pages of each technical reference mentioned in the prosecution history of the '936 patent, '558 patent, '658 patent, '949 patent, '490 patent, and '675 patent, which are respectively identified as Appendices B, D, F, H, J, and L to the Verified Complaint, pursuant to Commission Rule 210.12(c)(2).

7. One physical sample of a representative imported article that is the subject of the complaint (Physical Exhibit P1 to the Verified Complaint).

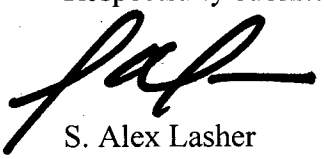
8. A letter and certification requesting confidential treatment for the information contained in confidential exhibits 14C and 16C-27C to the Verified Complaint, pursuant to Commission Rules 201.6(b) and 210.5(d).

9. A Statement on the Public Interest regarding the remedial orders sought by Complainants in the Verified Complaint, pursuant to Commission Rule 210.8(b).

Please contact me with any questions regarding this filing.

Dated: July 7, 2017

Respectfully submitted,



S. Alex Lasher
Counsel for Complainant Qualcomm Incorporated

Enclosures

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REQUEST FOR CONFIDENTIAL TREATMENT

July 7, 2017

VIA HAND DELIVERY

The Honorable Lisa R. Barton, Secretary
U.S. International Trade Commission
500 E Street, SW – Room 112
Washington, DC 20436

Re: ***Certain Mobile Electronic Devices And Radio Frequency And Processing Components Thereof***

Dear Secretary Barton:

Pursuant to Commission Rule 201.6, Complainant Qualcomm Incorporated respectfully requests confidential treatment of certain confidential business information contained in confidential exhibits 14C and 16C-27C to the Verified Complaint.

The information in the exhibits for which Complainant seeks confidential treatment consists of proprietary commercial information, including confidential and proprietary licensing information, technical information related to domestic articles protected by Complainant's asserted patents, technical information related to accused products articles obtained from nonpublic teardowns, and financial data regarding Complainant's domestic investments in plant and equipment and labor and capital related to domestic articles protected by Complainant's asserted patents.

The proprietary information described herein qualifies as confidential business information under Commission Rule 201.6 because substantially-identical information is not available to the public, because the disclosure of this information would cause substantial competitive harm to Complainant, and because the disclosure of this information would likely impede the Commission's efforts and ability to obtain similar information in the future.

Thank you for your attention. Please contact me with any questions regarding this request for confidential treatment.

Dated: July 7, 2017

Respectfully submitted,

S. Alex Lasher
Counsel for Complainant Qualcomm Incorporated

Enclosure (Certification)

UNITED STATES INTERNATIONAL TRADE COMMISSION
WASHINGTON, D.C.

In the Matter of **CERTAIN MOBILE ELECTRONIC DEVICES AND RADIO FREQUENCY AND PROCESSING COMPONENTS THEREOF**	**Inv. No. 337-TA-____**

CERTIFICATION

I, S. Alex Lasher, counsel for Complainant Qualcomm Incorporated, declare as follows:

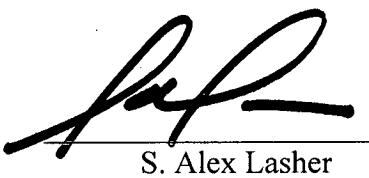
1. I am duly authorized by Complainant to execute this certification.

2. I have reviewed confidential exhibits 14C and 16C-27C to Complainant's Verified Complaint, for which Complainant seeks confidential treatment.

3. To the best of my knowledge, information, and belief, founded after a reasonable inquiry, substantially-identical information to that contained in the exhibits is not available to the public.

I declare under penalty of perjury that the foregoing is true and correct.

Executed this 7th day of July, 2017 in Washington, DC.



S. Alex Lasher

UNITED STATES INTERNATIONAL TRADE COMMISSION
WASHINGTON, D.C.

In the Matter of **CERTAIN MOBILE ELECTRONIC DEVICES AND RADIO FREQUENCY AND PROCESSING COMPONENTS THEREOF**	**Investigation No. 337-TA- _____**

COMPLAINANT'S INITIAL STATEMENT ON THE PUBLIC INTEREST

Pursuant to Commission Rule 210.8(b), Complainant Qualcomm Incorporated ("Qualcomm") respectfully submits this Statement on the Public Interest regarding the remedial orders that Qualcomm seeks against Proposed Respondent Apple Inc. ("Apple"). Qualcomm seeks a permanent limited exclusion order excluding from entry into the United States certain mobile electronic devices that do not incorporate a Qualcomm brand baseband processor modem and that infringe or are manufactured by processes that infringe one or more of claims 1, 10-27, 29, 38, 49, 55-60, and 67-68 of U.S. Patent No. 8,633,936 ("the '936 patent"), and/or claims 1, 6-11, and 15-20 of U.S. Patent No. 8,698,558 ("the '558 patent"), and/or claims 9, 10, 12, 14, and 20-22 of U.S. Patent No. 8,487,658 ("the '658 patent"), and/or claims 1–8, 10-14, 16, 20, and 22 of U.S. Patent No. 8,838,949 ("the '949 patent"), and/or claims 1–6, 8, 10, 16–17, and 31 of U.S. Patent No. 9,535,490 ("the '490 patent"), and/or claims 1-3 and 7-14 of U.S. Patent No. 9,608,675 ("the '675 patent"),[1] either literally or under the doctrine of equivalents. Qualcomm also seeks permanent cease and desist orders prohibiting Apple, its subsidiaries, related companies, and agents from conducting any of the following activities in the United States: importing, admitting or withdrawing from a foreign trade zone, marketing, advertising, demonstrating, testing, warehousing inventory of, distributing, offering for sale, selling, licensing, programming, packaging, repackaging, bundling, updating, soliciting U.S. agents or distributors for, or aiding and abetting other entities in the importation, sale for importation, sale after importation, transfer, or distribution of its infringing mobile electronic devices, or of mobile devices manufactured using processes that infringe. The accused mobile electronic devices are the types of products commonly before the Commission and have been the subject of past remedial orders.

[1] None of the asserted patents are Standards Essential Patents ("SEPs") and none were declared essential to a standards development body nor are any essential to a promulgated standard.

The Commission has made clear that protecting domestic intellectual property rights against infringing imports is of paramount importance, and will only be denied in exceptional circumstances where the harm to the public interest is severe. There is no such harm here. Indeed, Qualcomm's requested remedial orders serve—rather than harm—the public interest. Qualcomm is a global semiconductor and telecommunications company, founded and based in the United States, that has invested billions of dollars in the United States researching and developing innovations which have enabled wireless telecommunications and countless mobile technologies. Qualcomm relies on its intellectual property to support and protect this valuable work. Furthermore, Qualcomm does not seek exclusion of Apple mobile electronic devices that employ a Qualcomm brand baseband processor modem. Apple currently imports and sells mobile electronic devices that use a Qualcomm brand baseband processor modem, which are sufficient (technically and commercially) to fill any void resulting from the exclusion of Apple mobile electronic devices including non-Qualcomm brand baseband processor modems. This investigation does not concern Apple mobile electronic devices employing Qualcomm brand baseband processor modems, which can easily meet the public demand for such devices. Infringement by use of non-Qualcomm brand baseband processor modems is purely a matter of choice on the part of Apple.

Qualcomm's requested remedial orders raise no public interest concerns because: (l) the accused products do not serve any essential public health or welfare objective; (2) any demand for the products that would be subject to the requested remedial orders could be filled by Apple mobile electronic devices that include Qualcomm brand baseband processor modems; and (3) U.S. consumers would not face any potential shortage of like or directly competitive products. Accordingly, this investigation does not present any unique public interest concerns that would require the Commission to deviate from its practice of issuing remedial orders covering infringing mobile electronic devices. *See, e.g., See, e.g., Certain Electronic Digital Media Devices and*

Components Thereof, Inv. No. 337-TA-796, Comm'n Op. (Sept. 6, 2013); *Certain Electronic Devices, Including Wireless Communication Devices, Portable Music and Data Processing Devices, and Tablet Computers*, Inv. No. 337-TA-794, Comm'n Op. (July 5, 2013); *Certain Personal Data and Mobile Communications Devices and Related Software*, Inv. No. 337-TA-710, Comm'n Op. (Dec. 29, 2011).

I. USE OF THE ACCUSED PRODUCTS IN THE UNITED STATES

The accused products are Apple's imported mobile electronic devices that do not incorporate a Qualcomm brand baseband processor modem, including mobile phones and tablet computers that infringe one or more claims of the Asserted Patents. These products are manufactured abroad and sold to consumers throughout the United States.

II. THE ACCUSED PRODUCTS DO NOT PRESENT ANY PUBLIC HEALTH, SAFETY, OR WELFARE CONCERNS RELATING TO THE REQUESTED REMEDIAL ORDERS

There are no public health, safety, or welfare considerations that weigh against remedial relief. The accused products are common consumer goods, which the Commission has consistently found do not present public health, safety or welfare concerns. *See, e.g., Electronic Digital Media Devices*, Comm'n Op. at 114-115; *Electronic Devices*, Comm'n Op. at 109; *Personal Data and Mobile Communications Devices*, Comm'n Op. at 76. And Apple has echoed this sentiment in previous investigations. *See Electronic Digital Media Devices*, Apple's Submission on Remedy, Bond, and Public Interest at 19 (June 11, 2013) (mobile electronic devices "do not have any specialized public health, safety, or welfare applications, nor are they the type of products that affect public health and welfare"); *Personal Data and Mobile Communications Devices*, Apple's Public Interest Statement at 2 (Aug. 25, 2011) (mobile electronic devices "do not implicate any particular public health, safety, or welfare concerns").

III. NUMEROUS LIKE OR DIRECTLY COMPETITIVE ARTICLES ARE AVAILABLE TO SATISFY DEMAND FOR THE EXCLUDED PRODUCTS

The U.S. mobile electronics market is highly competitive with a diverse field of participants offering products that directly compete with Apple's accused products. Third parties comprise more than 50 percent of the U.S. smartphone market and could easily ramp up production to replace any excluded Apple products. Furthermore, Apple itself sells mobile electronic devices that use a Qualcomm brand baseband processor modem, which could replace any accused products subject to an exclusion order.

Further, remedial orders would not have any negative impact on competitive production in the United States because the accused products and their replacements are manufactured overseas. The Commission has explained that the consideration of the production of like or directly competitive articles does not weigh against issuance of a remedy when substitute products are available and the accused products are manufactured overseas. *See Certain Digital Televisions & Certain Prods. Containing Same & Methods of Using Same*, Inv. No. 337-TA-617, Comm'n Op. at 15 (Apr. 23, 2009).

IV. REMEDIAL ORDERS WOULD NOT NEGATIVELY IMPACT U.S. CONSUMERS

As previously discussed, if the Apple accused products are excluded, U.S. consumers will continue to have numerous available options for mobile electronic devices, including products sold by Apple that include Qualcomm brand baseband processor modems. Thus, there will be no reduction in consumer choice.

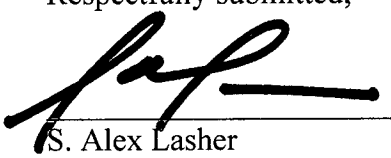
V. CONCLUSION

This investigation does not present any special public interest issues. Issuance of the requested remedial relief against Apple's accused products will support the strong public interest in protecting intellectual property rights held by highly innovative companies like Qualcomm. That

interest is not outweighed by any hypothetical adverse impact to the U.S. public, especially because of the significant number of manufacturers that can readily satisfy any new demand created by issuance of the requested remedial orders. Accordingly, the Commission should institute this investigation without delegating public interest fact-finding to the Administrative Law Judge.

Dated: July 7, 2017

Respectfully submitted,



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UNITED STATES INTERNATIONAL TRADE COMMISSION
WASHINGTON, D.C.

In the Matter of

CERTAIN MOBILE ELECTRONIC DEVICES AND RADIO FREQUENCY AND PROCESSING COMPONENTS THEREOF

Investigation No. 337-TA-_____

COMPLAINT UNDER SECTION 337 OF THE TARIFF ACT OF 1930, AS AMENDED

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EXHIBIT LIST

Exhibits	Description
1	Certified Copy of U.S. Patent No. 8,633,936
2	Certified Assignment Records for U.S. Patent No. 8,633,936
3	Certified Copy of U.S. Patent No. 8,698,558
4	Certified Assignment Records for U.S. Patent No. 8,698,558
5	Certified Copy of U.S. Patent No. 8,487,658
6	Certified Assignment Records for U.S. Patent No. 8,487,658
7	Certified Copy of U.S. Patent No. 8,838,949
8	Certified Assignment Records for U.S. Patent No. 8,838,949
9	Certified Copy of U.S. Patent No. 9,535,490
10	Certified Assignment Records for U.S. Patent No. 9,535,490
11	Certified Copy of U.S. Patent No. 9,608,675
12	Certified Assignment Records for U.S. Patent No. 9,608,675
13	List of Foreign Counterparts
14C	Confidential List of Licensees to One or More of the Asserted Patents
15	Representative Infringement Claim Charts for the '936 Patent
16C	Confidential Representative Infringement Claim Charts for the '558 Patent
17C	Confidential Representative Infringement Claim Charts for the '658 Patent
18C	Confidential Representative Infringement Claim Charts for the '949 Patent
19C	Confidential Representative Infringement Claim Charts for the '490 Patent
20C	Confidential Representative Infringement Claim Charts for the '675 Patent
21C	Confidential Declaration of Tim Durkin Regarding Economic Domestic Industry
22C	Confidential Representative Domestic Industry Claim Charts for the '936 Patent
23C	Confidential Representative Domestic Industry Claim Charts for the '558 Patent
24C	Confidential Representative Domestic Industry Claim Charts for the '658 Patent
25C	Confidential Representative Domestic Industry Claim Charts for the '949 Patent
26C	Confidential Representative Domestic Industry Claim Charts for the '490 Patent
27C	Confidential Representative Domestic Industry Claim Charts for the '675 Patent
28	October 2016 Earnings Call
29	September 2014 Launch Event
30	Importation Declaration
31	Apple 2016 10K
32	Certificate of Correction for the '558 Patent

PHYSICAL EXHIBIT LIST

Exhibits	Description
P1	Apple iPhone 7

APPENDIX LIST

Appendices	Description
A	Certified Prosecution History of U.S. Patent No. 8,633,936
B	Patents and Applicable Pages of Technical References Mentioned in the Prosecution History of U.S. Patent No. 8,633,936
C	Certified Prosecution History of U.S. Patent No. 8,698,558
D	Patents and Applicable Pages of Technical References Mentioned in the Prosecution History of U.S. Patent No. 8,698,558
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K	Certified Prosecution History of U.S. Patent No. 9,608,675
L	Patents and Applicable Pages of Technical References Mentioned in the Prosecution History of U.S. Patent No. 9,608,675

I. INTRODUCTION

1. Complainant Qualcomm Incorporated ("Qualcomm" or "Complainant") respectfully files this complaint under Section 337 of the Tariff Act of 1930, as amended, 19 U.S.C. § 1337, based on Proposed Respondent Apple Inc.'s ("Apple" or "Respondent") unlawful importation into the United States, sale for importation into the United States, and/or sale within the United States after importation of certain mobile electronic devices, including mobile phones and tablet computers.

2. This complaint is directed to Apple's imported mobile electronic devices that do not incorporate a Qualcomm brand baseband processor modem,[1] including mobile phones and tablet computers, that infringe, or are manufactured by processes that infringe, one or more of claims 1, 10-27, 29, 38, 49, 55-60, and 67-68 of U.S. Patent No. 8,633,936 ("the '936 patent"), and/or claims 1 and 6-20 of U.S. Patent No. 8,698,558 ("the '558 patent"), and/or claims 9, 10, 12, 14, and 20-22 of U.S. Patent No. 8,487,658 ("the '658 patent"), and/or claims 1–8, 10-14, 16, 20, and 22 of U.S. Patent No. 8,838,949 ("the '949 patent"), and/or claims 1–6, 8, 10, 16–17, and 31 of U.S. Patent No. 9,535,490 ("the '490 patent"), and/or claims 1-3 and 7-14 of U.S. Patent No. 9,608,675 ("the '675 patent") (collectively, the "Asserted Patents"), either literally or under the doctrine of equivalents. Such products include at least the Apple iPhone 7 that does not incorporate a Qualcomm brand baseband processor modem ("Accused Devices").[2] The following table provides a summary of the asserted claims of the Asserted Patents (independent claims in bold):

---

[1] Qualcomm brand baseband processor modems are designed, sold, and distributed by Qualcomm and its affiliates.

[2] The identification of a specific model or type of mobile electronic device is not intended to limit the scope of the investigation. Discovery may reveal that additional Apple products infringe the asserted patent claims and/or that additional claims are infringed.

Patent No.	Asserted Claims
8,633,936	**1**, **10**, 11-18, **19**, 20-27, **29**, **38**, **49**, **55**, 56-60, **67**, 68
8,698,558	**1**, **6**, 7, **8**, 9, **10**, 11, **12**, 13, 14, **15**, 16-20
8,487,658	**9**, 10, 12, 14, **20**, **21**, **22**
8,838,949	**1**, 2-8, **10**, 11-14, **16**, **20**, **22**
9,535,490	**1**, 2-6, 8, 10, **16**, 17, **31**
9,608,675	**1**, 2-3, 7-14

3. Qualcomm, based in San Diego, California, is a global semiconductor and telecommunications company that designs and markets wireless telecommunications products and services. It is the largest domestic provider of telecommunications chipsets and software. Since its founding in 1985, Qualcomm has invested billions of dollars in the United States researching and developing innovations that have enabled wireless telecommunications and countless mobile technologies. These market-changing innovations have allowed Qualcomm to grow into one of the largest technology companies in the United States, where it now employs over 18,000 people, more than two-thirds of whom are engineers.

4. Qualcomm helped pioneer advances at the heart of cellular connectivity, enabling not only Apple's mobile electronic devices, but also the entire smartphone revolution. Qualcomm's patented technologies allow Apple's mobile electronic devices to send and receive vast amounts of data at lightning speed. Qualcomm also invented critical technologies improving functions throughout every modern cellular device. Indeed, Qualcomm's inventions make mobile electronic devices desirable to consumers in their daily lives.

5. Apple is a dominant seller in both the global and domestic markets for mobile electronic devices. While Apple's mobile electronic devices are ubiquitous today, Apple had

nothing to do with creating the technology that forms the backbone of the cellular industry. Instead, Apple rose to dominance relying heavily on Qualcomm's technology that enables numerous important features on the iPhone, including providing better battery life and improved graphics. Further, the iPhone's value to customers is driven by its Qualcomm-enabled ability to connect with and transfer data over networks at rapid speeds. Apple CEO Tim Cook has confirmed on multiple occasions the heavy dependence of the iPhone on high-speed cellular connectivity for its success. (Ex. 28, April/October 2016 statements ("There are enormous investments going on in 4G, and we couldn't be more excited about that because it really takes a great network working with iPhones to produce that great experience for people.").)

6. Apple's unlicensed and unauthorized use of Qualcomm's technology—including the technology disclosed in the Asserted Patents—to manufacture, import and sell mobile electronic devices in the United States constitutes an unfair act within the meaning of Section 337.

7. On information and belief, the Accused Devices are manufactured and/or sold for importation into the United States, imported into the United States, and/or sold after importation into the United States by or on behalf of Apple.

8. A domestic industry as required by 19 U.S.C. § 1337(a)(2) and (3) exists in the United States relating to articles protected by Qualcomm's Asserted Patents. Qualcomm's domestic industry includes significant investments in plant and equipment, significant employment of labor and capital, and substantial investments in the exploitation of the inventions claimed in Qualcomm's Asserted Patents, including through engineering, research, and development.

9. Qualcomm seeks as relief a permanent limited exclusion order under 19 U.S.C. § 1337(d) barring from entry into the United States infringing mobile electronic devices, or mobile electronic devices that are manufactured using processes that infringe, that are imported into the United States, sold for importation into the United States, and/or sold in the United States after importation by or on behalf of Apple.

10. Qualcomm further seeks a permanent cease and desist order under 19 U.S.C. § 1337(f) prohibiting Apple from importing, admitting or withdrawing from a foreign trade zone, marketing, advertising, demonstrating, testing, warehousing inventory of, distributing, offering for sale, selling, licensing, programming, packaging, repackaging, bundling, updating, soliciting U.S. agents or distributors for, or aiding and abetting other entities in the importation, sale for importation, sale after importation, transfer, or distribution of its infringing mobile electronic devices, or of mobile devices manufactured using processes that infringe.

11. Qualcomm further seeks the imposition of a bond upon importation of mobile electronic devices that infringe one or more claims of the Asserted Patents, during the 60-day Presidential review period pursuant to 19 U.S.C. § 1337(j).

II. PARTIES

A. Qualcomm Incorporated

12. Qualcomm Incorporated is a publicly-traded corporation organized and existing under the laws of the State of Delaware, with its principal place of business located at 5775 Morehouse Drive, San Diego, California 92121.

13. Qualcomm was founded in 1985 when seven industry visionaries came together to discuss the idea of providing quality wireless communications. For more than 30 years, Qualcomm has been in the business of researching, designing, developing, and selling

innovative semiconductor and cellular technologies and products for the telecommunications and mobile industries.

14. Today, Qualcomm is one of the largest technology, semiconductor, and telecommunications companies in the United States, where it has over 18,000 employees, 68 percent of whom are engineers, and occupies more than 92 buildings (totaling over 6.5 million sq. ft.) in seventeen states and the District of Columbia. The majority of Qualcomm's research and development occurs in the United States.

15. At the core of Qualcomm's business is its industry-leading research and development focused on enabling cellular systems and products. Since its founding, Qualcomm has invested tens of billions of dollars in research and development related to cellular, wireless communications, and mobile processor technology. Qualcomm's massive research and development investments have produced numerous innovations. Because of this ongoing investment, Qualcomm continues to drive the development and commercialization of successive generations of mobile technology and is one of a handful of companies leading the development of the next-generation 5G standard.

16. From its inception, Qualcomm has specialized in innovations to improve digital, wireless communications systems. Qualcomm is an innovator at the systems level as well as at the chip level. As a result of its unparalleled commitment to research and development, Qualcomm has a diverse patent portfolio. Indeed, Qualcomm now holds over 19,860 U.S. patents, including the Asserted Patents in this investigation. Qualcomm's patent portfolio includes patents that are "essential" to cellular standards, patents that are "essential" to other standards, and patents that are not essential to any industry standard but reflect valuable non-standardized technologies.

17. A non-standard-essential patent ("NSEP") is not technically necessary to practice any feature of an industry standard, but an NSEP may cover an invention that provides important functionality and value to cellular devices or systems and may be highly desired by consumers, cellular device manufacturers, suppliers, or network operators. As a result of its decades-long commitment to cellular and other mobile R&D, Qualcomm owns tens of thousands of cellular standard-essential patents ("SEPs") and NSEPs worldwide.

18. All six Asserted Patents are NSEPs covering Qualcomm's proprietary technology and are not necessary to practice any feature of an industry standard.

19. Cellular communications are constrained by the radio spectrum over which voice and data travel, as well as by performance requirements such as voice quality, call drop rate, average data rate, maximum data rate, battery life, and coverage. Additionally, cellular networks are expensive to deploy and operate. Thus, cellular communications pose multiple fundamental engineering challenges—the design of communication systems and methodologies that allow user equipment and network equipment to share the capacity of any given portion of the radio spectrum while still meeting performance requirements.

20. Cellular technologies must address specific challenges regarding how cellular devices interact with the network. These technologies are also aimed at making the most efficient use of the scarce spectrum available while working within the size and power constraints of mobile electronic devices, which need to be small, lightweight, and efficient. The usefulness of any cellular device depends on these enabling technologies, which are the technologies that Qualcomm has spent 30 years developing.

21. A substantial portion of Qualcomm's research and development activities also have been directed to its cutting-edge integrated circuit chipsets, which combine multiple

technologies, including advanced multimode modems, application processors, and graphics engines, as well as the tools to connect these diverse technologies, for use in consumer products such as smartphones, tablets, and other electronic devices. In addition to 3G and 4G LTE technologies, Qualcomm's chipsets support other wireless and wired connectivity and positional technologies, including Bluetooth, Ethernet, GPS, and GLONASS. Qualcomm's technology has also evolved into some of the most advanced systems-on-chips integrating multiple technologies, including graphics engines, application processors, and multimode modems onto a single semiconductor chip.

22. Qualcomm also conducts research, development, and testing through its use of Mobile Test Platforms ("MTPs"), which are manufactured in the United States at Qualcomm's facilities and incorporate Qualcomm's modems, processors, and other chipsets, along with third-party chips into a physical device used for testing and analysis. For example, Qualcomm works with base station partners to verify the operation and performance of the MTPs. Qualcomm sells these MTPs to its customers and shares schematics and test results with potential and existing customers based on this MTP analysis.

B. Apple Inc.

23. Apple Inc. is a California corporation with a principal place of business at 1 Infinite Loop, Cupertino, California, 95014.

24. On information and belief, Apple designs, develops, tests, imports into the United States, offers for sale, sells for importation into the United States, and sells in the United States after importation infringing, or manufactured by processes that infringe, mobile electronic devices, including devices sold under the tradename Apple iPhone 7. Apple does not have a license from Qualcomm to the Asserted Patents.

III. THE TECHNOLOGIES AND PRODUCTS AT ISSUE

A. Products At Issue

25. Pursuant to Commission Rule 210.12(a)(12), the Accused Devices include, without limitation, certain mobile electronic devices that do not include a Qualcomm brand baseband processor modem, including devices sold under the tradename Apple iPhone 7, that infringe one or more claims of the Asserted Patents.

B. Background Of The Technology

26. The technologies at issue in this investigation generally relate to technologies for use in mobile applications, including the design, structure, and operation of products with envelope tracking technology, voltage shifter circuitry, flashless boot, power management circuitry, enhanced carrier aggregation, and graphics processing units.

27. Qualcomm has driven the development and commercialization of each successive generation of cellular technology from second-generation (2G) technologies through the upcoming fifth-generation (5G) technologies. Each new generation of cellular technology has depended on countless inventions from a small number of innovators around the world, none more significant than Qualcomm.

28. The first commercial cell phone networks were deployed in 1983. These first generation (1G) networks relied on analog technology, which was fundamentally limited and prohibitively expensive. Call quality was poor, and signals often crossed into neighboring frequencies, causing interference and dropped calls.

29. By the mid-to-late 1980s, a digital technology called Time Division Multiple Access ("TDMA") had been developed. TDMA digitized and compressed callers' voices, divided a given frequency channel into time slices, and then sent "packets" of compressed data associated with multiple conversations in rotation in that same frequency, thus enabling

multiple users and conversations to share the same frequency. By the late 1980s, the European Union determined that its wireless networks would use a TDMA standard known as the Global System for Mobile communications ("GSM").

30. In 1989, Qualcomm publicly announced its groundbreaking Code Division Multiple Access ("CDMA") technology. CDMA offered far better call clarity than TDMA and promised to accommodate roughly ten times as many calls on a single network compared to an analog system. Instead of transmitting data in time slots, CDMA allows a large number of users to communicate at the same time, sharing the same frequency channel. Data associated with different conversations (or data transmissions) are distinguished from one another through the use of codes. Individual calls are encoded, transmitted, identified, and then decoded and reassembled on the receiving end. By the mid-1990s, CDMA technology had been widely accepted.

31. Based in large part on Qualcomm's innovations, the mobile industry was thriving by the late 1990s. As the industry grew, it began working on a 3G solution that could provide improved data transmission, reliability and network efficiency. Ultimately, all new 3G variations that achieved commercial importance were fundamentally based on Qualcomm's CDMA method.

32. Led by Qualcomm's efforts, 3G technology became significantly more advanced in its later years with the releases of major enhancements to Wideband Code Division Multiple Access ("WCDMA") technology. This led to the adoption of "3.5G" and "3.75G" standards, which significantly increased data speeds and were critical to the smartphone revolution.

33. Qualcomm also began researching 4G technologies years before those technologies were standardized, and a decade before their significant commercial rollout. As

various industry players worked on 4G technologies, Qualcomm made fundamental contributions such as the application of Orthogonal Frequency Division Multiplexing ("OFDM"). OFDM became the basis for the 4G standards broadly known as Long-Term Evolution ("LTE"). This innovation once again expanded network space and vastly boosted data rates.

34. It was the development of 3G and 4G technologies—enabled in large part by Qualcomm—that allows smartphones to send and receive vast amounts of data at lightning speed and propelled smartphones (including the iPhone) to become the fastest-selling consumer electronics devices in history. Qualcomm continues to be a leading contributor to LTE.

35. Qualcomm also expends considerable effort and resources toward the research and development of various customized integrated circuits known as Application Specific Integrated Circuits ("ASICs") for use in mobile electronic devices. Qualcomm's core chip products for mobile electronic devices are: (1) Baseband Modem chips, which process received voice and data information and prepare the same for transmission; (2) Radio Frequency ("RF") chips, which transmit and receive radio signals using multiple frequencies; (3) Power Management chips, which optimize power consumption across mobile electronic devices; (4) applications processors, which act as the central processing unit of the mobile electronic devices; and (5) chipsets that include a combination of the above products as well as other hardware elements to support the functionality of mobile electronic devices.

36. As a longstanding worldwide leader in mobile technology innovation, Qualcomm profoundly understands the pressing need of mobile devices capable of high performance computing, effective signal transmission, and powerful graphics processing, all while using minimal power. Today, Qualcomm's massive investments in envelope tracking

technology, voltage shifter circuitry, flashless boot, power management circuitry, enhanced carrier aggregation, graphics processing technology, LTE technology, and chip product development have facilitated the development of enhanced power consumption in mobile products, better carrier aggregation, 4G in wireless communications, and the proliferation of suppliers offering LTE chipsets. Indeed, Qualcomm was the first to make LTE chips available to device makers and continues to offer the best quality modem and LTE chips with enhanced capabilities. Qualcomm has driven and continues to drive the development of mobile technologies and modems to not only benefit consumers, but to also drive consumer demand for new mobile electronic devices.

37. The Asserted Patents reflect the breadth of Qualcomm's dedication and investment in research and development relating to wireless technology. Not only did Qualcomm contribute directly to the development of industry standards that form the backbone of modern cellular communications reflected in Qualcomm's SEPs, but Qualcomm also invented numerous proprietary solutions for implementing standards-compliant devices in optimal ways, reflected in Qualcomm's NSEPs such as the ones asserted here.

38. As mobile electronic devices have become more powerful with greater functionality, device manufacturers have faced numerous problems with power consumption, noise reduction, battery charging, graphics processing and heat dissipation, among others. The technologies of the Asserted Patents solve many of these problems by enhancing chip performance through advanced carrier aggregation, power-efficient envelope tracking, power-efficient boot up and inter-chip communication techniques, area- and power-efficient circuit designs, compact and robust multi-bit voltage level shifter design and layout, and higher performance and more power-efficient graphics processing circuitry and techniques.

39. For example, Qualcomm pioneered various "envelope tracking" techniques for mobile devices to save power and reduce heat inside a mobile device when transmitting at different signal strength. Using one of these techniques as set forth in Qualcomm's '558 patent, the RF amplifier power supply is continuously adjusted and dynamically boosted, as necessary, to ensure that the amplifier is operating at peak efficiency for power required during transmission. Envelope tracking allows for a thinner, lighter mobile electronic device that generates less heat. Without envelope tracking, power is wasted and battery life is consequently shorter.

40. As another example, Apple has touted the capability of its newest mobile electronic devices to support "carrier aggregation" technology. This means that a mobile device can simultaneously transmit RF signals for multiple carriers, which again allows for a more efficient use of power and longer battery life.[3] Indeed, Apple's Senior Vice President of Worldwide Marketing proclaimed that one of the differentiating features of the iPhone 6 is that its enhanced speed is done "with a technology called carrier aggregation." (Ex. 29). Qualcomm has pioneered and patented technologies that allow this carrier aggregation to be utilized more efficiently and with less wasted power, such as set forth in the '675 patent.

41. As yet another example, Qualcomm's '949 patent provides an innovative design that eliminates the need for a separate flash memory for the modem, which results in lower component costs and power savings for the iPhone. At the same time, the '949 patent allows the boot up code to be loaded directly into the modem processor's memory. This minimizes the startup delays that mobile device users often experience when starting up their devices and connecting to the network.

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[3] The term "carriers" refers to the frequency bands for transmitting data, and is often called "component carriers."

IV. THE ASSERTED PATENTS AND NON-TECHNICAL DESCRIPTIONS OF THE INVENTIONS[4]

A. The '936 Patent

1. Identification and Ownership of the '936 Patent

42. Qualcomm owns by assignment the right, title, and interest in United States Patent No. 8,633,936, titled "Programmable Streaming Processor with Mixed Precision Instruction Execution," which issued on January 21, 2014 and named Yun Du, Chun Yu, Guofang Jiao, and Stephen Molloy as co-inventors. The '936 patent issued from U.S. Patent Application Serial No. 12/106,654, filed on April 21, 2008.

43. A certified copy of the '936 patent is attached as Exhibit 1. A certified copy of the assignment from the named inventors to Qualcomm is attached as Exhibit 2. A certified copy of the prosecution history of the '936 patent is included as Appendix A. Copies of each patent and applicable pages of each technical reference mentioned in the prosecution history of the '936 patent are included as Appendix B.

2. Foreign Counterparts to the '936 Patent

44. Exhibit 13 lists each foreign patent and each pending foreign patent application (not already issued as a patent), and each foreign patent application that has been denied, abandoned or withdrawn, corresponding to the '936 patent, with an indication of the prosecution status of each such patent application. No other foreign patents or patent applications corresponding to the '936 patent have been filed, abandoned, withdrawn, or rejected.

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[4] All non-technical descriptions of the patents herein are presented to give a general background of those patents. These statements are not intended to be used nor should they be used for purposes of patent claim construction. Qualcomm presents these statements subject to and without waiver of its right to argue that claim terms should be construed in a particular way under claim interpretation jurisprudence and the relevant evidence.

3. Non-Technical Description of the '936 Patent

45. The '936 patent relates generally to a graphics processing architecture. The '936 patent discloses novel methods and structures for forming graphics processing circuitry incorporating multiple execution units for processing graphics instructions at different graphics precision levels, and for converting graphics data to the correct precision level prior to processing the associated graphics instruction. As a result of the invention of the '936 patent, graphics processors are able to use lower precision execution units, processing graphics data in a higher performance and more power efficient manner, thereby extending battery life.

B. The '558 Patent

1. Identification and Ownership of the '558 Patent

46. Qualcomm owns by assignment the right, title, and interest in United States Patent No. 8,698,558, titled "Low-Voltage Power-Efficient Envelope Tracker," which issued on April 15, 2014 and named Lennart K. Mathe, Thomas Domenick Marra, and Todd R. Sutton as co-inventors. The '558 patent issued from U.S. Patent Application Serial No. 13/167,659, filed on June 23, 2011.

47. A certified copy of the '558 patent is attached as Exhibit 3.[5] A certified copy of the assignment from the named inventors to Qualcomm is attached as Exhibit 4. A certified copy of the prosecution history of the '558 patent is included as Appendix C. Copies of each patent and applicable pages of each technical reference mentioned in the prosecution history of the '558 patent are included as Appendix D.

[5] On June 27, 2017, the United States Patent and Trademark Office issued a certificate of correction with respect to claim 12 of the '558 patent. A copy of the certificate of correction is attached as Exhibit 32.

2. Foreign Counterparts to the '558 Patent

48. Exhibit 13 lists each foreign patent and each pending foreign patent application (not already issued as a patent), and each foreign patent application that has been denied, abandoned or withdrawn, corresponding to the '558 patent, with an indication of the prosecution status of each such patent application. No other foreign patents or patent applications corresponding to the '558 patent have been filed, abandoned, withdrawn, or rejected.

3. Non-Technical Description of the '558 Patent

49. The '558 patent relates generally to envelope tracking technology, which addresses the efficient use of power by a power amplifier in transmitting an output radio frequency (RF) signal. In particular, the power amplifier may require varying degrees of power supply voltage depending on the type of RF signal being transmitted. In the past, the use of a constant power supply voltage did not match the varying power requirements of the power amplifier, and led to unnecessary dissipation of power (and devices that, due to this unnecessary power dissipation, quickly drained the battery). Envelope tracking adjusts the power supply voltage based on information from the modem to match the needs of the power amplifier. The '558 patent discloses novel circuitry for efficiently and effectively boosting power supply voltage to continuously match the peak efficiency necessary over the RF envelope. As a result of the invention of the '558 patent, electronic devices are able to reduce power consumption and extend battery life.

C. The '658 Patent

1. Identification and Ownership of the '658 Patent

50. Qualcomm owns by assignment the right, title, and interest in United States Patent No. 8,487,658, titled "Compact and Robust Level Shifter Layout Design," which issued

on July 16, 2013 and named Animesh Datta and William James Goodall, III as co-inventors. The '658 patent issued from U.S. Patent Application Serial No. 13/180,598, filed on July 12, 2011.

51. A certified copy of the '658 patent is attached as Exhibit 5. A certified copy of the assignment from the named inventors to Qualcomm is attached as Exhibit 6. A certified copy of the prosecution history of the '658 patent is included as Appendix E. Copies of each patent and applicable pages of each technical reference mentioned in the prosecution history of the '658 patent are included as Appendix F.

2. Foreign Counterparts to the '658 Patent

52. Exhibit 13 lists each foreign patent and each pending foreign patent application (not already issued as a patent), and each foreign patent application that has been denied, abandoned or withdrawn, corresponding to the '658 patent, with an indication of the prosecution status of each such patent application. No other foreign patents or patent applications corresponding to the '658 patent have been filed, abandoned, withdrawn, or rejected.

3. Non-Technical Description of the '658 Patent

53. The '658 patent relates generally to voltage level shifter circuitry. Integrated circuit devices incorporating different types of functional circuitry are often required to handle multiple voltage levels. These devices typically contain a high-voltage circuit driven by a relatively high voltage power supply and a low-voltage circuit driven by a relatively low-voltage power supply. Reducing the overall operating voltages of the integrated circuit reduces power consumption and increases efficiency of the integrated circuit. However, some circuits are more amenable to lower operating voltages while others must operate at a higher voltage. For circuits operating at two different voltages to communicate with each other, a level shifter

circuit is required as an interface to shift the signal from one voltage level to another to avoid circuit dysfunction. However, because the level shifter itself operates with two different voltages, it is required to have at least two N-wells, one for each voltage. In addition, constraints placed on the N-wells may require them to be separated by a minimum distance. Therefore, incorporating multiple level shifters into a single chip can consume a significant portion of the available chip area. The '658 patent is directed to a compact and robust multi-bit voltage level shifter design and layout, which may reduce the area of the level shifters.

D. The '949 Patent

1. Identification and Ownership of the '949 Patent

54. Qualcomm owns by assignment the right, title, and interest in United States Patent No. 8,838,949, titled "Direct Scatter Loading of Executable Software Image From a Primary Processor to One or More Secondary Processor in a Multi-processor System," which issued on September 16, 2014 and named Nitin Gupta, Daniel H. Kim, Igor Malamant, and Steve Haehnichen as co-inventors. The '949 patent issued from U.S. Patent Application Serial No. 13/052,516, filed on March 21, 2011.

55. A certified copy of the '949 patent is attached as Exhibit 7. A certified copy of the assignment from the named inventors to Qualcomm is attached as Exhibit 8. A certified copy of the prosecution history of the '949 patent is included as Appendix G. Copies of each patent and applicable pages of each technical reference mentioned in the prosecution history of the '949 patent are included as Appendix H.

2. Foreign Counterparts to the '949 Patent

56. Exhibit 13 lists each foreign patent and each pending foreign patent application (not already issued as a patent), and each foreign patent application that has been denied, abandoned or withdrawn, corresponding to the '949 patent, with an indication of the

prosecution status of each such patent application. No other foreign patents or patent applications corresponding to the '949 patent have been filed, abandoned, withdrawn, or rejected.

3. Non-Technical Description of the '949 Patent

57. The '949 patent relates generally to "flashless boot," *i.e.*, booting up a secondary processor that does not have its own non-volatile memory to store the system image. The '949 patent discloses novel techniques for implementing flashless boot for secondary processors in multi-processor systems by using a scatter loader to directly transfer the image into memory of the secondary processor. As a result of the invention of the '949 patent, multi-processor systems—which encompass a device including at least an application processor and a modem processor—can avoid requiring a non-volatile memory for each processor with minimal negative performance impact.

E. The '490 Patent

1. Identification and Ownership of the '490 Patent

58. Qualcomm owns by assignment the right, title, and interest in United States Patent No. 9,535,490, titled "Power Saving Techniques in Computing Devices," which issued on January 3, 2017 and named Vinod Harimohan Kaushik, Uppinder Singh Babbar, Andrei Danaila, Neven Klacar, Muralidhar Coimbatore Krishnamoorthy, Arunn Coimbatore Krishnamurthy, Vaibhav Kumar, Vanitha Aravamudhan Kumar, Shailesh Maheshwari, Alok Mitra, Roshan Thomas Pius, and Hariharan Sukumar, as co-inventors. The '490 patent issued from U.S. Patent Application Serial No. 14/568,694, filed on December 12, 2014.

59. A certified copy of the '490 patent is attached as Exhibit 9. A certified copy of the assignment from the named inventors to Qualcomm is attached as Exhibit 10. A certified copy of the prosecution history of the '490 patent is included as Appendix I. Copies of each

patent and applicable pages of each technical reference mentioned in the prosecution history of the '490 patent are included as Appendix J.

2. Foreign Counterparts to the '490 Patent

60. Exhibit 13 lists each foreign patent and each pending foreign patent application (not already issued as a patent), and each foreign patent application that has been denied, abandoned or withdrawn, corresponding to the '490 patent, with an indication of the prosecution status of each such patent application. No other foreign patents or patent applications corresponding to the '490 patent have been filed, abandoned, withdrawn, or rejected.

3. Non-Technical Description of the '490 Patent

61. The '490 patent relates generally to reducing power consumption in electronic devices. The '490 patent discloses novel techniques for controlling power consumption by disclosing methods to minimize the time during which system buses are in a high power consumption state. As a result of the invention of the '490 patent, computing devices can operate just as efficiently with lower power consumption, which in turn prolongs the battery life of those devices.

F. The '675 Patent

1. Identification and Ownership of the '675 Patent

62. Qualcomm owns by assignment the right, title, and interest in United States Patent No. 9,608,675, titled "Power Tracker for Multiple Transmit Signals Sent Simultaneously," which issued on March 28, 2017 and named Alexander Dorosenco as the sole inventor. The '675 patent issued from U.S. Patent Application Serial No. 13/764,328, filed on February 11, 2013.

63. A certified copy of the '675 patent is attached as Exhibit 11. A certified copy of the assignment from the named inventor to Qualcomm is attached as Exhibit 12. A certified copy of the prosecution history of the '675 patent is included as Appendix K. Copies of each patent and applicable pages of each technical reference mentioned in the prosecution history of the '675 patent are included as Appendix L.

2. Foreign Counterparts to the '675 Patent

64. Exhibit 13 lists each foreign patent and each pending foreign patent application (not already issued as a patent), and each foreign patent application that has been denied, abandoned or withdrawn, corresponding to the '675 patent, with an indication of the prosecution status of each such patent application. No other foreign patents or patent applications corresponding to the '675 patent have been filed, abandoned, withdrawn, or rejected.

3. Non-Technical Description of the '675 Patent

65. The '675 patent relates generally to techniques for generating a power supply voltage for a power amplifier that processes multiple transmit signals sent simultaneously, such as multiple transmissions sent simultaneously on multiple carriers at different frequencies. As one example, the '675 patent discloses a power tracker that generates a single power tracking signal based on inputs from a plurality of carrier aggregated transmit signals; a power supply generator for generating a single power supply voltage based on the power tracking signal; and a power amplifier that receives the single power supply voltage and the plurality of carrier aggregated transmit signals to produce a single output RF signal. As one result of the invention of the '675 patent, electronic devices can more efficiently support and perform carrier aggregation.

G. Licensees to the Asserted Patents

66. All licensees to one or more of the Asserted Patents are identified in Confidential Exhibit 14.

V. APPLE'S INFRINGEMENT OF THE ASSERTED PATENTS

67. As discussed below, Apple's Accused Devices are certain mobile electronic devices that do not incorporate a Qualcomm brand baseband processor modem, including mobile phones and tablet computers, which infringe the Asserted Patents, or are manufactured by processes that infringe the Asserted Patents, and are manufactured abroad by or for Apple, sold for importation into the United States, and imported into the United States by or for Apple, and/or sold within the United States after importation by or for Apple. The Accused Devices include, but are not limited to, mobile electronic devices sold under the tradename Apple iPhone 7. Apple is not licensed to any of the Asserted Patents.

A. Infringement of the '936 Patent

68. Apple infringes, literally and/or under the doctrine of equivalents, at least claims 1, 10-27, 29, 38, 49, 55-60, and 67-68 of the '936 patent. Apple infringes at least these claims by importing, selling for importation, and/or selling after importation into the United States the Accused Devices. The Accused Devices satisfy all claim limitations of claims 10-27, 29, 38, 55-60, and 67-68 at the time of importation into the United States.

69. On information and belief, Apple also knowingly induces and/or contributes to the infringement of at least claims 1 and 49 of the '936 patent by others. On information and belief, Apple has had knowledge of the '936 patent, and its infringement of the '936 patent, since at least July 6, 2017, when Qualcomm filed a parallel action in the Southern District of California. On information and belief, Apple tests, demonstrates, or otherwise operates the Accused Devices in the United States, thereby performing the claimed methods and directly

infringing any asserted claims of the '936 patent requiring such operation. Similarly, Apple's customers and the end users of the Accused Devices test and/or operate the Accused Devices in the United States in accordance with Apple's instructions contained in, for example, its user manuals, thereby also performing the claimed methods and directly infringing the asserted claims of the Asserted Patents requiring such operation.

70. Apple also contributes to infringement of the '936 patent by selling for importation into the United States, importing into the United States, and/or selling within the United States after importation the Accused Devices and the non-staple constituent parts of those devices, which are not suitable for substantial non-infringing use and which embody a material part of the invention described in the '936 patent. These mobile electronic devices are known by Apple to be especially made or especially adapted for use in the infringement of the '936 patent. Apple also contributes to the infringement of the '936 patent by selling for importation into the United States, importing into the United States, and/or selling within the United States after importation components, such as the chipsets or software containing the infringing functionality, of the Accused Devices, which are not suitable for substantial non-infringing use and which embody a material part of the invention described in the '936 patent. These mobile devices are known by Apple to be especially made or especially adapted for use in the infringement of the '936 patent. Specifically, on information and belief, Apple sells the Accused Devices to resellers, retailers, and end users with knowledge that the devices are used for infringement. End users of those mobile electronic devices directly infringe the '936 patent.

71. Attached as Exhibit 15 are representative claim charts for the Accused Devices showing infringement of the '936 patent by exemplary Accused Devices.

B. Infringement of the '558 Patent

72. Apple infringes, literally and/or under the doctrine of equivalents, at least claims 1 and 6-20 of the '558 patent. Apple infringes at least these claims by importing, selling for importation, and/or selling after importation into the United States the Accused Devices. The Accused Devices satisfy all claim limitations of claims 1, 6-7, and 10-20 at the time of importation into the United States.

73. On information and belief, Apple also knowingly induces and/or contributes to the infringement of at least claims 8-9 of the '558 patent by others. On information and belief, Apple has had knowledge of the '558 patent, and its infringement of the '558 patent, since at least July 6, 2017, when Qualcomm filed a parallel action in the Southern District of California. Additionally, Qualcomm has provided technical assistance and solutions to Apple, including envelope tracking technology, under non-disclosure agreements. Apple was aware of, and implemented, Qualcomm's technology in certain of its devices without authorization. On information and belief, Apple tests, demonstrates, or otherwise operates the Accused Devices in the United States, thereby performing the claimed methods and directly infringing any asserted claims of the '558 patent requiring such operation. Similarly, Apple's customers and the end users of the Accused Devices test and/or operate the Accused Devices in the United States in accordance with Apple's instructions contained in, for example, its user manuals, thereby also performing the claimed methods and directly infringing the asserted claims of the Asserted Patents requiring such operation.

74. Apple also contributes to infringement of the '558 patent by selling for importation into the United States, importing into the United States, and/or selling within the United States after importation the Accused Devices and the non-staple constituent parts of those devices, which are not suitable for substantial non-infringing use and which embody a

material part of the invention described in the '558 patent. These mobile electronic devices are known by Apple to be especially made or especially adapted for use in the infringement of the '558 patent. Apple also contributes to the infringement of the '558 patent by selling for importation into the United States, importing into the United States, and/or selling within the United States after importation components, such as the chipsets or software containing the infringing functionality, of the Accused Devices, which are not suitable for substantial non-infringing use and which embody a material part of the invention described in the '558 patent. These mobile devices are known by Apple to be especially made or especially adapted for use in the infringement of the '558 patent. Specifically, on information and belief, Apple sells the Accused Devices to resellers, retailers, and end users with knowledge that the devices are used for infringement. End users of those mobile electronic devices directly infringe the '558 patent.

75. Attached as Confidential Exhibit 16 are representative claim charts for the Accused Devices showing infringement of the '558 patent by exemplary Accused Devices.

C. Infringement of the '658 Patent

76. Apple infringes, literally and/or under the doctrine of equivalents, at least claims 9, 10, 12, 14, and 20-22 of the '658 patent. Apple infringes at least claims 9, 10, 12, 14, 21, and 22 by importing, selling for importation, and/or selling after importation into the United States the Accused Devices. The Accused Devices satisfy all claim limitations of claims 9, 10, 12, 14, 21, and 22 at the time of importation into the United States. Apple infringes at least claim 20 by importing, selling for importation, and/or selling after importation into the United States Accused Devices that were manufactured abroad using an infringing process.

77. Attached as Confidential Exhibit 17 are representative claim charts for the Accused Devices showing infringement of the '658 patent by exemplary Accused Devices.

D. Infringement of the '949 Patent

78. Apple infringes, literally and/or under the doctrine of equivalents, at least claims 1–8, 10-14, 16, 20, and 22 of the '949 patent. Apple infringes at least these claims by importing, selling for importation, and/or selling after importation into the United States the Accused Devices. The Accused Devices satisfy all claim limitations of claims 1-8, 16, and 20 at the time of importation into the United States.

79. On information and belief, Apple also knowingly induces and/or contributes to the infringement of at least claims 10-14 and 22 of the '949 patent by others. On information and belief, Apple has had knowledge of the '949 patent, and its infringement of the '949 patent, since at least July 6, 2017, when Qualcomm filed a parallel action in the Southern District of California. Additionally, Qualcomm has provided technical assistance and solutions to Apple under non-disclosure agreements. Apple was aware of, and implemented, Qualcomm's technology in certain of its devices without authorization. On information and belief, Apple tests, demonstrates, or otherwise operates the Accused Devices in the United States, thereby performing the claimed methods and directly infringing any asserted claims of the '949 patent requiring such operation. Similarly, Apple's customers and the end users of the Accused Devices test and/or operate the Accused Devices in the United States in accordance with Apple's instructions contained in, for example, its user manuals, thereby also performing the claimed methods and directly infringing the asserted claims of the Asserted Patents requiring such operation.

80. Apple also contributes to infringement of the '949 patent by selling for importation into the United States, importing into the United States, and/or selling within the United States after importation the Accused Devices and the non-staple constituent parts of those devices, which are not suitable for substantial non-infringing use and which embody a

material part of the invention described in the '949 patent. These mobile electronic devices are known by Apple to be especially made or especially adapted for use in the infringement of the '949 patent. Apple also contributes to the infringement of the '949 patent by selling for importation into the United States, importing into the United States, and/or selling within the United States after importation components, such as the chipsets or software containing the infringing functionality, of the Accused Devices, which are not suitable for substantial non-infringing use and which embody a material part of the invention described in the '949 patent. These mobile devices are known by Apple to be especially made or especially adapted for use in the infringement of the '949 patent. Specifically, on information and belief, Apple sells the Accused Devices to resellers, retailers, and end users with knowledge that the devices are used for infringement. End users of those mobile electronic devices directly infringe the '949 patent.

81. Attached as Confidential Exhibit 18 are representative claim charts for the Accused Devices showing infringement of the '949 patent by exemplary Accused Devices.

E. Infringement of the '490 Patent

82. Apple infringes, literally and/or under the doctrine of equivalents, at least claims 1–6, 8, 10, 16–17, and 31 of the '490 patent. Apple infringes at least these claims by importing, selling for importation, and/or selling after importation into the United States the Accused Devices. The Accused Devices satisfy all claim limitations of claims 1-6, 8, 10, and 31 at the time of importation into the United States.

83. On information and belief, Apple also knowingly induces and/or contributes to the infringement of at least claims 16-17 of the '490 patent by others. On information and belief, Apple has had knowledge of the '490 patent, and its infringement of the '490 patent, since at least July 6, 2017, when Qualcomm filed a parallel action in the Southern District of California. Additionally, Qualcomm has provided technical assistance and solutions to Apple

under non-disclosure agreements. Apple was aware of, and implemented, Qualcomm's technology in certain of its devices without authorization. On information and belief, Apple tests, demonstrates, or otherwise operates the Accused Devices in the United States, thereby performing the claimed methods and directly infringing any asserted claims of the '490 patent requiring such operation. Similarly, Apple's customers and the end users of the Accused Devices test and/or operate the Accused Devices in the United States in accordance with Apple's instructions contained in, for example, its user manuals, thereby also performing the claimed methods and directly infringing the asserted claims of the Asserted Patents requiring such operation.

84. Apple also contributes to infringement of the '490 patent by selling for importation into the United States, importing into the United States, and/or selling within the United States after importation the Accused Devices and the non-staple constituent parts of those devices, which are not suitable for substantial non-infringing use and which embody a material part of the invention described in the '490 patent. These mobile electronic devices are known by Apple to be especially made or especially adapted for use in the infringement of the '490 patent. Apple also contributes to the infringement of the '490 patent by selling for importation into the United States, importing into the United States, and/or selling within the United States after importation components, such as the chipsets or software containing the infringing functionality, of the Accused Devices, which are not suitable for substantial non-infringing use and which embody a material part of the invention described in the '490 patent. These mobile devices are known by Apple to be especially made or especially adapted for use in the infringement of the '490 patent. Specifically, on information and belief, Apple sells the

Accused Devices to resellers, retailers, and end users with knowledge that the devices are used for infringement. End users of those mobile electronic devices directly infringe the '490 patent.

85. Attached as Confidential Exhibit 19 are representative claim charts for the Accused Devices showing infringement of the '490 patent by exemplary Accused Devices.

F. Infringement of the '675 Patent

86. Apple infringes, literally and/or under the doctrine of equivalents, at least claims 1-3 and 7-14 of the '675 patent. Apple infringes at least these claims by importing, selling for importation, and/or selling after importation into the United States the Accused Devices. The Accused Devices satisfy all claim limitations of claims 1-3 and 7-14 at the time of importation into the United States.

87. Attached as Confidential Exhibit 20 are representative claim charts for the Accused Devices showing infringement of the '675 patent by exemplary Accused Devices.

VI. SPECIFIC INSTANCES OF UNFAIR IMPORTATION AND SALE

88. Apple sells for importation into the United States, imports into the United States, and/or sells after importation into the United States the Accused Devices. Examples of Accused Devices were purchased from a retailer located in the United States. *See* Ex. 30. Specifically, an Apple iPhone 7 was purchased on June 15, 2017 from Apple Georgetown, 1229 Wisconsin Ave., Washington, D.C. 20007. *Id.* The iPhone 7 is labeled as "Assembled in China." *See* Ex. 30; Ex. P1.

89. Upon information and belief, substantially all of the Accused Devices in the United States are manufactured by Apple's outsourcing partners, which are located primarily in Asia, and sold for importation. *See* Ex. 31.

VII. HARMONIZED TARIFF SCHEDULE NUMBERS

90. The Accused Devices are classified under at least the following subheading of the Harmonized Tariff Schedule of the United States: 8517.12.00 (mobile phones); 8471.30.01, 8471.41.01, or 8471.49.00 (handheld computers). These classifications are exemplary in nature and not intended to restrict the scope of any exclusion order or other remedy ordered by the Commission.

VIII. RELATED LITIGATION

91. On July 6, 2017, Qualcomm filed a complaint in the U.S. District Court for the Southern District of California alleging infringement of the Asserted Patents against Apple.

92. Aside from the above-mentioned parallel district court matter, Qualcomm has not previously litigated the Asserted Patents before any other court or agency.

IX. THE DOMESTIC INDUSTRY RELATING TO THE ASSERTED PATENTS

93. An industry as required by Section 337(a)(2) and defined by Section 337(a)(3) exists in the United States. Qualcomm has made significant investments in plant, equipment, labor and capital, and made substantial investments in engineering and research and development related to products protected by the Asserted Patents.

94. As described below and in the accompanying declaration at Confidential Exhibit 21, Qualcomm researches, designs, and develops integrated circuit products in the United States (the "Domestic Industry Products") that are protected by at least one claim of each of the Asserted Patents.

A. Technical Prong

95. The chart below sets forth exemplary Domestic Industry Products that are protected by least one claim of each of the Asserted Patents:

Patent No.	Domestic Industry Product and Components
'936 patent	APQ 8064, MSM8960AB, MSM8974, MSM8x30, MSM8x12, MSM8x26, MSM8926, MSM8928, MSM8916, MSM8909, MSM8917, SDM 440, APQ 8084, MSM8994, MSM8992, MSM8936, MSM8952, APQ 8096, MSM8996, MSM8956, MSM8937, MSM 8940, MSM8953, MSM8998, MSM8997, SDM 660, SDM630
'558 patent	MDM6X15, MDM9230, MDM9645, MDM9650, MDM9X25, MDM9X25M, MDM9X30, MDM9X35M, MDM9X40, MSM660, SDM660, MSM8926, MSM8928, MSM8958, MSM8974, MSM8974PRO, MSM8992, MSM8994, MSM8996, MSM8996AU, MSM8996PRO, MSM8996SG, MSM8998, QFE1035, QFE1040, QFE1045, QFE1100, QFE3100, QFE4100, QFE4335, QFE4345, QPA4340, QPA5460, WTR1605, WTR1625, WTR2605, WTR3925, WTR4905, WTR5975, WTR6955, MTP660, MTP8084, MTP845, SDM845, MTP8926, MTP8928, MTP8974, MTP8992, MTP8994, MTP8996, MTP8998, MTP9625, MTP9630, MTP9635, MTP9640, MTP9645, MTP9650, MTP9655, MTP APQ 8084, MTP FUSION4.5
'658 patent	MSM8960, MSM8974, MDM9x25, SDM652, MSM8994, MDM9x30, MDM9x45, MSM8996, MDM9x55, SDM653, SDM660, MSM8998
'949 patent	SDX/SDX20M, MDM9x35, MDM9x45, MDM9x55, MDM9x65, MTP9x35, MTP9x45, MTP9x55, MTP9x65, MTP Fusion 4.5
'490 patent	SDX/SDX20M, MDM9x35, MDM9x45, MDM9x55, MDM9x65, MTP9x35, MTP9x45, MTP9x55, MTP9x65, MTP Fusion 4.5
'675 patent	MDM9X50, QFE4100, WTR5975, WTR6955, MTP9650, MTP9655

96. Claim charts applying a representative claim of each Asserted Patent to a representative Domestic Industry Product are attached as Confidential Exhibits 22-27.[6]

97. Qualcomm also sells the Domestic Industry Products to its customers, who then incorporate them into devices (e.g., smartphones) that are sold in the United States. On

[6] The Domestic Industry Products are protected by additional claims of the Asserted Patents, and Qualcomm may establish the technical prong of the domestic industry requirement through claims other than those explicitly charted in Confidential Exhibits 22-27.

information and belief, these devices may also practice one or more claims of the Asserted Patents.

B. Economic Prong

98. There is a domestic industry as defined under 19 U.S.C. § 1337(a)(3)(A), (B), and/or (C), comprising continuing significant investments made in the United States by Qualcomm in plant and equipment and employment of labor and capital, and continuing substantial investment in exploitation of the Asserted Patents. Specific, non-limiting examples of such investments are set forth below and in the Confidential Exhibit 21.

99. Qualcomm is a global leader in the development of integrated circuit technology and products. Qualcomm is one the United States' largest and most innovative technology companies, with over 18,000 employees in the United States, 68 percent of whom are engineers.

100. Qualcomm maintains its headquarters in San Diego, California. Qualcomm occupies 92 buildings in the United States totaling over 6.5 million sq. ft. of space. Qualcomm operates facilities in 17 U.S. states and the District of Columbia.

101. Qualcomm's worldwide R&D expenditures in fiscal 2016, 2015 and 2014 totaled approximately $5.2 billion, $5.5 billion and $5.5 billion, respectively. Qualcomm continues to expand and enhance its products, services, and related intellectual property portfolios. These efforts have resulted in a leading intellectual property portfolio related to, among other things, wireless technology and integrated circuit products.

102. Qualcomm engages in a broad range of qualifying domestic industry activities in the United States directed to articles protected by the Asserted Patents described above. The Domestic Industry Products are all designed, developed, tested and supported by Qualcomm in the United States.

103. Qualcomm has made and continues to make significant investments in plant and equipment directed to the Domestic Industry Products in the United States. Those investments in plant and equipment are dedicated to research, design, development, engineering, product support, manufacturing support, testing, and various customer support activities focused on the Domestic Industry Products.

104. Qualcomm also has made and continues to make significant investments in labor and capital directed to the Domestic Industry Products in the United States. Those investments in labor and capital are dedicated to research, design, development, engineering, product support, manufacturing support, testing, and various customer support activities focused on the Domestic Industry Products.

105. Qualcomm further engages in exploitation of the Asserted Patents through its substantial domestic investments in research and development and engineering activities in the United States. These activities include, among other things, research and development and engineering and design tied to the claimed technology implemented in the Asserted Patents. These activities have occurred in the past and are ongoing with respect to prior and current versions of the Domestic Industry Products as well as future versions of Qualcomm products under development.

106. A significant and substantial portion of Qualcomm's technical activities takes place in the United States. Qualcomm's domestic investments and activities are significant and substantial both in absolute terms and relative to Qualcomm's overall operations. Qualcomm's domestic investments and activities are important to the Domestic Industry Products and represent significant added value. These investments are described in more detail in the Declaration of Tim Durkin, attached hereto as Confidential Exhibit 21.

X. RELIEF REQUESTED

107. Qualcomm respectfully requests that the Commission:

(a) Institute an investigation pursuant to Section 337 of the Tariff Act of 1930, as amended, 19 U.S.C. § 1337, with respect to Apple's violations of that section arising from the importation into the United States, sale for importation, and/or the sale within the United States after importation of mobile electronic devices that infringe one or more claims of the Asserted Patents;

(b) Schedule and conduct a hearing pursuant to Section 337(c) for the purposes of (i) receiving evidence and hearing argument concerning whether there has been a violation of Section 337, and (ii) following the hearing, determining that there has been a violation of Section 337;

(c) Issue a permanent limited exclusion order directed to products manufactured by or on behalf of Apple, its subsidiaries, related companies, and agents pursuant to 19 U.S.C. § 1337(d) excluding entry into the United States of mobile electronic devices that do not incorporate a Qualcomm brand baseband processor modem and that infringe one or more claims of the Asserted Patents;

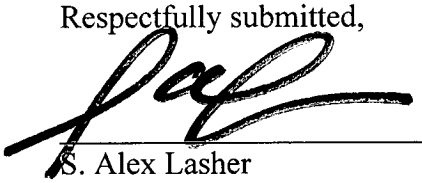
(d) Issue a permanent cease and desist order pursuant to 19 U.S.C. § 1337(f) prohibiting Apple, its domestic subsidiaries, related companies, and agents from engaging in the importation, sale for importation, marketing and/or advertising, distribution, offering for sale, sale, use after importation, sale after importation, and other transfer within the United States of mobile electronic devices that do not incorporate a Qualcomm brand baseband processor modem and that infringe one or more claims of the Asserted Patents;

(e) Impose a bond upon importation of mobile electronic devices that infringe one or more claims of the Asserted Patents, during the 60-day Presidential review period pursuant to 19 U.S.C. § 1337(j); and

(f) Issue such other and further relief as the Commission deems just and proper under the law, based on the facts determined by the investigation and the authority of the Commission.

Dated: July 7, 2017

Respectfully submitted,



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UNITED STATES INTERNATIONAL TRADE COMMISSION
WASHINGTON, D.C.

In the Matter of **CERTAIN MOBILE ELECTRONIC DEVICES AND RADIO FREQUENCY AND PROCESSING COMPONENTS THEREOF**	**Investigation No. 337-TA-** _____

VERIFICATION OF COMPLAINT

I, John Scott, am a Vice President for Qualcomm Incorporated ("Qualcomm") and am duly authorized by Qualcomm to execute this verification of the accompanying Complaint under Section 337 of the Tariff Act of 1930, as Amended, on behalf of Qualcomm. I have read the Complaint and am aware of its contents. To the best of my knowledge, information, and belief and based upon a reasonable inquiry under the circumstances, I hereby certify that:

1. The allegations contained in the Complaint are well grounded in fact and have evidentiary support, or are likely to have evidentiary support after a reasonable opportunity for further investigation or discovery;

2. The claims and other legal contentions set forth in the Complaint are warranted by existing laws or by a good faith, non-frivolous argument for extension, modification, or reversal of existing law, or by the establishment of new law; and

3. The Complaint is not being filed for any improper purpose, such as to harass or to cause unnecessary delay or needless increase in the cost of litigation.

Dated: July 7, 2017

John Scott
Vice President
Qualcomm Incorporated