ROBINS KAPLAN LLP
RAYNA E. KESSLER, ESQ. (NJ 031782010)
399 Park Ave., Suite 3600
New York, NY 10022
Telephone: (212) 980-7431
Facsimile: (212) 980-7499

CHRISTOPHER A. SEIDL, ESQ. (MN 0313439) (*pro hac vice*)
JOHN K. HARTING, ESQ. (MN 0392234) (*pro hac vice*)
MARY PHENG, ESQ. (MN 0398500) (*pro hac vice*)
800 LaSalle Avenue, Suite 2800
Minneapolis, MN 55402
Telephone: (612) 349-8500
Facsimile: (612) 339-4181

LI ZHU, ESQ. (CA 302210) (*pro hac vice*)
2440 W. El Camino Real, Suite 100
Mountain View, CA 94040
Telephone: (650) 784-4040
Facsimile: (650) 784-4041

UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF NEW JERSEY

INVT SPE LLC, *Plaintiff*, v. ZTE CORPORATION and ZTE (USA) INC., *Defendants*.	CIVIL CASE NO.: 2:17-cv-06522 (JMV/JBC) Civil Action **FIRST AMENDED COMPLAINT AND JURY DEMAND**

Plaintiff INVT SPE LLC ("Inventergy SPE"), a Delaware limited liability corporation whose principal place of business is located at One Market Plaza, Spear Tower, 42nd Floor, San

Francisco, CA 94015, hereby files this Complaint against ZTE Corporation and ZTE (USA) Inc. (collectively "Defendant" or "ZTE"). Inventergy SPE alleges as follows:

NATURE OF THE ACTION

1. Inventergy SPE brings this patent infringement action to protect its intellectual property and stop Defendant from continuing its wrongful and unlicensed use of Inventergy SPE's patented technologies within and in conjunction with Defendant's mobile phones, phablets, tablets, PCs, modems, mobile hotspots, and base stations, among other devices.

2. Inventergy SPE owns a robust patent portfolio comprising hundreds of patents embodying decades of innovation, investment and effort by numerous companies, inventors, and engineers.

3. Inventergy SPE's patent portfolio includes patents related to mobile telecommunications and wireless technology, including, but not limited to EDGE/3G/LTE user devices, base stations, routers, infrastructure, telecommunications management services, and IMS/VoIP core networks.

4. Defendant provides certain products and services, including but not limited to its mobile phones, and tablets, among other devices. Products sold by Defendant include, but are not limited to, the devices listed in Appendix A. Defendant's products and related services make use of Inventergy SPE's patented technology and infringe the following United States patents ("the Asserted Patents"):

a. Attached hereto as Exhibit A is 6,466,563 ("the '563 Patent"), titled "CDMA Mobile Station and CDMA Transmission Method";

b. Attached hereto as Exhibit B is U.S. Patent No. 6,611,676 ("the '676 Patent"), titled "Radio Communication Apparatus and Transmission Rate Control Method";

c. Attached hereto as Exhibit C is U.S. Patent No. 7,206,587 ("the '587 Patent"), titled "Communication Terminal Apparatus, Base Station Apparatus, and Radio Communication Method";

d. Attached hereto as Exhibit D is U.S. Patent No. 7,760,815 ("the '815 Patent"), titled "Apparatus and Method for Transmission/Reception";

e. Attached hereto as Exhibit E is U.S. Patent No. 7,764,711 ("the '711 Patent"), titled "CDMA Transmission Apparatus and CDMA Transmission Method";

f. Attached hereto as Exhibit F is U.S. Patent No. 7,848,439 ("the '439 Patent"), titled "Communication Apparatus, Communication System, and Communication Method"; and

g. Attached hereto as Exhibit G is U.S. Patent No. 6,760,590 ("the '590 Patent"), titled "Communication Terminal Apparatus, Base Station Apparatus, and Radio Communication Method."

h. Attached hereto as Exhibit H is U.S. Patent No. 7,339,949 ("the '949 Patent"), titled ARQ Transmission and Reception Methods and Apparatus.

5. Accordingly, Inventergy SPE seeks damages in an amount adequate to compensate them for Defendant's infringement, including trebled damages based on Defendant's willful infringement of the Asserted Patents, a permanent injunction barring Defendant from continuing to infringe the Asserted Patents, or in the alternative, an award of a reasonable ongoing royalty for future infringement, and Inventergy SPE's attorneys' fees and costs associated with this action.

JURISDICTION AND VENUE

6. This lawsuit is a civil action for patent infringement arising under the patent laws of the United States, 35 U.S.C. § 101 *et seq.* This Court has subject-matter jurisdiction pursuant to 28 U.S.C. §§ 1331 and 1338(a).

7. The Court has personal jurisdiction over Defendant because, on information and belief, Defendant is present within or has minimum contacts within the State of New Jersey and the District of New Jersey; Defendant has purposefully availed itself of the privileges of conducting business in the State of New Jersey and the District of New Jersey; Defendant has sought protection and benefit from the laws of the State of New Jersey; Defendant regularly conducts business within the State of New Jersey and within the District of New Jersey; and Inventergy SPE's cause of action arises directly from Defendant's business contacts and other activities in the State of New Jersey and the District of New Jersey.

8. More specifically, this Court has personal jurisdiction over Defendant because Defendant directly and/or through intermediaries, ships, distributes, uses, offers for sale, sells, and/or advertises products and services in the United States, the State of New Jersey, and the District of New Jersey. This Court also has personal jurisdiction over Defendant because Defendant has committed, contributed to, and induced acts of patent infringement and has regularly and systematically conducted and solicited business in this District by and through at least the sales and offers for sale of Defendant's products and services, and other contractual arrangements with Defendant's customers, developers, distributors and third-parties using Defendant's products and services located in and/or doing business in this District.

9. Upon information and belief, Defendant provides and/or directs its products and services at customers living in cities served by the United States District Court for the District of New Jersey.

10. Venue is proper in this District under 28 U.S.C. §§ 1391 and 1400(b). On information and belief, Defendant has transacted business in this District, has directly committed acts of patent infringement in this District, and has a regular and established place of business in this District.

11. Defendant ZTE USA is a New Jersey corporation with its principal place of business at 2425 North Central Expressway, Suite 600, Richardson, TX 75080. Defendant ZTE USA advertises on its corporate website, as part of its "History," that Defendant was incorporated in 1998 when it "registered in New Jersey, USA."[1] Additionally, Defendant advertises that it has an office in Morristown, New Jersey.[2] Upon information and belief, Defendant maintains, controls, and pays for a permanent physical location at 55 Madison Ave., Suite 302, Morristown, New Jersey 07960. One of Defendant's registered agents in this District is located at the same address.

12. On information and belief, within this District, Defendant employs a number of executives, product directors, financing and senior financing managers, senior product marketing managers, and technical managers, engineers, and other employees who are directly involved in Defendant's direct infringement, including through the testing, demonstration, use, and sale of the accused products and services within New Jersey. These employees were responsible for a variety of roles related to Defendant's direct infringement of the Asserted Patents, including at least the

---

[1] ZTE – About Us, *available at* https://webcache.googleusercontent.com/search?q=cache:Cm3DXOug_lIJ:https://www.zteusa.com/about-us/+&cd=1&hl=en&ct=clnk&gl=us (last accessed Aug. 22, 2017).

[2] About Us—ZTE USA, *available at* https://www.zteusa.com/about-us-old (last accessed Aug. 22, 2017).

sale, marketing, testing, analysis, and verification of Defendant's mobile phones and other products and services, creating and executing test plans to meet carrier requirements, analyzing quality issues during the fully cycle of Defendant's mobile products, from design to after launch, chip certification, and diagnostic training.

13. For example, upon information and belief, Defendant's Head of Global IoT Business Strategy, CTO Group, Marketing and Solutions resides in this District, and self-advertises as a "[b]usiness leader with a 20-year track record of success driving high-technology organizations to deliver customer satisfaction and revenue attainment."

14. On information and belief, Defendant's New Jersey employees are also responsible for working with major carrier providers to ensure that Defendant's accused products and services comply with various 3GPP technical specifications, infringing one or more of the Asserted Patents, as further described below. By way of example, Defendant's employees, both inside and outside this District, work with Verizon Communications, Inc. and/or its affiliates and/or subsidiaries such as Cellco Partnership d/b/a Verizon Wireless, the largest wireless telecommunications provider in the United States (collectively, "Verizon"), to ensure that Defendant's accused products and services comply with 3GPP technical specifications, infringing one or more of the Asserted Patents. Verizon's operations headquarters are located in this District at 1 Verizon Way, Basking Ridge, New Jersey 07920.[3]

[3] Verizon Basking Ridge, NJ Office Location|Verizon Careers, *available at* http://www.verizon.com/about/careers/locations/basking-ridge-nj (last accessed May 24, 2017).

THE PARTIES

A. Plaintiff Inventergy SPE

15. Inventergy SPE is a Delaware limited liability corporation whose principal place of business is located at One Market Plaza, Spear Tower, 42nd Floor, San Francisco, CA 94015.

16. Inventergy SPE owns, through assignments originating with Panasonic Corporation ("Panasonic"), a patent portfolio ("the Panasonic portfolio") related to mobile telecommunications and wireless technology, including, but not limited to EDGE/3G/LTE user devices, equipment, and base stations. The portfolio includes approximately 500 patents including the Asserted Patents. Implementation of mandatory portions of various 3GPP technical specifications, including at least TS 25.133, 25.212, 25.213, 25.214, 25.308, 25.319, 25.321, 36.133, 36.211, 36.212, 36.213, 36.300, 36.321, 36.331, 45.001, 45.003, and 45.004, infringe one or more of the Asserted Patents. Inventergy SPE also owns hundreds of other patents related to mobile telecommunications and wireless technology acquired from Huawei Technologies Co., Ltd. ("Huawei") and Nokia Corporation ("Nokia").

17. The Panasonic portfolio assets cover, among other things, key technologies in EDGE/3G/LTE communications, an industry in which Panasonic has been an early technology innovator and standards setter.

18. Inventergy SPE obtained the Panasonic portfolio, including the Asserted Patents, through an assignment from Inventergy, Inc. ("Inventergy") on April 27, 2017. Inventergy is an investment and licensing company that helps industry leaders protect their most valuable intellectual property. Inventergy was founded by Joe Beyers—the former head of intellectual property and global strategy at Hewlett-Packard. Through the assignment from Inventergy,

Inventergy SPE now owns all rights, title and interest in the Panasonic portfolio, including the Asserted Patents.

B. The ZTE Defendants

19. Defendant ZTE Corporation ("ZTE Corporation") is a Chinese corporation with its principal place of business at No. 55, Hitech Road South, Shenzhen, China 518057.

20. Defendant ZTE Corporation is involved in the development, manufacture, import and/or sale of certain products that make use of Inventergy SPE's patented technology. Products sold by ZTE or through ZTE's intermediaries (including distributors, retailers, and others), subsidiaries, alter egos, and/or agents include, but are not limited to, the devices listed in Appendix A.

21. Defendant ZTE (USA) Inc. ("ZTE USA") is a New Jersey corporation and subsidiary of ZTE Corporation with its principal place of business at 2425 North Central Expressway, Suite 600, Richardson, TX 75080.

22. Defendant ZTE USA is a wholly-owned subsidiary of Defendant ZTE Corporation that is also involved in the development, manufacture, import and/or sale of certain products that make use of Inventergy SPE's patented technology.

23. ZTE is a provider of consumer electronics and one of the world's largest manufacturers of EDGE/3G/LTE user devices.

BACKGROUND OF THE TECHNOLOGY

24. The technology at issue in this case pertains generally to the field of mobile telecommunications, including, but not limited to EDGE/3G/LTE user devices.

25. Mobile telecommunications devices allow users to make or receive telephone calls and transmit and receive data wirelessly over a wide geographical area.

26. Around 1980, first generation ("1G") mobile phones were introduced to the public. These phones used analog modulation techniques, specifically frequency division multiple access, to transmit voice calls.

27. In the 1990s, second generation ("2G") phones emerged. These phones used digital technology, which permitted more efficient use of the radio spectrum than their 1G predecessor. While second generation systems were originally designed only for voice, they were later enhanced to include data transmission, but could only achieve low data rates.

28. During the same time period of growth for 2G communications systems, overall use of the Internet also increased. In response to user demand for higher data rates, third generation ("3G") phones emerged.

29. While voice calls traditionally dominated the traffic in mobile communications, the increasing number of mobile devices and the advancement of mobile device technology with increased features and data-hungry applications drove demand for faster and more reliable data transmissions. Data traffic over cellular networks has therefore increased dramatically since the mid to late 2000s.

30. Given the increased demand for data, coupled with limited available radio spectrum, mobile communication developers were required to create a standard that, compared with 3G, offered much higher data rates, lower latency, and improved overall user experience. LTE is the result of this development.

31. Global standards establish precise specifications for the essential components of telecommunications systems. Global standards are fundamental in allowing products and services from unrelated competitors to be compatible and to operate seamlessly with a telecommunications network. These standards include General Packet Radio Service ("GPRS"), Enhanced Data rates

for GSM Evolution ("EDGE"), "Universal Mobile Telecommunications System ("UMTS"), the High Speed Downlink Packet Access ("HSDPA") and High Speed Uplink Packet Access ("HSUPA") mobile protocols that combine to form High Speed Packet Access ("HSPA"), and Long-Term Evolution ("LTE").

32. Each of the standards consists of a series of technical specifications ("TS"). The 25, 36, and 45 series of technical specifications cover various aspects of the above wireless technologies, including at least TS 25.133, 25.211, 25.212, 25.214, 25.302, 25.303, 25.308, 25.319, 25.321, 36.211, 36.212, 36.213, 36.300, 45.001, 45.003, and 45.004.

NOTICE AND COMPLIANCE WITH FRAND OBLIGATIONS

33. On January 20, 2015, Inventergy first contacted Defendant regarding a potential license to a number of patents in Inventergy SPE's patent portfolio, including the '563, '676, '587, '815, '439, '590, and '949 Asserted Patents. Inventergy's letter to Defendant described the portfolio on 3G (WDCMA) and 4G (LTE) communications and identified 34 patent families, consisting of 347 patents, with claims directed to end user devices. Inventergy explained that a number of these patents and patent families related to "WCDMA and LTE standards enabled in ZTE's Products" and were therefore subject to FRAND licensing commitments. Inventergy further explained that it was "prepared to grant ZTE a worldwide, nonexclusive license" and offered specific royalty rates for ZTE's products. Inventergy also attached a number of claim charts, including charts for the '590 and '439 Patents.

34. Inventergy contacted Defendant again on February 13, 2015, to further discuss the possibility of granting Defendant a worldwide, nonexclusive license for its patent portfolio, including for the Asserted Patents.

35. On or around March 2015, Inventergy contacted Defendant through Defendant's

attorney, to discuss the January 20th correspondence and related claim charts, and reaffirmed its interest in working with ZTE to find a mutually beneficial arrangement.

36. Throughout the discussions described above, Inventergy SPE and/or Inventergy continuously offered Defendant a license to its Panasonic Portfolio, including the Asserted Patents, on FRAND terms. To date, Defendant has refused to enter into such a licensing agreement.

37. Throughout the discussions, Inventergy SPE and/or Inventergy continued to discuss with Defendant its infringement of the Asserted Patents, and a potential patent license to resolve claims relating to infringement.

38. Consequently, Defendant has been on notice of its infringement of at least U.S. Pat. No. 6,466,563 since at least January 20, 2015, when Inventergy provided actual notice of the Asserted Patents to Defendant.

39. Defendant has been on notice of its infringement of at least U.S. Pat. No. 6,611,676 since at least January 20, 2015, when Inventergy provided actual notice of the Asserted Patents to Defendant.

40. Defendant has been on notice of its infringement of at least U.S. Pat. No. 7,206,587 since at least January 20, 2015, when Inventergy provided actual notice of the Asserted Patents to Defendant.

41. Defendant has been on notice of its infringement of at least U.S. Pat. No. 7,760,815 since at least January 20, 2015, when Inventergy provided actual notice of the Asserted Patents to Defendant.

42. Defendant has been on notice of its infringement of at least U.S. Pat. No. 7,848,439 since at least January 20, 2015, when Inventergy provided actual notice of the Asserted Patents to Defendant.

43. Defendant has been on notice of its infringement of at least U.S. Pat. No. 6,760,590 since at least January 20, 2015, when Inventergy provided actual notice of the Asserted Patents to Defendant.

44. Defendant has been on notice of its infringement of at least U.S. Pat. No. 7,339,949 since at least January 20, 2015, when Inventergy provided actual notice of the Asserted Patents to Defendant.

FIRST CLAIM FOR RELIEF

Infringement of U.S. Patent No. 6,466,563

45. Inventergy SPE incorporates by reference the foregoing paragraphs.

46. The ’563 Patent issued on October 15, 2002, and is titled “CDMA Mobile Station and CDMA Transmission Method.”

47. Inventergy SPE is the owner by assignment of all rights, title, and interest in the ’563 Patent.

48. The ’563 Patent is valid and enforceable.

49. The ’563 patented technology is directed generally to Code Division Multiple Access (“CDMA”) mobile station apparatuses and CDMA transmission methods. One objective of the invention was to provide a CDMA mobile stations apparatus and CDMA transmission method which can maintain established synchronization with a base station apparatus while reducing power consumption when there is no data to be transmitted. This particular objective can be achieved, among other ways, by controlling the transmission interval of burst data to N slots (N: a natural number) when a certain time has elapsed after the end of data transmission.

50. The use of mandatory portions of the HSPA standard infringes the ’563 Patent. For example, the 3GPP standard TS 25.308 requires use of discontinuous uplink transmission for

transmitting DPCCH in a controllable burst pattern when a user device is not transmitting data (on an Enhanced Dedicated Channel ("E-DCH")) or High-Speed Dedicated Physical Control Channel ("HS-DPCCH"). Further, the 3GPP standard TS 25.211 requires use of uplink physical channel which is capable of transmitting data information, pilot signal symbols and transmission power control symbols.

51. On information and belief, Defendant's mobile devices, phablets, tablets, modems, and other devices with HSPA capabilities use the mandatory portions of the HSPA standard covered by the '563 Patent, including but not limited to Claim 12.

52. Defendant has infringed, and is currently infringing, the '563 Patent in violation of 35 U.S.C. § 271(a) by making, using, selling, offering for sale, and/or importing into the United States, without authority, products, equipment, software, and/or services that practice one or more claims of the '563 Patent, including without limitation Defendant's mobile devices, phablets, tablets, modems, and other devices with HSPA capabilities and comply with HSPA standards, including at least TS 25.308. For instance, these Defendant devices include, but are not limited to, the Axon 7 and equivalents, and the HSPA devices listed in Appendix A.

53. More specifically, Defendant's mobile devices, phablets, tablets, modems, and other devices with HSPA capabilities and comply with HSPA standards infringe at least Claim 12 of the '563 Patent because they generate and transmit frames for uplink transmission by inserting pilot and Transmit Power Control (TPC) symbols without data using discontinuous uplink transmission techniques.

54. Defendant has had actual knowledge of the '563 Patent and Defendant's infringement of the '563 Patent since as early as January 20, 2015, before the filing of this Complaint. Despite this knowledge, Defendant continued its infringing activities despite an objectively high likelihood

that its activities constituted infringement of a valid patent, and this risk was either known or so obvious that it should have been known to Defendant. Thus, Defendant's infringement has been, and continues to be, willful and deliberate.

55. Defendant induces third parties, including customers, to infringe the '563 Patent in violation of 35 U.S.C. § 271(b) by encouraging and facilitating them to perform actions that Defendant knows to be acts of infringement of the '563 Patent. Upon information and belief, Defendant knows that the use of its mobile devices, phablets, tablets, modems, and other devices with HSPA capabilities and comply with HSPA standards, constitutes infringement of the '563 Patent, including at least Claim 12. Defendant advertises the infringing products and services, publishes specifications and promotional literature encouraging customers to operate the accused products and services, creates and/or distributes user manuals for the accused products and services that provide instruction and/or encourage infringing use, and offers support and/or technical assistance to its customers that provide instructions on and/or encourage infringing use.

56. For instance, Defendant encourages and facilitates its customers to infringe the '563 Patent by instructing customers that purchase its Axon 7 mobile phones that such devices have "HSPA" capability, and providing various indicators within those devices of the same.[4] Customers, pursuant to Defendant's instructions, indicators, and advertisements, each directly infringe the '563 Patent, including at least Claim 12.

57. Defendant also contributes to the infringement of the '563 Patent in violation of 35 U.S.C. § 271(c). Defendant contributes to infringement of the '563 Patent by making, using, selling, offering to sell and/or importing components that are incorporated with third-party devices

[4] *See* ZTE Axon 7, *available at* https://www.zteusa.com/axon-7/ (last accessed Mar. 21, 2017).

to infringe the '563 Patent, including at least Claim 12. The accused components constitute a material part of the invention claimed by the '563 Patent at least because they work in conjunction with third-party products or services, and they are specifically made to operate in a manner that infringes the '563 Patent by, among other things, enabling various devices, such as mobile devices, phablets, tablets, modems, and other devices with HSPA capabilities and comply with HSPA standards, to perform, among other things, the discontinuous transmission of an uplink control channel when data transmission is not scheduled for transmission. The accused components are separable from Defendant's products and are not staple articles or commodities of commerce suitable for substantial non-infringing use because they necessarily operate in a manner that infringes the '563 Patent. Further, because the '563 Patent is essential to the HSPA standards Defendant's devices with LTE, HSPA, and/or EDGE capabilities and comply with HSPA standard are material in practicing the '563 Patent, are especially made to infringe the '563 Patent, and have no substantial non-infringing uses. Moreover, Defendant publishes or has published information about infringing aspects of various devices. These devices include mobile devices, phablets, tablets, modems, and other devices with HSPA capabilities and comply with HSPA standards, that are practiced using the components that Defendant provides. As stated above, Defendant knew of the '563 Patent and knew that its actions would lead to infringement of that patent. Therefore, Defendant is also contributing to the direct infringement of the '563 Patent by users of Defendant's services, products, and/or features, including at least Claim 12.

58. Inventergy SPE has suffered and continues to suffer damages and irreparable harm as a result of Defendant's past and ongoing infringement.

59. Unless Defendant's infringement is permanently enjoined, Inventergy SPE will continue to be damaged and irreparably harmed.

SECOND CLAIM FOR RELIEF

Infringement of U.S. Patent No. 6,611,676

60. Inventergy SPE incorporates by reference the foregoing paragraphs.

61. The ’676 Patent issued on August 26, 2003, and is titled “Radio Communication Apparatus and Transmission Rate Control Method.”

62. Inventergy SPE is the owner by assignment of all rights, title, and interest in the ’676 Patent.

63. The ’676 Patent is valid and enforceable.

64. The ’676 patented technology is directed generally to a radio communication apparatus with a variable transmission rate and a transmission rate control method. One objective of the invention was to provide a radio communication apparatus and transmission rate control method capable of controlling transmission power of a base station directed to a mobile station appropriately without being affected by the environment of the mobile station or transmission rate. This particular objective can be achieved, among other ways, by a radio communication apparatus and transmission rate control method that switch the transmission rate of a transmission signal based on reception quality information from the other end of communication, or according to the environment of the other end of communication and transmit the signals at the switched transmission rate. Among other applications, this control method can also be applied to the uplink to reduce interference, and to achieve power saving or to navigate hardware restrictions. This can be accomplished in various embodiments, some of which are further described in column 15, lines 1-8 of the ’676 Patent.

65. The use of mandatory portions of the WCDMA/HSPA standard infringes the ’676 Patent. For example, the 3GPP standard TS 25.214 requires use of Transmit Power Control

("TPC") command to control the transmit power of the user device. The value of TPC command sent to a certain device is based on the comparison result of the estimated signal-to-interference ratio ("SIR") and the received uplink SIR on the frequency of the user device. Furthermore, the 3GPP standard requires the user device to select E-TFC to change the uplink transmission rate, as specified in the 3GPP TS 25.319 standard. Additionally, the 3GPP standard TS 25.321 requires use of the user device to determine the state of each E-TFC for every MAC-d flow based on its required transmit power versus the maximum remaining power allowed.

66. Upon information and belief, Defendant's mobile devices, phablets, tablets, base stations, and other devices with WCDMA/HSPA capabilities use the mandatory portions of the WCDMA/HSPA standard covered by the '676 Patent, including but not limited to Claim 7.

67. Defendant has infringed, and is currently infringing, the '676 Patent in violation of 35 U.S.C. § 271(a) by making, using, selling, offering for sale, and/or importing into the United States, without authority, products, equipment, software, and/or services that practice one or more claims of the '676 Patent, including without limitation Defendant's mobile devices, phablets, tablets, base stations, and other devices with HSPA capabilities and comply with HSUPA portions of the WCDMA/HSPA standards, including at least TS 25.214, TS 25.319, and/or TS 25.321. For instance, these Defendant devices include, but are not limited to, the Axon 7 and equivalents, and the HSPA devices listed in Appendix A.

68. More specifically, Defendant's mobile devices, phablets, tablets, base stations, and other devices with HSPA capabilities and comply with HSUPA portions of the WCDMA/HSPA standards infringe at least Claim 7 of the '676 Patent because they contain a transmission power controller capable of modifying transmission power based on certain transmission rate of the

device's uplink data in response to calculations comparing average transmission power needed for certain transmission rate with maximum allowable transmission power.

69. Defendant has had actual knowledge of the '676 Patent and Defendant's infringement of the '676 Patent since at least January 20, 2015, before the filing of this Complaint. Despite this knowledge, Defendant continued its infringing activities despite an objectively high likelihood that its activities constituted infringement of a valid patent, and this risk was either known or so obvious that it should have been known to Defendant. Thus, Defendant's infringement has been, and continues to be, willful and deliberate.

70. Defendant induces third parties, including customers, to infringe the '676 Patent in violation of 35 U.S.C. § 271(b) by encouraging and facilitating them to perform actions that Defendant knows to be acts of infringement of the '676 Patent, including at least Claim 7. Upon information and belief, Defendant knows that the use of its mobile devices, phablets, tablets, base stations, and other devices with HSPA capabilities and comply with HSPA standards, constitutes infringement of the '676 Patent. Defendant advertises the infringing products and services, publishes specifications and promotional literature encouraging customers to operate the accused products and services, creates and/or distributes user manuals for the accused products and services that provide instruction and/or encourage infringing use, and offers support and/or technical assistance to its customers that provide instructions on and/or encourage infringing use.

71. For instance, Defendant encourages and facilitates its customers to infringe the '676 Patent by instructing customers that purchase its Axon 7 mobile phones that such devices have "HSPA" capability, and providing various indicators within those devices of the same.[5]

[5] *See* ZTE Axon 7, *available at* https://www.zteusa.com/axon-7/ (last accessed Mar. 21, 2017).

Customers, pursuant to Defendant's instructions and advertisements, each directly infringe the '676 Patent, including at least Claim 7.

72. Defendant also contributes to the infringement of the '676 Patent in violation of 35 U.S.C. § 271(c). Defendant contributes to infringement of the '676 Patent by making, using, selling, offering to sell and/or importing components that are incorporated with third-party devices to infringe the '676 Patent, including at least Claim 7. The accused components constitute a material part of the invention claimed by the '676 Patent at least because they work in conjunction with third-party products or services, and they are specifically made to operate in a manner that infringes the '676 Patent by, among other things, enabling various devices, such as mobile devices, phablets, tablets, base stations, and other devices with HSPA capabilities and comply with HSPA standards, to communicate with other radio devices while satisfying an allowable transmission power constraint. The accused components are separable from Defendant's products and are not staple articles or commodities of commerce suitable for substantial non-infringing use because they necessarily operate in a manner that infringes the '676 Patent. Further, because the '676 Patent is essential to the LTE, HSPA, and/or EDGE standards, Defendant's devices with HSPA capabilities and comply with the HSPA standard are material in practicing the '676 Patent, are especially made to infringe the '676 Patent, and have no substantial non-infringing uses. Moreover, Defendant publishes or has published information about infringing aspects of various devices. These devices include mobile devices, phablets, tablets, base stations, and other devices with HSPA capabilities and comply with HSPA standards, that are practiced using the components that Defendant provides. As stated above, Defendant knew of the '676 Patent and knew that its actions would lead to infringement of that patent. Therefore, Defendant is also contributing to the direct

infringement of the '676 Patent by users of Defendant's services, products, and/or features, including at least Claim 7.

73. Inventergy SPE has suffered and continues to suffer damages and irreparable harm as a result of Defendant's past and ongoing infringement.

74. Unless Defendant's infringement is permanently enjoined, Inventergy SPE will continue to be damaged and irreparably harmed.

THIRD CLAIM FOR RELIEF

Infringement of U.S. Patent No. 7,206,587

75. Inventergy SPE incorporates by reference the foregoing paragraphs.

76. The '587 Patent issued on April 17, 2007, and is titled "Communication Terminal Apparatus, Base Station Apparatus, and Radio Communication Method."

77. Inventergy SPE is the owner by assignment of all rights, title, and interest in the '587 Patent.

78. The '587 Patent is valid and enforceable.

79. The '587 patented technology is directed generally to a communication terminal apparatus, base station apparatus, and radio communication method to be used in a cellular communication system. One objective of the invention was to provide a communication terminal apparatus, base station apparatus, and radio communication method that make it possible to prevent a fall in downlink throughput in a communication system in which communication resources are allocated to communication terminals based on downlink channel quality. This particular objective can be achieved, among other ways, when, among information indicative of downlink channel quality, which has a possibility of decreasing the downlink throughput when the information is received erroneously in a base station, a communication terminal provides such

information with less susceptibility to errors in the propagation path to transmit, and it is thereby possible to prevent the downlink throughput from decreasing.

80. The use of mandatory portions of the UMTS standard infringes the ’587 Patent. For example, the 3GPP standard TS 25.212 requires use of a (20,5) code to code the Channel Quality Indicator (“CQI”). Furthermore, the 3GPP standard requires the coding for HS-DPCCH to code the CQI through the channel coding module, as specified in the 3GPP TS 25.213 standard. Additionally, the 3GPP standard TS 25.214 requires a user device to report CQI on the uplink channel. Further, the 3GPP standard TS 25.215 requires the user device to have measurement capabilities for various signals on different channels, such as the measurement of received energy per chip divided by the power density in the band on the primary CPICH channel.

81. Upon information and belief, Defendant’s mobile devices, phablets, tablets, and other devices with UMTS and/or HSPA capabilities use the mandatory portions of the UMTS and/or HSPA standards covered by the ’587 Patent, including but not limited to Claim 4.

82. Defendant has infringed, and is currently infringing, the ’587 Patent in violation of 35 U.S.C. § 271(a) by making, using, selling, offering for sale, and/or importing into the United States, without authority, products, equipment, software, and/or services that practice one or more claims of the ’587 Patent, including without limitation Defendant’s mobile devices, phablets, tablets, and other devices with UMTS and/or HSPA capabilities and comply with UMTS and/or HSPA standards, including at least TS 25.212, 25.213, and 25.214. For instance, these Defendant devices include, but are not limited to, the Axon 7 and equivalents, and the UMTS and/or HSPA devices listed in Appendix A.

83. More specifically, Defendant’s mobile devices, phablets, tablets, and other devices with UMTS and/or HSPA capabilities and comply with UMTS and/or HSPA standards infringe at

least Claim 4 of the '587 Patent because the devices estimate a Channel Quality Estimate (CQI) value, which is a representation of downlink channel quality. The infringing devices encode the CQI values using an encoding method wherein the most significant bit is better protected from channel errors than other information bits of the CQI.

84. Defendant has had actual knowledge of the '587 Patent and Defendant's infringement of the '587 Patent since at least January 20, 2015, before the filing of this Complaint. Despite this knowledge, Defendant continued its infringing activities despite an objectively high likelihood that its activities constituted infringement of a valid patent, and this risk was either known or so obvious that it should have been known to Defendant. Thus, Defendant's infringement has been, and continues to be, willful and deliberate.

85. Defendant also contributes to the infringement of the '587 Patent in violation of 35 U.S.C. § 271(c). Defendant contributes to infringement of the '587 Patent by making, using, selling, offering to sell and/or importing components that are incorporated with third-party devices to infringe the '587 Patent, including at least Claim 4. The accused components constitute a material part of the invention claimed by the '587 Patent at least because they work in conjunction with third-party products or services, and they are specifically made to operate in a manner that infringes the '587 Patent by, among other things, enabling various devices, such as mobile devices, phablets, tablets, and other devices with UMTS and/or HSPA capabilities and comply with UMTS and/or HSPA standards, to transmit channel quality information from user devices to a base station in a cellular network. The accused components are separable from Defendant's products and are not staple articles or commodities of commerce suitable for substantial non-infringing use because they necessarily operate in a manner that infringes the '587 Patent. Further, because the '587 Patent is essential to the UMTS and/or HSPA standards, Defendant's devices with UMTS and/or HSPA

capabilities and comply with UMTS and/or HSPA standards are material in practicing the '587 Patent, are especially made to infringe the '587 Patent, and have no substantial non-infringing uses. Moreover, Defendant publishes or has published information about infringing aspects of various devices. These devices include mobile devices, phablets, tablets, and other devices with UMTS and/or HSPA capabilities and comply with UMTS and/or HSPA standards, that are practiced using the components that Defendant provides. As stated above, Defendant knew of the '587 Patent and knew that its actions would lead to infringement of that patent. Therefore, Defendant is also contributing to the direct infringement of the '587 Patent by users of Defendant's services, products, and/or features, including at least Claim 4.

86. Inventergy SPE has suffered and continues to suffer damages and irreparable harm as a result of Defendant's past and ongoing infringement.

87. Unless Defendant's infringement is permanently enjoined, Inventergy SPE will continue to be damaged and irreparably harmed.

FOURTH CLAIM FOR RELIEF

Infringement of U.S. Patent No. 7,760,815

88. Inventergy SPE incorporates by reference the foregoing paragraphs.

89. The '815 Patent issued on July 20, 2010, and is titled "Apparatus and Method for Transmission/Reception."

90. Inventergy SPE is the owner by assignment of all rights, title, and interest in the '815 Patent.

91. The '815 Patent is valid and enforceable.

92. The '815 patented technology is directed generally to a transmission/reception apparatus, and in particular, to a transmission/reception apparatus for an Orthogonal Frequency

Division Multiplexing ("OFDM") system. One objective of the invention was to provide a transmission/reception apparatus that will improve the transmission efficiency while maintaining the transmission quality of important information. This particular objective can be achieved, among other ways, in a modulation system that expresses 1 symbol of 8 PSK or 16 PSK, etc. using 3 or more bits by placing information selected from all information to be communicated on at least one of the 1st bit or 2nd bit only.

93. The use of mandatory portions of the EGPRS standard infringes the '815 Patent. For example, the 3GPP standard TS 45.001 requires use of independent coding for the header part and data part of the Radio Block for the EGPRS and EGPRS2 PDTCH channel coding. Furthermore, the 3GPP standard requires describes the specific algorithms for the header coding and data coding for the Radio Block of the EGPRS and EGPRS2 PDTCH, as specified in the 3GPP TS 45.003 standard. Additionally, the 3GPP standard TS 45.004 requires use of a 8PSK symbol for mapping modulation bits.

94. Upon information and belief, Defendant's mobile devices, phablets, tablets, and other devices with EGPRS capabilities use the mandatory portions of the EGPRS standard covered by the '815 Patent, including but not limited to Claim 10.

95. Defendant has infringed, and is currently infringing, the '815 Patent in violation of 35 U.S.C. § 271(a) by making, using, selling, offering for sale, and/or importing into the United States, without authority, products, equipment, software, and/or services that practice one or more claims of the '815 Patent, including without limitation Defendant's mobile devices, phablets, tablets, and other devices with EGPRS capabilities and comply with EGPRS standards, including at least TS 45.001, TS 45.003, and/or TS 45.004. For instance, these Defendant devices include, but are not limited to, the Axon 7 and equivalents, and the EGPS devices listed in Appendix A.

96. More specifically, Defendant's mobile devices, phablets, tablets, and other devices with EGPRS capabilities and comply with EGPRS standards infringe at least Claim 10 of the '815 Patent because the devices generate a sequence of bits, including at least one bit containing control information and one bit containing data information that modulates a sequence of at least three bits so that the first bits contain header control information and the second bit that contains related data control bits.

97. Defendant has had actual knowledge of the '815 Patent and Defendant's infringement of the '815 Patent since at least January 20, 2015, before the filing of this Complaint. Despite this knowledge, Defendant continued its infringing activities despite an objectively high likelihood that its activities constituted infringement of a valid patent, and this risk was either known or so obvious that it should have been known to Defendant. Thus, Defendant's infringement has been, and continues to be, willful and deliberate.

98. Defendant induces third parties, including customers, to infringe the '815 Patent in violation of 35 U.S.C. § 271(b) by encouraging and facilitating them to perform actions that Defendant knows to be acts of infringement of the '815 Patent, including at least Claim 10. Upon information and belief, Defendant knows that the use of its mobile devices, phablets, tablets, and other devices with EGPRS capabilities and comply with EGPRS standards, constitutes infringement of the '815 Patent. Defendant advertises the infringing products and services, publishes specifications and promotional literature encouraging customers to operate the accused products and services, creates and/or distributes user manuals for the accused products and services that provide instruction and/or encourage infringing use, and offers support and/or technical assistance to its customers that provide instructions on and/or encourage infringing use.

99. For instance, Defendant encourages and facilitates its customers to infringe the '815 Patent by instructing customers that purchase its Axon 7 mobile phones that such devices have "EDGE" capability, and providing various indicators within those devices of the same.[6] Customers, pursuant to Defendant's instructions and advertisements, each directly infringe the '815 Patent, including at least Claim 10.

100. Defendant also contributes to the infringement of the '815 Patent in violation of 35 U.S.C. § 271(c). Defendant contributes to infringement of the '815 Patent by making, using, selling, offering to sell and/or importing components that are incorporated with third-party devices to infringe the '815 Patent, including at least Claim 10. The accused components constitute a material part of the invention claimed by the '815 Patent at least because they work in conjunction with third-party products or services, and they are specifically made to operate in a manner that infringes the '815 Patent by, among other things, enabling various devices, such as mobile devices, phablets, tablets, and other devices with EGPRS capabilities and comply with EGPRS standards, to map two related sequences of bits, one having more important information, onto bit position of modulation symbols. The accused components are separable from Defendant's products and are not staple articles or commodities of commerce suitable for substantial non-infringing use because they necessarily operate in a manner that infringes the '815 Patent. Further, because the '815 Patent is essential to the EGPRS standard, Defendant's devices with EGPRS capabilities and comply with the EGPRS standard are material in practicing the '815 Patent, are especially made to infringe the '815 Patent, and have no substantial non-infringing uses. Moreover, Defendant publishes or has published information about infringing aspects of various devices. These devices include mobile

[6] *See* ZTE Axon 7, *available at* https://www.zteusa.com/axon-7/ (last accessed Mar. 21, 2017).

devices, phablets, tablets, and other devices with EGPRS capabilities and comply with EGPRS standards, that are practiced using the components that Defendant provides. As stated above, Defendant knew of the '815 Patent and knew that its actions would lead to infringement of that patent. Therefore, Defendant is also contributing to the direct infringement of the '815 Patent by users of Defendant's services, products, and/or features, including at least Claim 10.

101. Inventergy SPE has suffered and continues to suffer damages and irreparable harm as a result of Defendant's past and ongoing infringement.

102. Unless Defendant's infringement is permanently enjoined, Inventergy SPE will continue to be damaged and irreparably harmed.

FIFTH CLAIM FOR RELIEF

Infringement of U.S. Patent No. 7,764,711

103. Inventergy SPE incorporates by reference the foregoing paragraphs.

104. The '711 Patent issued on July 27, 2010, and is titled "CDMA Transmission Apparatus and CDMA Transmission Method."

105. Inventergy SPE is the owner by assignment of all rights, title, and interest in the '711 Patent.

106. The '711 Patent is valid and enforceable.

107. The '711 patented technology is directed generally to a transmission apparatus and transmission method which transmits signals from a plurality of transmission antennas like a Multi-Input/Multi-Output ("MIMO") communication and adopts a CDMA scheme. One objective of the invention was to improve reception performance of specific data on a receiving side while maintaining the transmission efficiency of a communication system. This particular objective can be achieved, among other ways, with a CDMA transmission apparatus which transmits different

code division multiplexed signals from a plurality of transmission antennas by apportioning specific data to a plurality of antennas and spreading/modulating the specific data with different spreading codes assigned thereto before being transmitted. Among other applications, the CDMA transmission apparatus can also be applied to a transmission apparatus using a multicarrier scheme such as OFDM. In this embodiment, a transmission scheme using multicarriers has a symbol rate set to a low level (long symbol length) and has the effect of reducing interference among codes due to multipaths in a multipath environment. Further, by inserting guard intervals in this embodiment, it is also possible to remove interference among codes due to multipaths.

108. The use of mandatory portions of the LTE standard infringes the '711 Patent. For example, the 3GPP standard TS 36.211 requires use of precoding used in combination with layer mapping for spatial multiplexing that supports multiple antenna ports.

109. Upon information and belief, Defendant's mobile devices, phablets, tablets, base stations, and other devices with MIMO structure that use the mandatory portions of the LTE Advanced standard covered by the '711 Patent, including but not limited to Claim 1.

110. Defendant has infringed, and is currently infringing, the '711 Patent in violation of 35 U.S.C. § 271(a) by making, using, selling, offering for sale, and/or importing into the United States, without authority, products, equipment, software, and/or services that practice one or more claims of the '711 Patent, including without limitation Defendant's mobile devices, phablets, tablets, base stations, and other devices with MIMO structure and comply with LTE Advanced standards, including at least TS 36.211. For instance, these Defendant devices include, but are not limited to, the Axon 7 and equivalents, and the LTE devices listed in Appendix A.

111. More specifically, Defendant's mobile devices, phablets, tablets, base stations, and other devices with MIMO structure and comply with LTE Advanced standards infringe at least

Claim 1 of the '711 Patent because they utilize a multi-input, multi-output transmitter that apportions and transmits replicated data in parallel to a base station. By way of example, on information and belief, Defendant's Axon 7 and equivalents, and the LTE devices in Appendix A support LTE category 13 (uplink).

112. On information and belief, Defendant has had actual knowledge of the '711 Patent and Defendant's infringement of the '711 Patent since at least before the filing of this Complaint. Despite this knowledge, Defendant continued its infringing activities despite an objectively high likelihood that its activities constituted infringement of a valid patent, and this risk was either known or so obvious that it should have been known to Defendant. Thus, Defendant's infringement has been, and continues to be, willful and deliberate.

113. Defendant induces third parties, including customers, to infringe the '711 Patent in violation of 35 U.S.C. § 271(b) by encouraging and facilitating them to perform actions that Defendant knows to be acts of infringement of the '711 Patent, including at least Claim 1. Upon information and belief, Defendant knows that the use of its mobile devices, phablets, tablets, base stations, and other devices with MIMO structure and comply with LTE Advanced standards, constitutes infringement of the '711 Patent. Defendant advertises the infringing products and services, publishes specifications and promotional literature encouraging customers to operate the accused products and services, creates and/or distributes user manuals for the accused products and services that provide instruction and/or encourage infringing use, and offers support and/or technical assistance to its customers that provide instructions on and/or encourage infringing use.

114. For instance, Defendant encourages and facilitates its customers to infringe the '711 Patent by instructing customers that purchase Axon 7 mobile phones that such devices have "LTE"

capability, and providing various indicators within those devices of the same.[7] Customers, pursuant to Defendant's instructions and advertisements, each directly infringe the '711 Patent, including at least Claim 1.

115. Defendant also contributes to the infringement of the '711 Patent in violation of 35 U.S.C. § 271(c). Defendant contributes to infringement of the '711 Patent by making, using, selling, offering to sell and/or importing components that are incorporated with third-party devices to infringe the '711 Patent, including at least Claim 1. The accused components constitute a material part of the invention claimed by the '711 Patent at least because they work in conjunction with third-party products or services, and they are specifically made to operate in a manner that infringes the '711 Patent by, among other things, enabling various devices, such as mobile devices, phablets, tablets, base stations, and other devices with MIMO structure and comply with LTE Advanced standards, to transmit signals from multiple transmission antennas. The accused components are separable from Defendant's products and are not staple articles or commodities of commerce suitable for substantial non-infringing use because they necessarily operate in a manner that infringes the '711 Patent. Further, because the '711 Patent is essential to the LTE standard, Defendant's devices with LTE capabilities and comply with the LTE standard are material in practicing the '711 Patent, are especially made to infringe the '711 Patent, and have no substantial non-infringing uses. Moreover, Defendant publishes or has published information about infringing aspects of various devices. These devices include mobile devices, phablets, tablets, base stations, and other devices with MIMO structure and comply with LTE Advanced standards, that are practiced using the components that Defendant provides. As stated above, Defendant knew of the

[7] *See* ZTE Axon 7, *available at* https://www.zteusa.com/axon-7/ (last accessed Mar. 21, 2017).

'711 Patent and knew that its actions would lead to infringement of that patent. Therefore, Defendant is also contributing to the direct infringement of the '711 Patent by users of Defendant's services, products, and/or features, including at least Claim 1.

116. Inventergy SPE has suffered and continues to suffer damages and irreparable harm as a result of Defendant's past and ongoing infringement.

117. Unless Defendant's infringement is permanently enjoined, Inventergy SPE will continue to be damaged and irreparably harmed.

SIXTH CLAIM FOR RELIEF

Infringement of U.S. Patent No. 7,848,439

118. Inventergy SPE incorporates by reference the foregoing paragraphs.

119. The '439 Patent issued on December 7, 2010, and is titled "Communication Apparatus, Communication System, and Communication Method."

120. Inventergy SPE is the owner by assignment of all rights, title, and interest in the '439 Patent.

121. The '439 Patent is valid and enforceable.

122. The '439 patented technology is directed generally to a communication apparatus, communication system, and communication method, and particularly relates to a communication apparatus, communication system, and communication method for carrying out adaptive modulation and coding in adaptive transmission technology in subcarrier communication systems. One objective of the invention was to provide a communication apparatus, communication system, and communication method capable of increasing the spectrum utilization rate of a system and particularly increasing the spectrum utilization rate based on high-speed fading and channel estimation error, reducing the degree of difficulty of adaptivity, and reducing the feedback

overhead compared with subband adaptive methods of the related art by combining all of the subbands on a frequency domain of a subcarrier communication system based on a fixed rule as to give several subband groups, and then selecting modulation and coding parameters for use during joint coding with respect to each subband group. This particular objective can be achieved in many ways, including through the means further described in column 5, line 48 through column 6, line 48 of the '439 Patent.

123. The use of mandatory portions of the LTE standard infringes the '439 Patent. For example, the 3GPP standard TS 36.133 requires use of a user device to monitor the downlink link quality based on a cell-specific reference signal. The 3GPP standard further requires the use of cell-specific reference signals in downlink channels as identified in TS 36.211. Based on the cell-specific reference signals, the user device is required to derive the CQI and should then report such CQI to a network as required by 3GPP standard TS 36.213 and further described in 3GPP standard TS 36.331. Moreover, 3GPP standard TS 36.300 requires the network to have the link adaptation feature that will be able to adjust the modulation and coding parameters for the downlink transmission based on the received CQI sent from a user device.

124. Upon information and belief, Defendant's mobile devices, phablets, tablets, and other devices with LTE capabilities use the mandatory portions of the LTE standard covered by the '439 Patent, including but not limited to Claim 1.

125. Defendant has infringed, and is currently infringing, the '439 Patent in violation of 35 U.S.C. § 271(a) by making, using, selling, offering for sale, and/or importing into the United States, without authority, products, equipment, software, and/or services that practice one or more claims of the '439 Patent, including without limitation Defendant's mobile devices, phablets, tablets, and other devices with LTE capabilities and comply with LTE standards, including at least

TS 36.133, 36.211, 36.213, 36.300, and 36.331. For instance, these Defendant devices include, but are not limited to, the Axon 7 and equivalents, and the LTE devices listed in Appendix A.

126. More specifically, Defendant's mobile devices, phablets, tablets, and other devices with LTE capabilities and comply with LTE standards infringe at least Claim 1 of the '439 Patent because each performs adaptive modulation within an OFDM communication system by performing channel estimation through measurement of cell-specific reference signals received on a downlink. The devices then use the channel estimation to select a recommended modulation and coding scheme combination for downlink transmission pre-stored within the devices. Such information is sent to a base station for its downlink transmission.

127. Defendant was provided one or more claim charts for the '439 Patent on at least January 20, 2015, and those charts are hereby incorporated by reference.

128. Defendant has had actual knowledge of the '439 Patent and Defendant's infringement of the '439 Patent since at least January 20, 2015, before the filing of this Complaint. Despite this knowledge, Defendant continued its infringing activities despite an objectively high likelihood that its activities constituted infringement of a valid patent, and this risk was either known or so obvious that it should have been known to Defendant. Thus, Defendant's infringement has been, and continues to be, willful and deliberate.

129. Defendant induces third parties, including customers, to infringe the '439 Patent in violation of 35 U.S.C. § 271(b) by encouraging and facilitating them to perform actions that Defendant knows to be acts of infringement of the '439 Patent, including at least Claim 1. Upon information and belief, Defendant knows that the use of its mobile devices, phablets, tablets, and other devices with LTE capabilities and comply with LTE standards, constitutes infringement of the '439 Patent. Defendant advertises the infringing products and services, publishes specifications

and promotional literature encouraging customers to operate the accused products and services, creates and/or distributes user manuals for the accused products and services that provide instruction and/or encourage infringing use, and offers support and/or technical assistance to its customers that provide instructions on and/or encourage infringing use.

130. For instance, Defendant encourages and facilitates its customers to infringe the '439 Patent by instructing customers that purchase Axon 7 mobile phones that such devices have "LTE" capability, and providing various indicators within those devices of the same.[8] Customers, pursuant to Defendant's instructions and advertisements, each directly infringe the '439 Patent, including at least Claim 1.

131. Defendant also contributes to the infringement of the '439 Patent in violation of 35 U.S.C. § 271(c). Defendant contributes to infringement of the '439 Patent by making, using, selling, offering to sell and/or importing components that are incorporated with third-party devices to infringe the '439 Patent, including at least Claim 1. The accused components constitute a material part of the invention claimed by the '439 Patent at least because they work in conjunction with third-party products or services, and they are specifically made to operate in a manner that infringes the '439 Patent by, among other things, enabling various devices, such as mobile devices, phablets, tablets, and other devices with LTE capabilities and comply with LTE standards, to perform adaptive modulation and coding. The accused components are separable from Defendant's products and are not staple articles or commodities of commerce suitable for substantial non-infringing use because they necessarily operate in a manner that infringes the '439 Patent. Further, because the '439 Patent is essential to the LTE standard, Defendant's devices with

[8] *See* ZTE Axon 7, *available at* https://www.zteusa.com/axon-7/ (last accessed Mar. 21, 2017).

LTE capabilities and comply with the LTE standard are material in practicing the '439 Patent, are especially made to infringe the '439 Patent, and have no substantial non-infringing uses. Moreover, Defendant publishes or has published information about infringing aspects of various devices. These devices include mobile devices, phablets, tablets, and other devices with LTE capabilities and comply with LTE standards, that are practiced using the components that Defendant provides. As stated above, Defendant knew of the '439 Patent and knew that its actions would lead to infringement of that patent. Therefore, Defendant is also contributing to the direct infringement of the '439 Patent by users of Defendant's services, products, and/or features, including at least Claim 1.

132. Inventergy SPE has suffered and continues to suffer damages and irreparable harm as a result of Defendant's past and ongoing infringement.

133. Unless Defendant's infringement is permanently enjoined, Inventergy SPE will continue to be damaged and irreparably harmed.

SEVENTH CLAIM FOR RELIEF

Infringement of U.S. Patent No. 6,760,590

134. Inventergy SPE incorporates by reference the foregoing paragraphs.

135. The '590 Patent issued on July 6, 2004, and is titled "Communication Terminal Apparatus, Base Station Apparatus, and Radio Communication Method."

136. Inventergy SPE is the owner by assignment of all rights, title, and interest in the '590 Patent.

137. The '590 Patent is valid and enforceable.

138. The '590 patented technology is directed generally to a communication terminal apparatus, base station apparatus, and radio communication method to be used in a cellular

communication system. One objective of the invention was to provide a communication terminal apparatus, base station apparatus, and radio communication method that make it possible to prevent a fall in downlink throughput in a communication system in which communication resources are allocated to communication terminals based on downlink channel quality. This particular objective can be achieved, among other ways, when, among information indicative of downlink channel quality, which has a possibility of decreasing the downlink throughput when the information is received erroneously in a base station, a communication terminal provides such information with less susceptibility to errors in the propagation path to transmit, and it is thereby possible to prevent the downlink throughput from decreasing.

139. The use of mandatory portions of the LTE standard infringes the ’590 Patent. For example, the 3GPP standard TS 36.212 requires use of a (20,5) code to code the CQI. Furthermore, the 3GPP standard defines the CQI index with a corresponding modulation method and code rate and requires a user device to report a CQI to eNB in uplink channel (E-UTRAN Node B), as specified in the 3GPP TS 36.213 standard. Additionally, the 3GPP standard TS 36.300 requires use of CQI to inform the scheduler about the current channel conditions as seen by a user device.

140. Upon information and belief, Defendant’s mobile devices, phablets, tablets, and other devices with LTE capabilities use the mandatory portions of the LTE standard covered by the ’590 Patent, including but not limited to Claim 3.

141. Defendant has infringed, and is currently infringing, the ’590 Patent in violation of 35 U.S.C. § 271(a) by making, using, selling, offering for sale, and/or importing into the United States, without authority, products, equipment, software, and/or services that practice one or more claims of the ’590 Patent, including without limitation Defendant’s mobile devices, phablets, tablets, and other devices with LTE capabilities and comply with LTE standards, including at least

TS 36.212, TS 36.213, and/or TS 36.300. These Defendant devices include, but are not limited to, the Axon 7 and equivalents and the LTE devices listed in Appendix A.

142. More specifically, Defendant's mobile devices, phablets, tablets, and other devices with LTE capabilities and comply with LTE standards infringe at least Claim 3 of the '590 Patent because each device measures downlink channel quality and transmits channel quality information to a base station in a cellular network, wherein the upper digit (or most significant bit) is assigned to a larger number of bits during the encoding process of the channel quality information, and a lower digit (or rest of the bits) is assigned to a smaller number of bits during the same encoding process.

143. Defendant was provided one or more claim charts for the '590 Patent on at least January 20, 2015, and those charts are hereby incorporated by reference.

144. Defendant has had actual knowledge of the '590 Patent and Defendant's infringement of the '590 Patent since as early as January 20, 2015, before the filing of this Complaint. Despite this knowledge, Defendant continued its infringing activities despite an objectively high likelihood that its activities constituted infringement of a valid patent, and this risk was either known or so obvious that it should have been known to Defendant. Thus, Defendant's infringement has been, and continues to be, willful and deliberate.

145. Defendant induces third parties, including customers, to infringe the '590 Patent in violation of 35 U.S.C. § 271(b) by encouraging and facilitating them to perform actions that Defendant knows to be acts of infringement of the '590 Patent, including at least Claim 3. Upon information and belief, Defendant knows that the use of its mobile devices, phablets, tablets, and other devices with LTE capabilities and comply with LTE standards, constitutes infringement of the '590 Patent. Defendant advertises the infringing products and services, publishes specifications

and promotional literature encouraging customers to operate the accused products and services, creates and/or distributes user manuals for the accused products and services that provide instruction and/or encourage infringing use, and offers support and/or technical assistance to its customers that provide instructions on and/or encourage infringing use.

146. For instance, Defendant encourages and facilitates its customers to infringe the '590 Patent by instructing customers that purchase Axon 7 mobile phones that such devices have "LTE" capability, and providing various indicators within those devices of the same.[9] Customers, pursuant to Defendant's instructions and advertisements, each directly infringe the '590 Patent, including at least Claim 3.

147. Defendant also contributes to the infringement of the '590 Patent in violation of 35 U.S.C. § 271(c). Defendant contributes to infringement of the '590 Patent by making, using, selling, offering to sell and/or importing components that are incorporated with third-party devices to infringe the '590 Patent, including at least Claim 3. The accused components constitute a material part of the invention claimed by the '590 Patent at least because they work in conjunction with third-party products or services, and they are specifically made to operate in a manner that infringes the '590 Patent by, among other things, enabling various devices, such as mobile devices, phablets, tablets, and other devices with LTE capabilities and comply with LTE standards, to perform adaptive modulation and coding. The accused components are separable from Defendant's products and are not staple articles or commodities of commerce suitable for substantial non-infringing use because they necessarily operate in a manner that infringes the '590 Patent. Further, because the '590 Patent is essential to the LTE standard, Defendant's devices with

[9] *See* ZTE Axon 7, *available at* https://www.zteusa.com/axon-7/ (last accessed Mar. 21, 2017).

LTE capabilities and comply with the LTE standard are material in practicing the '590 Patent, are especially made to infringe the '590 Patent, and have no substantial non-infringing uses. Moreover, Defendant publishes or has published information about infringing aspects of various devices. These devices include mobile devices, phablets, tablets, and other devices with LTE capabilities and comply with LTE standards, that are practiced using the components that Defendant provides. As stated above, Defendant knew of the '590 Patent and knew that its actions would lead to infringement of that patent. Therefore, Defendant is also contributing to the direct infringement of the '590 Patent by users of Defendant's services, products, and/or features, including at least Claim 3.

148. Inventergy SPE has suffered and continues to suffer damages and irreparable harm as a result of Defendant's past and ongoing infringement.

149. Unless Defendant's infringement is permanently enjoined, Inventergy SPE will continue to be damaged and irreparably harmed.

EIGHTH CLAIM FOR RELIEF
Infringement of U.S. Patent No. 7,339,949

150. Inventergy SPE incorporates by reference the foregoing paragraphs.

151. The '949 Patent issued on March 4, 2008, and is titled "ARQ Transmission And Reception Methods And Apparatus."

152. Inventergy SPE is the owner by assignment of all rights, title, and interest in the '949 Patent.

153. The '949 Patent is valid and enforceable.

154. The '949 patented technology is directed generally to, among other things, technology used in 4G (LTE and LTE+) cellular communication systems. When data is transmitted from a base station to a UE, each packet is first encoded by the base station. Upon receipt of data by a

UE, the UE attempts to decode the data. The transmission and/or decoding process, however, can result in errors. As such, after attempting to decode the data, the UE (i.e., receiving apparatus) sends either a positive or negative acknowledgment message ("ACK/NAK messages") back to the base station indicating whether the data was successfully decoded. If there was an error, the base station is then able to correct it. This error detection process and correction is generally referred to as hybrid Automatic Repeat reQuest ("HARQ").

155. As noted above, LTE and LTE+ are standards related to data transmission. The '949 Patent has 20 claims, of which independent claim 16 is representative for purposes of this description. In general, claim 16 of the '949 Patent describes a receiving apparatus (e.g., a UE) that supports a feature required by the LTE and LTE+ standards related to data reception, for all UEs that support Time Division Duplex ('TDD,' at times referred to simply as 'TD') modes.

156. Claim 16 of the '949 Patent describes a novel way for scheduling the reception of data packets and the transmission of corresponding ACK/NAK messages, where the scheduled time slots during which the ACK/NAK messages are sent are set based on the allocation of physical resources. This novel approach adds flexibility to a cellular communications system, including flexibility that allows for both low end UEs and high end UEs to efficiently communicate with the same type of mobile stations while also minimizing signaling overhead. The lower signaling overhead achieved by the claimed invention of the '949 Patent in turn leads to faster data transmission.

157. The use of mandatory portions of the LTE standard infringes the '949 Patent. For example, the 3GPP standard TS 36.321 requires use of HARQ process for LTE communication system. Furthermore, the 3GPP standard defines different uplink-downlink configuration which will use different time frames for implementing uplink and downlink channels, as specified in the

3GPP TS 36.211 standard. Additionally, the 3GPP standard TS 36.213 specify different uplink timing of ACK/NACK signals based on different uplink-downlink configurations.

158. Upon information and belief, Defendant's mobile devices, phablets, tablets, and other devices with LTE capabilities use the mandatory portions of the LTE standard covered by the '949 Patent, including but not limited to Claim 16.

159. Defendant has infringed, and is currently infringing, the '949 Patent in violation of 35 U.S.C. § 271(a) by making, using, selling, offering for sale, and/or importing into the United States, without authority, products, equipment, software, and/or services that practice one or more claims of the '949 Patent, including without limitation Defendant's mobile devices, phablets, tablets, and other devices with LTE capabilities and comply with LTE standards, including at least TS 36.211, TS 36.213, and/or TS 36.321. These Defendant devices include, but are not limited to, the Axon 7 and equivalents and the LTE devices listed in Appendix A.

160. More specifically, Defendant's mobile devices, tablets, and other devices with LTE capabilities and comply with LTE standards infringe at least Claim 16 of the '949 Patent because each device has a UE to receive encoded data packets from a base station in a cellular network, wherein after receiving the encoded data packet, the UE transmits an acknowledgement message on a scheduled time slot based on the allocation of physical resources.

161. Defendant has had actual knowledge of the '949 Patent and Defendant's infringement of the '949 Patent since at least January 20, 2015, before the filing of this Complaint. Despite this knowledge, Defendant continued its infringing activities despite an objectively high likelihood that its activities constituted infringement of a valid patent, and this risk was either known or so obvious that it should have been known to Defendant. Thus, Defendant's infringement has been, and continues to be, willful and deliberate.

162. Defendant induces third parties, including customers, to infringe the '949 Patent in violation of 35 U.S.C. § 271(b) by encouraging and facilitating their performance of actions that Defendant knows to be acts of infringement of the '949 Patent, including at least Claim 16. Upon information and belief, Defendant knows that the use of its mobile devices, phablets, tablets, and other devices with LTE capabilities and comply with LTE standards, constitutes infringement of the '949 Patent. Defendant advertises the infringing products and services, publishes specifications and promotional literature encouraging customers to operate the accused products and services, creates and/or distributes user manuals for the accused products and services that provide instruction and/or encourage infringing use, and offers support and/or technical assistance to its customers that provide instructions on and/or encourage infringing use.

163. For instance, Defendant encourages and facilitates its customers to infringe the '949 Patent by instructing customers that purchase Axon 7 mobile phones that such devices have "LTE" capability, and providing various indicators within those devices of the same.[10] Customers, pursuant to Defendant's instructions and advertisements, each directly infringe the '949 Patent, including at least Claim 16.

164. Defendant also contributes to the infringement of the '949 Patent in violation of 35 U.S.C. § 271(c). Defendant contributes to infringement of the '949 Patent by making, using, selling, offering to sell and/or importing components that are incorporated with third-party devices to infringe the '949 Patent, including at least Claim 16. The accused components constitute a material part of the invention claimed by the '949 Patent at least because they work in conjunction with third-party products or services, and they are specifically made to operate in a manner that

[10] *See* ZTE Axon 7, *available at* https://www.zteusa.com/axon-7/ (last accessed Nov. 7, 2018).

infringes the '949 Patent by, among other things, enabling various devices, such as mobile devices, phablets, tablets, and other devices with LTE capabilities and comply with LTE standards, to perform HARQ process with different uplink-downlink configuration. The accused components are separable from Defendant's products and are not staple articles or commodities of commerce suitable for substantial non-infringing use because they necessarily operate in a manner that infringes the '949 Patent. Further, because the '949 Patent is essential to the LTE standard, Defendant's devices with LTE capabilities and comply with the LTE standard are material in practicing the '949 Patent, are especially made to infringe the '949 Patent, and have no substantial non-infringing uses. Moreover, Defendant publishes or has published information about infringing aspects of various devices. These devices include mobile devices, phablets, tablets, and other devices with LTE capabilities and comply with LTE standards that are practiced using the components that Defendant provides. As stated above, Defendant knew of the '949 Patent and knew that its actions would lead to infringement of that patent. Therefore, Defendant is also contributing to the direct infringement of the '949 Patent by users of Defendant's services, products, and/or features, including at least Claim 16.

165. Inventergy SPE has suffered and continues to suffer damages and irreparable harm as a result of Defendant's past and ongoing infringement.

166. Unless Defendant's infringement is permanently enjoined, Inventergy SPE will continue to be damaged and irreparably harmed.

PRAYER FOR RELIEF

Inventergy SPE respectfully requests that the Court enter judgment in its favor as follows:

A. Finding that Defendant has infringed and are infringing each of the Asserted Patents;

B. Finding that Defendant's infringement of the Asserted Patents has been and continues to be willful;

C. Finding that each of the Asserted Patents is valid and enforceable;

D. Awarding Inventergy SPE damages adequate to compensate for Defendant's past and present infringement, but in no event less than a reasonable royalty;

E. Awarding an accounting and supplemental damages for those acts of infringement committed by Defendant subsequent to the discovery cut-off date in this action through the date Final Judgment is entered;

F. Ordering that damages for infringement of the Asserted Patents be trebled as provided for by 35 U.S.C. § 284 for Defendant's willful infringement of the Asserted Patents;

G. Finding that this case is exceptional;

H. Awarding Inventergy SPE with its attorneys' fees and costs, together with pre-judgment and post-judgment interest;

I. Permanently enjoining Defendant and its parents, subsidiaries, affiliates, officers, directors, agents, servants, employees, successors and assigns, and all others in active concert or participation with any of the foregoing from any further acts of infringement, including contributing to and/or inducing infringement, of the Asserted Patents, or, in the alternative, an award of a reasonable ongoing royalty for future infringement of the Asserted Patents by such entities; and

J. Any further relief that this Court deems just and proper.

Dated: January 4, 2019

Respectfully submitted,

By: *s/ Rayna E. Kessler*

RAYNA E. KESSLER, ESQ. (NJ 031782010)
ROBINS KAPLAN LLP
399 Park Ave., Suite 3600
New York, NY 10022
Telephone: (212) 980-7431
Facsimile: (212) 980-7499

Christopher A. Seidl, Esq. (MN 0313439) (*pro hac vice*)
John K. Harting, Esq. (MN 0392234) (*pro hac vice*)
Mary Pheng, Esq. (MN 0398500) (*pro hac vice*)
ROBINS KAPLAN LLP
800 LaSalle Avenue, Suite 2800
Minneapolis, MN 55402
Telephone: (612) 349-8500
Facsimile: (612) 339-4181

Li Zhu, Esq. (CA 302210) (*pro hac vice*)
ROBINS KAPLAN LLP
2440 W. El Camino Real, Suite 100
Mountain View, CA 94040
Telephone: (650) 784-4040
Facsimile: (650) 784-4041

ATTORNEYS FOR PLAINTIFF INVT SPE LLC

JURY DEMAND

Plaintiff hereby demands a trial by jury on all issues so triable.

Dated: January 4, 2019

By: *s/ Rayna E. Kessler*

RAYNA E. KESSLER, ESQ. (NJ 031782010)
ROBINS KAPLAN LLP
399 Park Ave., Suite 3600
New York, NY 10022
Telephone: (212) 980-7431
Facsimile: (212) 980-7499

ATTORNEY FOR PLAINTIFF INVT SPE LLC

CERTIFICATION OF OTHER ACTIONS

The undersigned hereby certifies that the matter in controversy is not the subject of any other action pending in any court, arbitration, or administrative proceeding, other than the matters below:

1. INVT SPE LLC v. APPLE, INC., Civil Case No. 2:17-cv-03738-JMV-JBC;
2. INVT SPE LLC v. HTC CORP. AND HTC AMERICA CORP., Civil Case No. 2:17-cv-03740-JMV-JBC; and
3. IN THE MATTER OF LTE- AND 3G-COMPLIANT CELLULAR COMMUNICATIONS DEVICES, ITC Investigation No. 337-TA-1138.

Dated: January 4, 2019

By: *s/ Rayna E. Kessler*

RAYNA E. KESSLER, ESQ. (NJ 031782010)
ROBINS KAPLAN LLP
399 Park Ave., Suite 3600
New York, NY 10022
Telephone: (212) 980-7431
Facsimile: (212) 980-7499

ATTORNEY FOR PLAINTIFF INVT SPE LLC

RULE 201.1 CERTIFICATION

The undersigned hereby certifies that the above-captioned matter is not subject to compulsory arbitration.

Dated: January 4, 2019

By: *s/ Rayna E. Kessler*

RAYNA E. KESSLER, ESQ. (NJ 031782010)
ROBINS KAPLAN LLP
399 Park Avenue, Suite 3600
New York, NY 10022
Telephone: (212) 980-7431
Facsimile: (212) 980-7499

ATTORNEY FOR PLAINTIFF INVT SPE LLC