David A. Nelson (*pro hac vice* forthcoming)
(Ill. Bar No. 6209623)
davenelson@quinnemanuel.com
QUINN EMANUEL URQUHART & SULLIVAN, LLP
500 West Madison St., Suite 2450
Chicago, Illinois 60661
Telephone: (312) 705-7400
Facsimile: (312) 705-7401

Karen P. Hewitt (SBN 145309)
kphewitt@jonesday.com
Randall E. Kay (SBN 149369)
rekay@jonesday.com
JONES DAY
4655 Executive Drive, Suite 1500
San Diego, California 92121
Telephone: (858) 314-1200
Facsimile: (844) 345-3178

Evan R. Chesler (*pro hac vice* forthcoming)
(N.Y. Bar No. 1475722)
echesler@cravath.com
CRAVATH, SWAINE & MOORE LLP
Worldwide Plaza, 825 Eighth Avenue
New York, NY 10019
Telephone: (212) 474-1000
Facsimile: (212) 474-3700

Attorneys for Plaintiff
QUALCOMM INCORPORATED

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF CALIFORNIA

QUALCOMM INCORPORATED, Plaintiff, v. APPLE INCORPORATED, Defendant.	Case No. '17CV2402 WQHMDD **COMPLAINT FOR PATENT INFRINGEMENT** **[DEMAND FOR A JURY TRIAL]**

Plaintiff Qualcomm Incorporated ("Qualcomm"), by its undersigned attorneys, alleges, with knowledge with respect to its own acts and on information and belief as to other matters, as follows:

NATURE OF THE ACTION

1. Qualcomm brings this action to compel Apple to cease infringing Qualcomm's patents and to compensate Qualcomm for Apple's extensive infringement of Qualcomm's patented technologies.

2. Qualcomm is one of the world's leading technology companies and a pioneer in the mobile phone industry. Its inventions form the very core of modern mobile communication and enable modern consumer experiences on mobile devices and cellular networks.

3. Since its founding in 1985, Qualcomm has been designing, developing, and improving mobile communication devices, systems, networks, and products. Among other innovations, it has many invented technologies that enable cellular communications around the world. For instance, Qualcomm developed fundamental technologies at the heart of 2G, 3G, and 4G cellular communications, is one of a handful of companies leading the development of the next-generation 5G standard, and has developed numerous innovative features used in virtually every modern cellular device.

4. Qualcomm also has focused on making inventive contributions to the patents it has in its portfolio as part of its emphasis on supporting innovation. Qualcomm's patent portfolio currently includes more than 130,000 issued patents and patent applications worldwide. Hundreds of mobile device suppliers around the world have taken patent licenses from Qualcomm.

5. Apple is the world's most profitable seller of mobile devices. Its iPhones and other products enjoy enormous commercial success. But without the innovative technology covered by Qualcomm's patent portfolio, Apple's products would lose much of their consumer appeal. Apple was a relatively late entrant in the

mobile device industry, and its mobile devices rely heavily on the inventions of Qualcomm and other companies that Qualcomm has invested in. While Apple is trying to take credit for "creat[ing] the modern smartphone as a product category," it was the pioneering inventions by Qualcomm that created the smartphone. *Nearly a decade before Apple released the iPhone*, Qualcomm unveiled its own full-feature, top-of-the-line smartphone, the "pdQ 1900." According to CNN's 1999 holiday buying guide, Qualcomm's pdQ 1900 "lets you make calls, keep records, send email, browse the web and run over a thousand different applications, all while on the go. Although a cell phone, it is one of the first truly portable, mobile and multipurpose Internet devices."[1] And there were many follow-on devices with similar capabilities, long before the iPhone. While Qualcomm no longer markets phones directly to consumers, it continues to lead the development of cutting-edge technologies that underpin a wide range of important wireless-device features. Other companies, like Apple, now manufacture and market phones that feature Qualcomm's innovations and the innovations of other technology pioneers that Qualcomm invested in.

6. Qualcomm's innovations have influenced all smartphones, and Apple—like other major mobile device makers—utilizes Qualcomm's technologies. Qualcomm's technologies enable and enhance popular features that drive consumer demand, for example, battery charging and power-management technologies that improve battery health and battery life; improved radio signaling and networking technologies that permit fast and uninterrupted wireless communications; cameras that automatically focus on a desired location; and machine learning capabilities that can assist users by facilitating various predictive functionalities, among many others.

[1] http://edition.cnn.com/1999/TECH/ptech/12/03/qualcomm.pdq/.

7. In contrast to Qualcomm's lengthy history as a pioneer innovator of mobile technology, including the smartphone and technologies consumers demand in all smartphones, Apple is primarily an assembler of technologies it acquires or takes. Apple has admitted to its history of knowingly copying technology and being late in implementing technologies innovated by others.

8. In short, Qualcomm invented many core technologies that make the iPhone (and other smartphones and mobile devices) desirable to consumers in their daily lives. Instead of developing their own solutions in these areas, Apple instead chose to use Qualcomm's inventions without permission/license.

9. While Apple built the most successful consumer products in history by relying significantly on technologies pioneered by Qualcomm and others, Apple refuses to pay for those technologies. Instead, as Apple's founder boasted, Apple "steals" the great ideas of others—specifically, that "we have always been shameless about stealing great ideas."[2] Apple employees likewise admit that Apple—a relatively late entrant in the mobile space—did not invent many of the iPhone's features. Instead, Apple incorporated, marketed, and commercialized the work of others: "I don't know how many things we can come up with that you could legitimately claim we did first. . . . We had the first commercially successful version of many features but that's different than launching something to market first."[3]

10. But rather than pay Qualcomm for the technology Apple uses, Apple has taken extraordinary measures to avoid paying Qualcomm for the fair value of

---

[2] Interview with Steve Jobs, available at https://www.youtube.com/watch?v=CW0DUg63lqU ("Picasso had a saying, 'good artists copy, great artists steal.' And we have always been shameless about stealing great ideas.").

[3] April 2010 email from Apple's iPhone Product Marketing Manager, Steve Sinclair, reported in: Rick Merritt, *Schiller 'shocked at 'copycat' Samsung phone*, Embedded (Aug. 3, 2012), http://www.embedded.com/print/4391702 (April 21, 2017 snapshot of page, accessed via Google's cache).

Qualcomm's patents. Apple is the quintessential example of a company engaging in patent hold-out, and has repeatedly pursued a patent hold-out strategy using its enormous financial resources to harm innovators of technologies it uses. More recently, on January 20, 2017, Apple sued Qualcomm in this district, asserting an array of excuses to avoid paying fair-market, industry-standard rates for the use of certain of Qualcomm's pioneering patents that are critical to all smartphones like the iPhone. *See* Case No. 3:17-cv-00108-GPC-MDD. Apple also encouraged the companies that manufacture the iPhone to breach their contracts with Qualcomm by refusing to pay for the Qualcomm technology in iPhones, something that those manufacturers had done for many years, without complaint, before Apple's direction to stop. Further, Apple misled governmental agencies around the world into investigating Qualcomm in an effort to indirectly exert leverage over Qualcomm.

11. Many of Qualcomm's patents are essential to certain cellular or other standards ("Standard Essential Patents"), such that the use of an underlying technological standard would require use of the patent. Qualcomm also owns a wide range of non-standard-essential patents for inventions in various technologies related to mobile devices. A significant number of those patents are encompassed by Qualcomm's patent licenses with Apple's manufacturers of iPhones, and Apple is aware that Qualcomm cannot pursue Apple for infringement of those licensed patents. But many other patents covering cutting edge technologies used in iPhones -- are not included in licenses to Apple's iPhone manufacturers that Apple has infringed upon.

12. In this suit, Qualcomm asserts a set of six non-standard-essential patents infringed by Apple's mobile electronic devices. The patents asserted in this suit represent only a small fraction of the Qualcomm non-standard-essential patents that Apple uses without a license.

13. Qualcomm repeatedly offered to license its patents to Apple, including those at issue in this case. But Apple has repeatedly refused offers to license

Qualcomm's patents on reasonable terms. Qualcomm therefore seeks to enforce its rights in the patents identified below and to address and remedy Apple's flagrant infringement of those patents.

PARTIES

14. Qualcomm is a Delaware corporation with its principal place of business at 5775 Morehouse Drive, San Diego, California. Since 1989, when Qualcomm publicly introduced Code Division Multiple Access ("CDMA") as a commercially successful digital cellular communications standard, Qualcomm has been recognized as an industry leader and innovator in the field of mobile devices and cellular communications. Qualcomm owns more than 130,000 patents and patent applications around the world relating to cellular technologies and many other valuable technologies used by mobile devices. Qualcomm is a leader in the development and commercialization of wireless technologies and the owner of the world's most significant portfolio of cellular technology patents. Qualcomm derives a substantial portion of its revenues and profits from licensing its intellectual property. Qualcomm is also a world leader in the sale of chips, chipsets, and associated software for mobile phones and other wireless devices.

15. Apple is a corporation organized and existing under the laws of the State of California, with its principal place of business at 1 Infinite Loop, Cupertino, California. Apple designs, manufactures, and sells throughout the world a wide range of products, including mobile devices that incorporate Qualcomm's multi-touch-gesture, autofocus, multitasking-interface, quick-charging, and machine-learning patents.

JURISDICTION AND VENUE

16. This action arises under the patent laws of the United States of America, 35 U.S.C. § 1 *et seq.* This Court has jurisdiction over the subject matter of this action pursuant to 28 U.S.C. §§ 1331 and 1338(a).

17. This Court has personal jurisdiction over Apple because it is organized and exists under the laws of California.

18. Venue is proper in this District pursuant to 28 U.S.C. § 1391(b) and (c) and 28 U.S.C. § 1400(b). Venue is appropriate under 28 U.S.C. 1400(b) at least because Apple is incorporated in California and because Apple has committed acts of infringement and has a regular and established place of business in this district. Apple's acts of infringement in this district include but are not limited to sales of the Accused Products at Apple Store locations in this district, including but not limited to 7007 Friars Road, San Diego, CA 92108 and 4505 La Jolla Village Drive, San Diego, CA 92122.

STATEMENT OF FACTS

Qualcomm Background

19. Qualcomm was founded in 1985 when seven industry visionaries came together to discuss the idea of providing quality communications. For more than 30 years, Qualcomm has been in the business of researching, designing, developing, and selling innovative semiconductor and cellular technology and products for the telecommunications and mobile technology industries.

20. When Qualcomm was founded, cellular phones were cumbersome, heavy, and expensive devices that supplied inconsistent voice communications—audio quality was poor, users sometimes heard portions of others' calls, handoffs were noisy, and calls frequently dropped. Qualcomm played a central role in the revolutionary transformation of cellular communications technologies. Today, cellular devices are remarkably powerful and can deliver reliable voice service and lightning-fast data to billions of consumers around the world at affordable prices.

21. Qualcomm is now one of the largest technology, semiconductor, and telecommunications companies in the United States. It employs over 18,000 people in the United States, 68 percent of whom are engineers, and it occupies more than

92 buildings (totaling over 6.5 million sq. ft.) in seventeen states and the District of Columbia.

22. Qualcomm's industry-leading research and development efforts, focused on enabling cellular systems and products, are at the core of Qualcomm's business. 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.

23. As a result of the strength and value of Qualcomm's patent portfolio, virtually every major mobile device manufacturer in the world has taken a royalty-bearing license to Qualcomm's patent portfolio. The licenses to Qualcomm's patents allow manufacturers to use numerous forms of critical and innovative Qualcomm technology without having to bear the multi-billion dollar, multi-year costs of developing those innovations themselves.

Apple Background

24. Apple has built the most profitable company in the world, thanks in large part to products that rely on Qualcomm's patented technologies. With a market capitalization of more than $700 billion, $246 billion in cash reserves, and a global sphere of influence, Apple has more money and more influence than many countries. Relying heavily on Qualcomm technology and technology Qualcomm has acquired, Apple has become the dominant player in mobile device sales. Apple's dominance has grown every year since the iPhone's launch in 2007. In recent years, Apple has captured upwards of *90 percent of all profits* in the smartphone industry.

Qualcomm's Battery-Charging Technology

25. The asserted patents reflect the breadth of Qualcomm's dedication and investment in research and development relating to mobile device technology. Qualcomm invented numerous proprietary solutions that are used to optimize products around the globe. Many of those inventions are reflected in Qualcomm's non-standard-essential patents (such as the patents asserted in this case).

26. One of the areas in which Qualcomm is the leader is in an increasingly important technology for mobile devices: fast battery charging. "Qualcomm Quick Charge is the #1 fast charging method based on the number of devices and accessories commercially available."[4] Over 600 million mobile devices and accessories featuring Qualcomm Quick Charge have been sold to date.

27. As smartphone functionality improves, including through bigger, brighter, higher-resolution screens, faster processors, and new and more powerful wireless capabilities, the devices tend to consume more power, necessitating the use of higher-capacity batteries to maintain acceptable battery life. Charging such high-capacity batteries using conventional methods may take an inconveniently long time, but charging at a higher voltages or currents may compromise safety or long-term battery performance.

28. Battery safety also has emerged as a major concern for both consumers and regulators. Battery-related fires can lead to recalls, bans, and declines in demand. Some battery fires have been related to charging issues. To successfully compete in the market, and to satisfy regulators, electronics makers must now demonstrate that the battery systems in their products are safe, especially when it comes to overheating or fires.

---

[4] https://www.qualcomm.com/news/snapdragon/2016/11/17/qualcomm-quick-charge-4-five-minutes-charging-five-hours-battery-life.

29. At the same time, customers demand batteries that store huge amounts of energy and charge quickly, for convenience. Ensuring safety while maintaining large battery capacity, fast charge times, and overall battery performance poses significant technical challenges.

30. Qualcomm's patented Quick Charge technology addresses these challenges by charging batteries faster while doing so safely, in compliance with battery performance standards, and in a way that preserves battery capacity and life.

31. Fast charging is a feature that matters to consumers. As studies have shown, the majority of consumers are specifically influenced by fast charging when they purchase a smartphone.

32. According to a 2016 Consumers Reports article, "In 2014, fewer than a half-dozen phones in Consumer Reports' smartphone ratings came with [fast-charging] technology; today 20 do, and it's fair to assume that it will be a standard feature on all but the least expensive phones."[5]

33. Qualcomm obtained an early version of the Quick Charge technology—known as Quick Charge 1.0—through its acquisition of Summit Microelectronics, Inc. ("Summit") in June 2012.[6] At the time of the acquisition, Qualcomm announced that the acquisition "enables us to provide our customers with industry leading power management and charging performance."[7] All former employees of Summit Microelectronics joined Qualcomm, and Qualcomm continued developing and improving the Quick Charge technology after acquiring Summit. On November 16, 2016, Qualcomm introduced Quick Charge 4, which

---

[5] http://www.consumerreports.org/smartphones/plugging-old-phone-chargers-into-fast-charge-smartphones/; *see also* https://www.qualcomm.com/media/documents/files/quick-charge-device-list.pdf.

[6] https://www.qualcomm.com/news/onq/2013/02/14/qualcomm-quick-charge-10-less-time-charging-more-time-doing.

[7] https://www.qualcomm.com/news/releases/2012/06/18/qualcomm-acquires-summit-microelectronics.

allows 5 minutes of charging to yield 5 hours of battery life, or 15 minutes of charging to yield a 50% battery charge.[8]

34. Summit was the original assignee of U.S. Patent Number 7,834,591 ("the '591 patent"). Qualcomm acquired ownership of the '591 patent when it acquired Summit and hired all of its employees in 2012.

35. Qualcomm's continued development of the Quick Charge technology has resulted in further inventions by Qualcomm, as reflected in related patents and applications generated after Qualcomm's acquisition of Summit.

36. Although Apple is not licensed to Qualcomm's battery-charging patents, Apple uses the technology from those patents and publicly boasts that its battery-powered devices feature a system that also allows the devices to charge quickly while preserving battery performance. Apple's website states that its batteries "charge[] fast for convenience and slow for longevity." It continues: "Your Apple lithium-ion battery uses fast charging to quickly reach 80% of its capacity, then switches to slower trickle charging. The amount of time it takes to reach that first 80% will vary depending on your settings and which device you're charging. This combined process not only lets you get out and about sooner, it also extends the lifespan of your battery."[9]

37. While the popularity of Qualcomm's Quick Charge technology has grown, becoming widely used in flagship mobile devices, Apple boasts that its devices offer the benefits of Qualcomm's Quick Charge technology—but Apple does not actually license the technology from Qualcomm.

[8] https://www.qualcomm.com/news/snapdragon/2016/11/17/qualcomm-quick-charge-4-five-minutes-charging-five-hours-battery-life.

[9] http://www.apple.com/batteries/why-lithium-ion/.

Qualcomm's Content Delivery Technology

38. Today's mobile devices—including Apple's iPhones and iPads—promise the user several ways of connecting wirelessly to other devices, including through a cellular connection, a Wi-Fi connection, and a Bluetooth connection. Consumers want all of their devices to be connected and "communicate" with one another. But getting devices to relay accurate and reliable information with another poses significant technical challenges. Qualcomm's patented Relevant Content Delivery technology, U.S. Patent Number 8,971,861 (patent '861), meets these demands by enabling one mobile device to track, sense, monitor, and transmit relevant health data such as dehydration and heart rate to another mobile device.

39. Apple heavily markets its devices' varied wireless capabilities and ability to connect to one another wirelessly, pushing consumers to mobile devices that pair with one another.[10] For example, Apple Watch is widely promoted by Apple to track and relay relevant data such as health and physiologic data to the user's other mobile devices.[11] Based on the physiological data, iPhone may push notifications, such as reminders and notifications of achievements, to Apple Watch.[12]

40. Apple also touts that Apple Watch will record a user's location, distance, and elevation during a run and that those "detailed stats" can then be viewed on the user's iPhone.[13] Apple further encourages Apple Watch users to view

[10] See http://www.apple.com/pr/library/2014/09/09Apple-Unveils-Apple-Watch-Apples-Most-Personal-Device-Ever.html.

[11] See http://www.apple.com/watch/health/.

[12] *See* https://support.apple.com/en-us/HT204666

[13] *See* https://www.apple.com/apple-watch-series-3/#sports-watch

their workout history and historical performances, which Apple Watch automatically sends to the user's iPhone.[14]

41. Additionally, iPhone keeps historical data of various users activities and, based on that history, provides notifications to Apple Watch.

42. Ultimately, in order to deliver a better user experience that its customers demanded, Apple chose to use Qualcomm's patented advancements in content delivery without paying for them.

Qualcomm's Machine-Learning Technology

43. Qualcomm also has developed industry-leading artificial intelligence technologies, including pattern-based machine learning technologies. For example, Qualcomm has made important advances in aggregating input signals from different information sources—such as GPS or Bluetooth connections—to understand patterns in user behavior and provide personalized suggestions and assistance for a more satisfying user experience.

44. Apple heavily markets features that use this technology to improve the user experience. For example, Apple promotes Proactive Suggestions in its Maps application, with Apple promising to predict where the user will go and suggest the fastest way to get there.[15] Apple's Siri also adapts to the user and provides services that are personalized to the user. These and other features Apple offers use machine learning to identify patterns of user behavior based on an aggregation of multiple input signals.

45. Apple has chosen to use Qualcomm's patented advancements in artificial intelligence and pattern learning, including U.S. Patent Number 8,768,865 ("the '865 patent"), without paying for them, to deliver the personalized user experiences Apple promises.

---

[14] *See id.*

[15] *See* https://www.apple.com/ios/maps/

Qualcomm's Stepped Gain Mixer Technology

46. Qualcomm has also invented a state of the art amplified stepped gain mixer that improves the signal-to-noise ratio that helps increase the amount of data that can be transmitted to a mobile device, as covered by U.S. Patent Number 8,229,043 ("the '043 patent").

47. Typical receivers have a signal-to-noise ratio (SNR) of no more than about 20 dB. The signal-to-noise ratio imposes a rough limit on the data throughput that a communication system can transmit. *Id.* at 1:14-17.

48. Qualcomm's patented stepped gain mixer provides a higher signal to noise ratio than that achievable with conventional mixers and allows higher data rates to be transmitted. *Id.* at 2:3-5. Apple's newest iPhones use this patented technology and yet Apple has refused to pay Qualcomm to use it.

Qualcomm's Image Processing Technology

49. Qualcomm also has contributed to technical developments in the areas of multimedia and consumer photography. For example, Qualcomm has made advancements in image processing as well as face and body detection, as reflected in U.S. Patent 8,447,132 ("the '132 patent"). Qualcomm's patented technology relates to recognizing an object in a image and applying correction to that object all while recognizing and applying a different correction to a different part of the image to improve the user experience. The '132 patent achieves this by using a technology known as dynamic range correction, which uses the location of a dark object, such as a face, to determine the exposure time, and then the exposure can be adjusted so that the face is bright and visible. *Id.* at 2:10-14.

50. Mobile devices with dual cameras, including certain Apple devices, use this invention to perform high quality simulations of photographic effects (such as the so-called "bokeh" effect) that can otherwise be generated only with bulky and expensive camera equipment. In fact, Apple's Senior Vice President of Worldwide Marketing described the iPhone 7 Plus's ability to "create a depth map of [an] image

from [its] two cameras . . . and apply a beautiful blur to the background" as "a huge breakthrough in what can be done in a smartphone in photography."[16] Apple has chosen to use Qualcomm's patented advancements in multimedia and consumer photography without paying for them, to deliver the personalized user experiences Apple promises.

Qualcomm's Circuitry Technology

51. As mobile devices have become increasingly smaller and more portable, so too has their circuitry. However, as semiconductor technology gets smaller and smaller, it becomes harder to design circuits that are durable without compromising performance. As the world's leading manufacture in cellar chips, chipsets, and associated software for mobile phones, Qualcomm has overcome these difficulties. Qualcomm continuously innovates in the areas of cell layout and chip design and has made important advances in high-density circuit architecture that allows mobile devices to be smaller and function better.

52. For example, one such patented technology, U.S. Patent Number 9,024,418 ("the '418 patent"), uses improved design layouts to shorten the distance between circuits and improve performance. In the process, the circuitry becomes more condense while eliminating unnecessary additional structures.

53. Apple heavily makes use of these improved local interconnect structures in their A10 processors found in their iPhones. Local interconnect layouts found in Qualcomm's '418 patent are widespread in Apple's processors, allowing them to take advantage of these gains in performance and density without paying the inventors who developed such breakthroughs.

[16] https://singjupost.com/apple-iphone-7-keynote-september-2016-launch-event-full-transcript/8/

COMMENT

The Accused Devices

54. As set forth below, a variety of Apple's devices—including certain of Apple's iPhones and iPads—practice one or more of the Patents-in-Suit.

The Patents-in-Suit

55. The following patents are infringed by Apple ("Patents-in-Suit"): U.S. Patent No. 8,971,861 ("the '861 patent"), U.S. Patent No. 7,834,591 ("the '591 patent"), U.S. Patent No. 8,768,865 ("the '865 patent"), U.S. Patent No. 8,229,043 ("the '043 patent), U.S. Patent 8,447,132 ("the '132 patent"), and U.S. Patent No. 9,024,418 ("the '418 patent")

56. As described below, Apple has been and is still infringing, contributing to infringement, and/or inducing others to infringe the Patents-in-Suit by making, using, offering for sale, selling, or importing devices that practice the Patents-in-Suit. Apple's acts of infringement have occurred within this District and elsewhere throughout the United States.

U.S. Patent No. 8,971,861

57. The '861 patent was duly and legally issued on March 3, 2015 to Qualcomm, which is the owner of the '861 patent and has the full and exclusive right to bring actions and recover damages for Apple's infringement of the '861 patent. The '861 patent is valid and enforceable. A copy of the '861 patent is attached hereto as Exhibit A.

58. The '861 patent relates to relaying content to a mobile device based on the physiological data collected by the mobile device. '861 patent at Abstract. For instance, a mobile device takes sensor readings that detect the condition of the individual, such as dehydration, a high heart rate, etc., and can use a computer system to suggest activities. *Id.* at 1:33-39. "The physiological state data may comprise heart rate data, heart rate variability data, skin conductance level data, number of electrodermal responses data, or change in skin temperature data.

Capturing, by the mobile device, the physiological state data of the user of the mobile device may comprise using one or more biomedical sensors selected from a group consisting of: electrocardiogram (ECG) sensors, galvanic skin response (GSR) sensors, plethysmography (PPG) sensors, skin temperature sensors (SKT), and electromyogram (EMG) sensors." *Id*. at 2:51-60. The collected physiological state data can then be transmitted to another mobile device for further analysis and action: "The patent also claims relaying specific content to a mobile device based on physiologic data detected. Thus the process results in physiological state data collected form the user of the mobile device capture at a time to be received from the mobile device." *Id.* at 5:17-19.

U.S. Patent No. 7,834,591

59. The '591 patent was duly and legally issued on November 16, 2010 to Summit Microelectronics, which subsequently assigned the '591 patent to Qualcomm, who is the owner of the '591 patent and has the full and exclusive right to bring actions and recover damages for Apple's infringement of the '591 patent. The '591 patent is valid and enforceable. A copy of the '591 patent is attached hereto as Exhibit B.

60. The '591 patent relates to a USB-powered battery charger that recharges a battery by passing a voltage and current from a power source through a switching regulator and filter to the battery. '591 patent at 16:51-53. The switching regulator includes a switching transistor, and the switching regulator generates a switching signal at the control terminals of the switching transistor. *Id.* at 16:62-66. The current to the battery may be maintained at a constant value by using the sensed battery current to modify the control signal and thus change the output of the switching regulator. *Id.* at 17:16-33. Similarly, the voltages or currents provided to the battery may be set based on the sensed voltage or current at the battery. *Id.* at 17:12-16. The switching regulator may provide to the battery a current that is greater than the current from the power source. *Id.* at 17:34-37. In addition, the

current to the battery may be reduced as the battery voltage increases. *Id.* at 18:4-8. Ultimately, the '591 patent permits battery charge time to be reduced.

U.S. Patent No. 8,768,865

61. The '865 patent was duly and legally issued on July 1, 2014 to Qualcomm, who is the owner of the '865 patent and has the full and exclusive right to bring action and recover damages for Apple's infringement of the '865 patent. The '865 patent is valid and enforceable. A copy of the '865 patent is attached hereto as Exhibit C.

62. The '865 patent relates to machine learning of situations via pattern matching or recognition for use with mobile devices. The claimed invention facilitates efficient pattern matching by reducing a set of variables associated with a multi-dimensional sensor information stream. '865 patent at 8:45-54. The disclosed solution is to capture and utilize multi-dimensional sensor information to improve user experience. *Id.* at 1:20-23.

U.S. Patent No. 8,229,043

63. The '043 patent was duly and legally issued on July 24, 2012 to Qualcomm, who is the owner of the '043 patent and has the full and exclusive right to bring action and recover damages for Apple's infringement of the '043 patent. The '043 patent is valid and enforceable. A copy of the '043 patent is attached hereto as Exhibit D.

64. The '043 patent relates to an amplified stepped gain mixer that improves the signal-to-noise ratio of a receiver by using multiple gain states to improve linearity. '043 patent 2:9-12. The mixer includes an amplifier, a switch, and two transistors. The amplifier output is coupled to the sources of the transistors, and an oscillating signal is present on the transistor gates. The transistor drains are coupled to one another through the switch when the switch is closed. The mixer portion is configured such that the switch is closed when a switching signal is

asserted. The switching signal is asserted when at bit of a mixer control register is written to. This results in higher data rates to be transmitted.

U.S. Patent No. 8,447,132

65. The '132 patent was duly and legally issued on May 21, 2013 to Qualcomm, who is the owner of the '132 patent and has the full and exclusive right to bring action and recover damages for Apple's infringement of the '132 patent. The '132 patent is valid and enforceable. A copy of the '132 patent is attached hereto as Exhibit E.

66. The '132 patent relates generally to a method and apparatus for recognizing an object in an image, applying a correction to that object, and applying a different correction to a different part of the image. '132 patent at 1:10-14. For example, the '132 patent achieves this by using a technology known as dynamic range correction, which uses the location of a dark object, such as a face, to determine the exposure time, and then the exposure can be adjusted so that the face is bright and visible.

U.S. Patent No. 9,024,418

67. The '418 patent was duly and legally issued on May 5, 2015 to Qualcomm, who is the owner of the '418 patent and has the full and exclusive right to bring action and recover damages for Apple's infringement of the '418 patent. The '418 patent is valid and enforceable. A copy of the '418 patent is attached hereto as Exhibit F.

68. The '418 patent relates generally to improved local interconnect layouts to improve circuit density and performance, and specifically to a local interconnect structure that includes a gate-directed local interconnect coupled to an adjacent gate layer through a diffusion-directed local interconnect. '418 patent at 1:16-20. Such a coupling enables reduced cell height for a variety of devices such as transistors and Through this process circuit isolation is achieved without diffusion and grid breaks and without additional and unnecessary interconnect structures.

COUNT 1 (PATENT INFRINGEMENT – U.S. PATENT NO. 8,971,861)

69. Qualcomm repeats and re-alleges the allegations of paragraphs 1 through 67 above as if fully set forth herein.

70. Qualcomm is the lawful owner of the '861 patent and has the full and exclusive right to bring actions and recover damages for Apple's infringement of said patent.

71. In violation of 35 U.S.C. § 271, Apple has been and is still infringing, contributing to infringement, and/or inducing others to infringe the '861 patent by making, using, offering for sale, selling, or importing mobile devices that practice the patent, including but not limited to Apple Watch as used with iPhone 5, iPhone 5C, iPhone 5S, iPhone 6, iPhone 6 Plus, iPhone 6S, iPhone 6S Plus, iPhone 7, and/or iPhone 7 Plus.

72. The accused devices are capable of being used together to monitor and relay a user's physiological data and health. For example, Apple Watch is a mobile device that collects physiological data from a user and sends it to an iPhone for analysis and action. Based on the physiological data, iPhone may push notifications, such as reminders and notifications of achievements, to Apple Watch.

73. More specifically, Apple Watch will monitor, *e.g.*, a user's heart rate, and send that data to the user's iPhone. The iPhone will thereafter analyze that data and provide notifications to a user such as predefined achievements, goals, etc., that will be sent back to Apple Watch and displayed to the user.

74. The accused devices infringe at least claims 1, 3, 4, 10, 12, 13, 19, 21, 22, 26, 27, 28, 29, 30, and 31 of the '861 patent.

75. The accused devices infringe claim 1 of the '861 patent as follows. Each accused device includes a method for selecting for "receiving, by a host computer system, from a mobile device, physiological state data collected from a user of the mobile device." This "method" is mapped on iPhone 5 or later as Apple

Watch is compatible with such devices.[17] Apple Watch collects physiological state data such as heart rate, which is explicitly recognized as such in the patent specification.[18] This data can then be sent to an iPhone.[19] On information and belief that creating the summaries, charts, and comparison figures above constitutes "analysis" as recited in claim 1. On information and belief that the devices using the WatchConnectivity framework, data is channeled back and forth between the WatchKit extension and the iOS app[20] constitutes "selecting… content from a plurality of predefined content to deliver to the mobile device" and then "transmitting…the selected content to the mobile device" as recited in claim 1. Thus, Apple devices infringe claim 1 of the '861 patent.

76. With respect to claims 3 and 4, on information and belief, the method for selecting content for delivery of claim 1 above also includes "receiving…environmental data from the mobile device." The environmental data indicates motions of the mobile device. Thus, the accused devices infringe claims 3 and 4 of the '861 patent.

77. With respect to claim 10 of the '861 patent, on information and believe the accuse devices contain a system for selecting content for delivery. Such "a system" is mapped on iPhone 5 or later as Apple Watch is compatible with such devices.[21] On information and belief that the accused devices contain one or more

---

[17] *See* http://www.apple.com/pr/library/2014/09/09Apple-Unveils-Apple-Watch-Apples-Most-Personal-Device-Ever.html.

[18] *See* http://www.apple.com/watch/health/

[19] *See* https://support.apple.com/en-us/HT204666

[20] *See* https://developer.apple.com/library/watchos/documentation/General/Conceptual/WatchKitProgrammingGuide/SharingData.html#//apple_ref/doc/uid/TP40014969-CH29-SW1

[21] *See* http://www.apple.com/pr/library/2014/09/09Apple-Unveils-Apple-Watch-Apples-Most-Personal-Device-Ever.html.

processors, such as the A9 or A10 processors.[22] The processors contain processor-readable instructions. Thus, the accused devices infringe claim 10 of the '861 patent.

78. With respect to claim 12 and 13 of the '861 patent, on information and belief, the system for selecting content for delivery of each accused device includes the receipt of environmental data form the mobile device, wherein selecting the content to deliver to the mobile device is at least partially based on the physiological state data and is further at least partially based on the environmental data. On the information and belief that the environmental data indicates motion of the mobile device. Thus, the accused devices infringe claims 12 and 13 of the '861 patent.

79. With respect to claim 19 of the '861 patent, on information and belief, the accused devices include a non-transitory processor-readable medium for selecting content for delivery. The processor-readable instructions cause one or more processors to receive, analyze, select, and transmit physiological state data collected from the user to be transmitted to the mobile device. Thus, the accused devices infringe claim 19 of the '861 patent.

80. With respect to claims 21 and 22 of the' 861 patent, on information and belief, the non-transitory processor-readable medium for selecting content for delivery of each accused device includes the ability to "receive environmental data". The environmental data indicates motion of the mobile device. Thus, the accused devices infringe claims 21 and 22 of the '861 patent.

81. With respect to claim 26 of the '861 patent, on information and belief, the accused devices include an apparatus for selecting content for delivery comprising the means for receiving, analyzing, selecting, and transmitting physiological state data collected from the user to be transmitted to the mobile device. Thus, the accused devices infringe claim 26 of the '861 patent.

---

[22] *See* http://www.apple.com/iphone-6s/technology/.

82. With respect to claims 28 and 29 of the' 861 patent, on information and belief, the apparatus for selecting content for delivery of each accused device includes the ability to "receive environmental data". The environmental data indicates motion of the mobile device. Thus, the accused devices infringe claims 28 and 29 of the '861 patent.

83. With respect to claims 30 and 31 of the' 861 patent, on information and belief, the apparatus for selecting content for delivery of each accused device includes the means for capturing, receiving, monitoring, and aborting presentation of the selected content and deleting the content from the mobile device in response to the trigger action not occurring with a threshold period of time. Thus, the accused devices infringe claims 30 and 31 of the '861 patent.

84. On information and belief, Apple is currently, and unless enjoined, will continue to, actively induce and encourage infringement of the '861 patent. Apple has known of the '861 patent at least since the time this complaint was filed and served on Apple. On information and belief, Apple nevertheless actively encourages others to infringe the '861 patent. On information and belief, Apple knowingly induces infringement by others, including resellers, retailers, and end users of the accused devices. For example, 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. These facts give rise to a reasonable inference that Apple knowingly induces others, including resellers, retailers, and end users, to directly infringe the '861 patent, and that Apple possesses a specific intent to cause such infringement.

85. Apple also contributes to infringement of the '861 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 '861 patent. These mobile electronic devices are known by Apple to be especially made or especially adapted for use in the infringement of the '861 patent. Apple also contributes to the infringement of the '861 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 '861 patent. These mobile devices are known by Apple to be especially made or especially adapted for use in the infringement of the '861 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 '861 patent.

86. Apple's acts of infringement have occurred within this district and elsewhere throughout the United States.

87. Qualcomm has been damaged and will suffer additional damages and irreparable harm unless Apple is enjoined from further infringement. Qualcomm will prove its irreparable harm and damages at trial.

COUNT 2 (PATENT INFRINGEMENT – U.S. PATENT NO. 7,834,591)

88. Qualcomm repeats and re-alleges the allegations of paragraphs 1 through 67 above as if fully set forth herein.

89. Qualcomm is the lawful owner of the '591 patent, and has the full and exclusive right to bring actions and recover damages for Apple's infringement of said patent.

90. In violation of 35 U.S.C. § 271, Apple has been and is still infringing, contributing to infringement, and/or inducing others to infringe the '591 patent by making, using, offering for sale, selling, or importing mobile devices that practice

the patent, including but not limited to the iPhone 6S, iPhone 6S Plus, iPhone SE, iPhone 7, iPhone 7 Plus, iPhone 8, iPhone 8 Plus, iPad mini 4, the 12.9" 2015 iPad Pro, and the 2015 MacBook.

91. The accused devices allow battery charging where the filter is coupled between the switching regulator and the battery component. The filtered output current to the battery from the switching regulator is greater than the input current to the switching regulator and is greater than the maximum current capability of the USB power source. The charger will first operate in current control mode before transitioning to voltage control mode.

92. The accused devices infringe at least claims 1, 4, 5, 6, 7, 8, 15, 21, 22, 23, 24, 25, 28, 29, 30, and 31 of the '591 patent.

93. The accused devices infringe claim 1 of the '591 patent as follows. Each accused device includes a Universal Serial Bus (USB) battery charger. For example, the iPhone 7, iPhone 7 Plus, iPhone 6S, iPhone 6S Plus, and iPhone SE each includes a USB battery charger, which includes at least an integrated circuit (IC).[23] Other Apple devices each includes a corresponding USB battery charger. On information and belief, the battery charger of each accused device includes "a switching regulator having at least one switching transistor" and "a filter" as recited in claim 1. On information and belief, the switching transistor has a first input coupled to a USB power source and a first output coupled to a first input of the filter, and a battery is coupled to a first output of the filter such that the switching regulator is configured "to receive a USB voltage, and generate a switching signal to a control terminal of the switching transistor," and " a switching current and a switching voltage at the output of the switching transistor are coupled through the filter to a battery to generate a filtered current and a filtered voltage to charge the

[23] *See* http://www.techinsights.com/about-techinsights/overview/blog/inside-the-iphone-6s/; http://www.techinsights.com/about-techinsights/overview/blog/apple-iphone-7-teardown/.

battery." That is, a switching voltage and current is present at the switching regulator output prior to the filter, and the switching current and voltage is coupled to the filter to provide a filtered current and voltage to the battery. On information and belief, the battery charger of each accused device provides a filtered current that is "greater than a first input current into the first input of the switching transistor" and is reduced, in a current control mode, as a voltage on the battery increases. That is, when a discharged accused device is connected to a USB wall adapter plugged into an outlet, the filtered output current to the battery is greater than the input current to the switching regulator, and the filtered output current decreases while the voltage increases. On information and belief, this advantageously provides quicker charging of the battery in the accused Apple device. Thus, Apple devices infringe claim 1 of the '591 patent.

94. With respect to claims 2 and 3, on information and belief, the battery charger of each accused device includes a voltage controller that senses the filtered voltage, which is derived from the battery voltage. Based on the filtered voltage, the voltage controller controls the switching signal at the control terminal of the switching transistors in constant voltage regulation period. The voltage controller is coupled to programmable thresholds and the sensed filtered voltage. The programmable thresholds configure the voltage controller to generate a first programmed voltage to the battery if the voltage on the battery is above a first threshold. Thus, the accused devices infringe claims 2 and 3 of the '591 patent.

95. With respect to claims 4 and 5, on information and belief, the battery charger of each accused device includes a current controller that senses the filtered current based on the current flowing through the switching transistor. Based on the filtered current, the current controller controls the switching signal at the control terminal of the switching transistor. The current controller is coupled to a programmable array and the sensed filtered current. The programmable array configures the current controller to supply a first programmed current to the battery

if the voltage on the battery is below a first threshold. Thus, the accused devices infringe claims 4 and 5 of the '591 patent.

96. With respect to claim 6 of the '591 patent, on information and belief, the battery charger of each accused device includes a current controller that receives an input signal indicating a maximum input current, the input signal programming the current controller to set a maximum battery current based on the maximum input current. The battery current is compared with the programmable maximum battery current, and a control signal for the switching transistor causes the battery current to be reduced such that it remains under the maximum battery current. Thus, the accused devices infringe claim 6 of the '591 patent.

97. With respect to claim 7 of the '591 patent, on information and belief, the battery charger of each accused device receives a USB voltage that is between 4.1 volts and 5.25 volts while charging. Thus, the iPhone and iPad accused devices infringe claim 7 of the '591 patent.

98. With respect to claim 8 of the '591 patent, on information and belief, the battery charger of each accused device charges by "receiving a first input voltage and a first input current at an input of a switching regulator from a USB power source" as recited in claim 8. On information and belief, the switching output voltage and current from the switching regulator are coupled through a filter to a terminal of the battery such that the switching regulator is configured "to generate a first output voltage and a first output current to a control terminal of the battery." On information and belief, the battery charger of each accused device provides an input voltage that is "greater than a first output voltage on the battery" and the first output current is reduced, in a current control mode, as the first output voltage on the battery increases. That is, when a discharged accused device is connected to a USB wall adapter plugged into an outlet, the filtered input current to the battery is greater than the output current to the control terminal of the battery, and the output current decreases while the voltage increases. On information and belief, this

advantageously provides quicker charging of the battery in the accused Apple device. Thus, Apple devices infringe claim 8 of the '591 patent.

99. With respect to claim 15 of the '591 patent, on information and belief, the battery charger of each accused device includes a current controller "to set the filtered current to be greater than the first input current received at the first input of the switching transistor." Thus, the accused devices infringe claim 15 of the '591 patent.

100. With respect to claim 21 of the '591 patent, on information and belief, the battery charger of each accused device provides a filtered current that decreases while voltage increases in a current control mode, and then transitions to a voltage control mode in which voltage is controlled (e.g., maintaining a constant voltage). Thus, the accused devices infringe claim 15 of the '591 patent.

101. With respect to claim 22 of the '591 patent, on information and belief, the battery charger of each accused device has a short precharge period (e.g., approximately 10 to 20 seconds), and the filtered current decreases after the precharge period as the battery voltage increases. Thus, the accused devices infringe claim 22 of the '591 patent.

102. With respect to claims 23 and 24 of the '591 patent, on information and belief, the battery charger of the accused iPhone and iPad devices each has a filtered current set at a value above a maximum current capability of the USB power source during a portion of the charge cycle and reduced under control of a current controller circuit. During the portion of the charge cycle where the filtered current is set at the value above the maximum current capability of the USB power source, the battery charger of the accused device provides a filtered current that is greater than the maximum current capability of the USB power source. For example, Apple's USB Power Adaptors for iPhones have a maximum current capability of 1

A as they are rated to 1 A.[24] However, on information and belief, during a portion of the charge cycle for iPhones (e.g., towards the beginning of the charge cycle), the filtered current is above 1 A. Similarly, on information and belief, during a portion of their charge cycles, the accused iPad devices set a filtered current that is above the maximum current capability of the iPad chargers. Thus, the accused iPhone and iPad devices infringe claims 23 and 24 of the '591 patent.

103. With respect to claim 25 of the '591 patent, on information and belief, the battery charger of each accused device charges where the input current is maintained approximately constant as the output current is reduced. Thus, the accused devices infringe claim 25 of the '591 patent.

104. With respect to claim 28 of the '591 patent, for the iPhone 6S, and other Apple devices, the output current is reduced before a transition to a voltage controlled mode. Thus, the accused devices infringe claim 28 of the '591 patent.

105. With respect to claim 29 of the '591 patent, on information and belief, the battery charger of each accused device has a short precharge period (e.g., approximately 10 to 20 seconds). Thus, the accused devices infringe claim 22 of the '591 patent.

106. With respect to claims 30 and 31 of the '591 patent, on information and belief, the battery charger of the accused iPhone and iPad devices each has a filtered current set at a value above a maximum current capability of the USB power source during a portion of the charge cycle and reduced under control of a current controller circuit. During the portion of the charge cycle where the filtered current is set at the value above the maximum current capability of the USB power source, the battery charger of the accused device provides a filtered current that is greater than the maximum current capability of the USB power source. For example, Apple's USB Power Adaptors for iPhones have a maximum current capability of 1

---

[24] *See* https://www.apple.com/power-adapters/.

A as they are rated to 1 A.[25] However, on information and belief, during a portion of the charge cycle for iPhones (e.g., towards the beginning of the charge cycle), the filtered current is above 1 A. Similarly, on information and belief, during a portion of their charge cycles, the accused iPad devices set a filtered current that is above the maximum current capability of the iPad chargers. Thus, the accused iPhone and iPad devices infringe claims 30 and 31 of the '591 patent.

107. On information and belief, Apple is currently, and unless enjoined, will continue to, actively induce and encourage infringement of the '591 patent. Apple has known of the '591 patent at least since the time this complaint was filed and served on Apple. On information and belief, Apple nevertheless actively encourages others to infringe the '591 patent. On information and belief, Apple knowingly induces infringement by others, including resellers, retailers, and end users of the accused devices. For example, 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. These facts give rise to a reasonable inference that Apple knowingly induces others, including resellers, retailers, and end users, to directly infringe the '591 patent, and that Apple possesses a specific intent to cause such infringement.

108. Apple also contributes to infringement of the '591 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 '591 patent. These mobile electronic devices are known by Apple to be especially

---

[25] *See* https://www.apple.com/power-adapters/.

made or especially adapted for use in the infringement of the '591 patent. Apple also contributes to the infringement of the '591 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 '591 patent. These mobile devices are known by Apple to be especially made or especially adapted for use in the infringement of the '591 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 '591 patent.

109. Apple's acts of infringement have occurred within this district and elsewhere throughout the United States.

110. Qualcomm has been damaged and will suffer additional damages and irreparable harm unless Apple is enjoined from further infringement. Qualcomm will prove its irreparable harm and damages at trial.

COUNT 3 (PATENT INFRINGEMENT – U.S. PATENT NO. 8,768,865)

111. Qualcomm repeats and re-alleges the allegations of paragraphs 1 through 67 above as if fully set forth herein.

112. Qualcomm is the lawful owner of the '865 patent, and has the full and exclusive right to bring actions and recover damages for Apple's infringement of said patent.

113. In violation of 35 U.S.C. § 271, Apple has been and is still infringing, contributing to infringement, and/or inducing others to infringe the '865 patent by making, using, offering for sale, selling, or importing devices that practice the patent, such as Apple devices running iOS 9 and above, including but not limited to iPhone 4S, iPhone 5, iPhone 5C, iPhone 5S, iPhone 6, iPhone 6 Plus, iPhone 6S, iPhone 6S Plus, iPhone SE, iPhone 7, iPhone 7 Plus, iPad Pro with Wi-Fi and

cellular, iPad Air and later with Wi-Fi and cellular, iPad 2 and later with Wi-Fi and cellular, and iPad mini and later with Wi-Fi and cellular.

114. The accused devices are capable of machine learning and anticipating what users may do next. The accused devices learn a pattern of user behavior over time by monitoring user inputs and other input signals (for example, GPS or Bluetooth signals). Based on user behavior, when certain conditions associated with a specific pattern are detected, the accused devices may provide suggestions to the user. Since it is important that the provided suggestions make sense in view what the user is planning to do next, and because the accused devices have access to many different streams of input signals, the accused devices fix a subset of parameters associated with the detected condition in order to more effectively recognize the presence of the specific pattern.

115. The accused devices infringe at least claims 1, 2, 3, and 4 of the '865 patent. Regarding claim 1, the accused devices incorporate infringing Proactive Suggestions functionality, which monitors input signals from several information sources (such as GPS, Wi-Fi, or Bluetooth) to identify a pattern, such as whether the user is heading home from work.[26] Other potentially infringing functionality includes predictive text,[27] predictive touch,[28] predictive emojis,[29] and predictive

---

[26] Apple states that Proactive Suggestions "help[s] the system suggest your app to users at appropriate times . . . , which helps the system promote your app in additional places, such as the keyboard with QuickType suggestions, Maps and CarPlay, the app switcher, Siri interactions, and (for media playing apps) the lock screen." https://developer.apple.com/library/content/releasenotes/General/WhatsNewIniOS/Articles/iOS10.html.

[27] https://www.apple.com/accessibility/iphone/learning-and-literacy/.

[28] http://www.idownloadblog.com/2015/06/15/ios-9-predictive-touch/.

[29] https://www.macrumors.com/how-to/ios-10-messages-emoji/.

dock.[30] In the accused Proactive Suggestions functionality, patterns – for example, a user returning home from work – are identified based on at least one detected condition, which may include whether the user is sitting in the user's car, whether the user is at work, and what time the user is leaving work. On information and belief, Proactive Suggestions fixes a subset of varying parameters associated with this pattern so that at least one such varying parameter represents at least one detected condition. For example, a parameter received from an input signal, such as fixing the Bluetooth signal as "connected to car," is used to represent a detected condition, such as the user sitting in the user's car. On information and belief, after the first pattern has been detected, Proactive Suggestions can recognize a second pattern from a reduced set of varying parameters by using the same fixed subset of varying parameters as the first pattern. For example, if the user occasionally goes to the gym on the way home from work, Proactive Suggestions may detect, while holding the Bluetooth signal as "connected to car," that the user has deviated from directions leading to the user's home and may recognize, based on the reduced set of varying parameters, a second pattern – that the user is instead heading to the gym after work. Thus, the accused devices infringe claim 1 of the '865 patent.

116. Regarding claim 2 of the '865 patent, the accused devices are able to receive accelerometer, GPS, or Wi-Fi as input signals. Thus, the accused devices infringe claim 2 of the '865 patent.

117. Regarding claim 3 of the '865 patent, after identifying one pattern, the accused devices will attempt to recognize another pattern based on the monitored input signals. Thus, the accused devices infringe claim 3 of the '865 patent.

118. Regarding claim 4 of the '865 patent, on information and belief, the accused devices recognize another pattern in claim 3 based on a reduced set of

---

[30] http://www.idownloadblog.com/2017/06/05/ios-11-adds-new-dock-drag-and-drop-and-other-ipad-productivity-features/.

varying parameters not previously fixed to represent a condition associated with the first pattern. Thus, the accused devices infringe claim 4 of the '865 patent.

119. On information and belief, Apple is currently, and unless enjoined, will continue to, actively induce and encourage infringement of the '865 patent. Apple has known of the '865 patent at least since the time this complaint was filed and served on Apple. On information and belief, Apple nevertheless actively encourages others to infringe the '865 patent. On information and belief, Apple knowingly induces infringement by others, including resellers, retailers, and end users of the accused devices. For example, 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. These facts give rise to a reasonable inference that Apple knowingly induces others, including resellers, retailers, and end users, to directly infringe the '865 patent, and that Apple possesses a specific intent to cause such infringement.

120. Apple also contributes to infringement of the '865 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 '865 patent. These mobile electronic devices are known by Apple to be especially made or especially adapted for use in the infringement of the '865 patent. Apple also contributes to the infringement of the '865 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 '865 patent. These mobile devices are known by Apple to be especially made or especially adapted for use in the infringement of the '865 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 '865 patent.

121. Apple's acts of infringement have occurred within this district and elsewhere throughout the United States.

122. Qualcomm has been damaged and will suffer additional damages and irreparable harm unless Apple is enjoined from further infringement. Qualcomm will prove its irreparable harm and damages at trial.

COUNT 4 (PATENT INFRINGEMENT – U.S. PATENT NO. 8,229,043)

123. Qualcomm repeats and re-alleges the allegations of paragraphs 1 through 67 above as if fully set forth herein.

124. Qualcomm is the lawful owner of the '043 patent and has the full and exclusive right to bring actions and recover damages for Apple's infringement of said patent.

125. In violation of 35 U.S.C. § 271, Apple has been and is still infringing, contributing to infringement, and/or inducing others to infringe the '043 patent by making, using, offering for sale, selling, or importing mobile devices that practice the patent, including but not limited to the iPhone 7 and iPhone 7 Plus.

126. The accused devices contain an amplifier and two transistors connected by a switch. Specifically, the devices allows for the drains of the first and second transistors to be coupled when the switch is closed, and an oscillating signal is present on the gate leads of the two transistors.

127. The accused devices infringe at least claims 1, 2, 3, 5, 6, 7, and 18 of the '043 patent.

128. The accused devices infringe claim 1 of the '043 patent as follows. On information and belief, that each accused device includes "an amplifier having an

output lead, and a first and second transistor having a source lead, a drain lead and a gate lead, and the output lead of the amplifier is coupled to the source lead of the first transistor and to the source lead of the second transistor," and "a switch that couples the drain lead of the first transistor to the drain lead of the second transistor when the switch is closed, and "an oscillating signal is present on the gate lead of the first transistor and on the gate lead of the second transistor. Thus, the accused devices infringe claim 1 of the '043 patent.

129. With respect to claims 2 and 3, on information and belief, the amplifier of each accused device includes an input lead that is coupled to an antenna, and a filter with an input lead that is coupled to the drain lead of the first transistor. Thus, the accused devices infringe claims 2 and 3 of the '043 patent.

130. With respect to claim 5, on information and belief, each accused device includes a mixer control register with a switch that is closed that is closed when a switching signal is asserted and the switching control is asserted when a bit of the mixer control register is written to. Thus, the accused devices infringe claim 5 of the '043 patent.

131. With respect to claim 6, on information and belief, that neither the first nor second transistor of each accused device receive a biasing current. Thus, the accused devices infringe claim 6 of the '043 patent.

132. With respect to claim 7, on information and belief , the accused device is part of an OFDM receiver. Thus, the accused devices infringe claim 7 of the '043 patent.

133. With respect to claim 18, on information and belief, the accused devices utilize a method for "receiving a radio frequency input signal onto a source lead of a first" and second transistor; and outputting a baseband signal that has a current with a magnitude from a drain lead of the first transistor. On information and belief that the method used by accused devices increase "the magnitude of the current of the baseband signal by coupling the drain lead of the first transistor to a

drain lead of the second transistor" by closing a switch. On information and belief, that neither the first nor the second transistor recieves a biasing current. Thus, the accused devices infringe claim 18 of the '043 patent.

134. On information and belief, Apple is currently, and unless enjoined, will continue to, actively induce and encourage infringement of the '043 patent. Apple has known of the '043 patent at least since the time this complaint was filed and served on Apple. On information and belief, Apple nevertheless actively encourages others to infringe the '043 patent. On information and belief, Apple knowingly induces infringement by others, including resellers, retailers, and end users of the accused devices. For example, 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. These facts give rise to a reasonable inference that Apple knowingly induces others, including resellers, retailers, and end users, to directly infringe the '043 patent, and that Apple possesses a specific intent to cause such infringement.

135. Apple also contributes to infringement of the '043 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 '043 patent. These mobile electronic devices are known by Apple to be especially made or especially adapted for use in the infringement of the '043 patent. Apple also contributes to the infringement of the '043 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 '043 patent. These mobile devices are known by Apple to be especially made or especially adapted for use in the infringement of the '043 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 '043 patent.

136. Apple's acts of infringement have occurred within this district and elsewhere throughout the United States.

137. Qualcomm has been damaged and will suffer additional damages and irreparable harm unless Apple is enjoined from further infringement. Qualcomm will prove its irreparable harm and damages at trial.

COUNT 5 (PATENT INFRINGEMENT – U.S. PATENT NO. 8,447,132)

138. Qualcomm repeats and re-alleges the allegations of paragraphs 1 through 67 above as if fully set forth herein.

139. Qualcomm is the lawful owner of the '132 patent and has the full and exclusive right to bring actions and recover damages for Apple's infringement of said patent.

140. In violation of 35 U.S.C. § 271, Apple has been and is still infringing, contributing to infringement, and/or inducing others to infringe the '132 patent by making, using, offering for sale, selling, or importing mobile devices that practice the patent, including but not limited to the iPhone 7 and iPhone 7 Plus with iOS 10.1 and above, Apple iPhone 8 Plus with iOS 11.0 and above, and Apple iPhone X with iOS 11.0 and above.

141. The accused devices contain iPhone's Image Signal Processor that is capable of performing face and body detection. The accused devices identify a portion of one of the images selected by a user, determine a region for enhancement surrounding the selected portion, wherein the region is continuous from the selected portion and has a depth within a threshold of the depth of the selected portion, and

apply some enhancement to that region. For instance, the iPhone 7 Plus, in its "Portrait" mode, uses the depth map to enhance a user-selected portion of a scene, such as a foreground object, including by blurring the background of the scene and enhancing regions at the edge of the foreground. The capability to simulate the "bokeh" effect, which emphasizes a foreground object and blurs the background and typically requires the use of a bulky high-end camera, is a highly touted feature of the iPhone 7 Plus, the iPhone 8 Plus, and the iPhone X.

142. The accused devices infringe at least claims 21, 22, and 23 of the '132 patent as follows. Regarding claim 21, the iPhone 7 Plus is a mobile computing device equipped with an image processing unit. The device includes an apparatus for enhancing images through dynamic range correction. When using the Camera application in "Portrait" mode, the device's image enhancement apparatus applies correction to face regions by adjusting face color with CIFaceBalance, and to other regions of the image by increasing saturation of non-face regions with CIVibrance. Using the device's display, the user can view a live preview of the "depth effect" generating an image in which the boundary details of the face are blended with a blurred background, and capture the picture accordingly.[31]On information and belief, the image processing unit includes a correction unit to determine a type or amount of correction to apply to the first portion of the set of digital image data that is based on an output of the object detection unit, and to apply the determined type or amount of correction to the first portion of the set of digital image data, and to apply a different type or amount of correction to a second portion of the set of digital image data which does not represent a physical object of the predetermined type. On information and belief, the Apple iPhone 8 Plus and Apple iPhone X also include "Portrait" mode among their features and include and apparatus and

[31] https://www.apple.com/apple-events/september-2016/ (73:06 to 73:37)

dynamic range correction to perform the same image enhancement described for the Apple iPhone 7 Plus. Thus, Apple devices infringe claim 21 of the '132 patent.

143. Regarding claim 22, iPhone devices use a dynamic range correction. Thus, the accused devices infringe claim 22 of the '132 patent.

144. Regarding claim 23, the accused devices include an object detection unit that is configured to detect faces. Thus, the accused devices infringe claim 23 of the '132 patent.

145. On information and belief, Apple is currently, and unless enjoined, will continue to, actively induce and encourage infringement of the '132 patent. Apple has known of the '132 patent at least since the time this complaint was filed and served on Apple. On information and belief, Apple nevertheless actively encourages others to infringe the '132 patent. On information and belief, Apple knowingly induces infringement by others, including resellers, retailers, and end users of the accused devices. For example, 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. These facts give rise to a reasonable inference that Apple knowingly induces others, including resellers, retailers, and end users, to directly infringe the '132 patent, and that Apple possesses a specific intent to cause such infringement.

146. Apple also contributes to infringement of the '132 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 '132 patent. These mobile electronic devices are known by Apple to be especially made or especially adapted for use in the infringement of the '132 patent. Apple

also contributes to the infringement of the '132 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 '132 patent. These mobile devices are known by Apple to be especially made or especially adapted for use in the infringement of the '132 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 '132 patent.

147. Apple's acts of infringement have occurred within this district and elsewhere throughout the United States.

148. Qualcomm has been damaged and will suffer additional damages and irreparable harm unless Apple is enjoined from further infringement. Qualcomm will prove its irreparable harm and damages at trial.

COUNT 6 (PATENT INFRINGEMENT – U.S. PATENT NO. 9,024,418)

149. Qualcomm repeats and re-alleges the allegations of paragraphs 1 through 67 above as if fully set forth herein.

150. Qualcomm is the lawful owner of the '418 patent and has the full and exclusive right to bring actions and recover damages for Apple's infringement of said patent.

151. In violation of 35 U.S.C. § 271, Apple has been and is still infringing, contributing to infringement, and/or inducing others to infringe the '418 patent by making, using, offering for sale, selling, or importing mobile devices that practice the patent, including but not limited to the A10 processor, iPhone 7, and iPhone 7 Plus.

152. The accused devices infringe at least claims 1, 2, 4, 10, 12, 13, 14, 15, 16, 17, 18, 19, and 20 of the '418 patent.

153. The accused devices infringe claim 1 of the '418 patent as follows. Each accused device includes a circuit found in the A10 processor. The accused devices are capable of forming blocking transistors achieve electrical isolation. This structure allows for increased circuit density as isolation is achieved without diffusion and grid breaks and without additional vias/interconnect structures. On information and belief, the circuit found in the A10 Processor includes "a first gate layer arranged according to a gate layer pitch between a second and third gate layer," and "a first gate-directed local interconnect arranged between the first and the second gate layer," and a second gate-directed local interconnect arranged between the first and third gate lawyer. On information and belief, the circuit includes a "diffusion-directed local interconnect layer configured to couple the first gate layer to one of the first and second gate-directed local interconnects," and the first and second gate-directed local interconnect and the diffusion-directed local interconnect are all located between a lower-most metal lawyer and a semiconductor substrate for the circuit." Thus, Apple devices infringe claim 1 of the '418 patent.

154. With respect to claim 2, on information and belief, the circuit found in the accused products includes a continuous diffusion region where "the first gate layer comprises a gate for blocking transistor formed in the continuous diffusion region." On information and belief, the first and second gate-directed local interconnect is coupled to a first and second source/drain terminal for an adjacent first and second transistor respectively. Thus, the accused devices infringe claim 2 of the '418 patent.

155. With respect to claim 4, on information and belief, the diffusion-directed local interconnect layer found in the circuit of each accused device is positioned within a footprint for the contiguous diffusion region Thus, the accused devices infringe claim 4 of the '418 patent.

156. With respect to claim 10, on information and belief, the circuit found in the accused products includes a first gate layer for a first inverter where one of the

first and second gate-directed local interconnects is a gate-directed local interconnect for an output node for a second inverter.

157. With respect to claims 12 and 13, on information and belief, the A10 Processor forms "a first gate layer arranged according to a gate layer pitch between a second and third gate layer," and "a first gate-directed local interconnect arranged between the first and the second gate layer," and a second gate-directed local interconnect arranged between the first and third gate lawyer. On information and belief, the circuit includes a "diffusion-directed local interconnect layer configured to couple the first gate layer to one of the first and second gate-directed local interconnects," and the first and second gate-directed local interconnect and the diffusion-directed local interconnect are all located between a lower-most metal lawyer and a semiconductor substrate. Forming the first gate layer forms a gate for a blocking transistor. Thus. The accused devices infringe claims 12 and 13 of the '418 patent.

158. With respect to claims 14 and 15, on information and belief, the circuit found in the accused products forms a continuous diffusion region where "the first gate layer forms a gate for a transistor having a pair of drain/source terminals in the continuous diffusion region. On information and belief, forming the diffusion-directed local interconnect is formed either outside or within a footprint for the continuous diffusion region. Thus, the accused devices infringe claims 14 and 15 of the '418 patent.

159. With respect to claim 16, on information and belief, the accused device form a coupling between one of the first and second gate-direct local interconnects and the first metal layer. Thus, the accused devices infringe claim 16 of the '418 patent.

160. With respect to claim 17, on information and belief, the circuit within the A10 processor includes "a continuous diffusion region within a semiconductor substrate" and "a pair of gate layers configured to form gates for a pair of transistors

having source/drain terminals in the continuous diffusion region," and "a third gate layer arranged between the pair of gate lawyers to form a gate for a blocking transistor," and "a gate-directed local interconnect coupled to a drain/source terminal for a transistor in the pair of transistors; and "a means for coupling the gate-directed local interconnect to the third gate layer" where the gate-directed local interconnect and the means are both located between the semiconductor substrate and an adjacent lower-most metal layer. Thus, the accused devices infringe claim 17 of the '418 patent.

161. With respect to claims 18 and 19, on information and belief, the circuit found in the A10 process includes a continuous diffusion region that is either a p-type diffusion region where the third gate layer is coupled to a supply voltage VDD, or a n-type diffusion region where the third gate layer is coupled to the ground. Thus, the accused devices infringe claims 18 and 19 of the '418 patent.

162. With respect to claim 20, on information and belief, where the means for coupling in the circuit is formed within a footprint for the continuous diffusion region. Thus, the accused devices infringe claim 20 of the '418 patent.

163. On information and belief, Apple is currently, and unless enjoined, will continue to, actively induce and encourage infringement of the '418 patent. Apple has known of the '418 patent at least since the time this complaint was filed and served on Apple. On information and belief, Apple nevertheless actively encourages others to infringe the '418 patent. On information and belief, Apple knowingly induces infringement by others, including resellers, retailers, and end users of the accused devices. For example, 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. These facts give rise to a reasonable inference that Apple knowingly induces others, including resellers,

retailers, and end users, to directly infringe the '418 patent, and that Apple possesses a specific intent to cause such infringement.

164. Apple also contributes to infringement of the '418 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 '418 patent. These mobile electronic devices are known by Apple to be especially made or especially adapted for use in the infringement of the '418 patent. Apple also contributes to the infringement of the '418 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 '418 patent. These mobile devices are known by Apple to be especially made or especially adapted for use in the infringement of the '418 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 '418 patent.

165. Apple's acts of infringement have occurred within this district and elsewhere throughout the United States.

166. Qualcomm has been damaged and will suffer additional damages and irreparable harm unless Apple is enjoined from further infringement. Qualcomm will prove its irreparable harm and damages at trial.

PRAYER FOR RELIEF

WHEREFORE, Qualcomm respectfully requests that the Court enter judgment as follows:

(a) Declaring that Apple has infringed the Patents-in-Suit;

(b) Awarding damages in an amount to be proven at trial, but in no event less than a reasonable royalty for its infringement including pre-judgment and post-judgment interest at the maximum rate permitted by law;

(c) Ordering a permanent injunction enjoining Apple, its officers, agents, servants, employees, attorneys, and all other persons in active concert or participation with Apple from infringing the Patents-in-Suit;

(d) Ordering an award of reasonable attorneys' fees to Qualcomm as provided by 35 U.S.C. § 285;

(e) Awarding expenses, costs, and disbursements in this action, including prejudgment interest; and

(f) Awarding such other and further relief as the Court deems just and proper.

Dated: November 29, 2017

s/ Randall E. Kay
Randall E. Kay

JONES DAY
Karen P. Hewitt (SBN 145309)
kphewitt@jonesday.com
Randall E. Kay (SBN 149369)
rekay@jonesday.com
4655 Executive Drive, Suite 1500
San Diego, California 92121
Telephone: (858) 314-1200
Facsimile: (844) 345-3178

QUINN EMANUEL URQUHART & SULLIVAN, LLP
David A. Nelson (*pro hac vice* forthcoming)
(Ill. Bar No. 6209623)
davenelson@quinnemanuel.com
500 West Madison St., Suite 2450
Chicago, Illinois 60661
Telephone: (312) 705-7400
Facsimile: (312) 705-7401

Alexander Rudis (*pro hac vice* forthcoming)
(N.Y. Bar No. 4232591)
alexanderrudis@quinnemanuel.com
Patrick D. Curran (SBN 241630)
patrickcurran@quinnemanuel.com
51 Madison Avenue, 22nd Floor
New York, NY 10010
Telephone: (212) 849-7000
Facsimile: (212) 849-7100

Sean S. Pak (SBN 219032)
seanpak@quinnemanuel.com
Andrew Holmes (SBN 260475)
drewholmes@quinnemanuel.com
50 California Street, 22nd Floor
San Francisco, CA 94111
Telephone: (415) 875-6600
Facsimile: (415) 875-6700

S. Alex Lasher (*pro hac vice* forthcoming)
(D.C. Bar No. 486212)
alexlasher@quinnemanuel.com
777 6th Street NW, 11th Floor
Washington, DC 20001
Telephone: (202) 538-8000
Facsimile: (202) 538-8100

CRAVATH, SWAINE & MOORE LLP
Evan R. Chesler (*pro hac vice* forthcoming)
(N.Y. Bar No. 1475722)
echesler@cravath.com
Keith R. Hummel (*pro hac vice* forthcoming)
(N.Y. Bar No. 2430668)
khummel@cravath.com
Richard J. Stark (*pro hac vice* forthcoming)
(N.Y. Bar No. 2472603)
rstark@cravath.com
Gary A. Bornstein (*pro hac vice* forthcoming)
(N.Y. Bar No. 2916815)
gbornstein@cravath.com
J. Wesley Earnhardt (*pro hac vice* forthcoming)

(N.Y. Bar No. 4331609)
wearnhardt@cravath.com
Yonatan Even (*pro hac vice* forthcoming)
(N.Y. Bar No. 4339651)
yeven@cravath.com
Vanessa A. Lavely (*pro hac vice* forthcoming)
(N.Y. Bar No. 4867412)
vlavely@cravath.com
Worldwide Plaza, 825 Eighth Avenue
New York, NY 10019
Telephone: (212) 474-1000
Facsimile: (212) 474-3700

Attorneys for Plaintiff
QUALCOMM INCORPORATED

DEMAND FOR JURY TRIAL

Pursuant to Rule 38(b) of the Federal Rules of Civil Procedure, Qualcomm demands a jury trial on all issues triable by jury.

Dated: November 29, 2017

s/ Randall E. Kay
Randall E. Kay

JONES DAY
Karen P. Hewitt (SBN 145309)
kphewitt@jonesday.com
Randall E. Kay (SBN 149369)
rekay@jonesday.com
4655 Executive Drive, Suite 1500
San Diego, California 92121
Telephone: (858) 314-1200
Facsimile: (844) 345-3178

QUINN EMANUEL URQUHART & SULLIVAN, LLP
David A. Nelson (*pro hac vice* forthcoming)
(Ill. Bar No. 6209623)
davenelson@quinnemanuel.com
500 West Madison St., Suite 2450
Chicago, Illinois 60661
Telephone: (312) 705-7400
Facsimile: (312) 705-7401

CRAVATH, SWAINE & MOORE LLP
Evan R. Chesler (*pro hac vice* forthcoming)
(N.Y. Bar No. 1475722)
echesler@cravath.com
Worldwide Plaza, 825 Eighth Avenue
New York, NY 10019
Telephone: (212) 474-1000
Facsimile: (212) 474-3700

Attorneys for Plaintiff
QUALCOMM INCORPORATED