

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

NXP USA INC.,

Plaintiff,

v.

MEDIATEK INC.;
MEDIATEK USA INC.,
AMAZON.COM INC.,
BEST BUY CO., INC.

Defendants.

Case Number : 2:21cv318

JURY TRIAL DEMANDED

COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff NXP USA Inc. ("NXP USA"), by and through its undersigned counsel, pleads the following against Defendants MediaTek Inc., MediaTek USA Inc. (collectively "MediaTek"), Amazon.com Inc. ("Amazon"), and Best Buy Co., Inc. ("Best Buy"), and alleges as follows:

THE PARTIES

1. Plaintiff NXP USA is a corporation duly organized and existing under the laws of the state of Delaware. NXP USA, together with its parent company NXP B.V. (collectively "NXP"), is one of the largest semiconductor manufacturers in the world.

2. The address of the registered office of NXP USA is 251 Little Falls Drive, Wilmington, DE 19808. The name of NXP USA's registered agent at that address is the

Corporation Service Company. NXP USA's corporate headquarters is located at 6501 W. William Cannon Dr., Austin, TX 78735.

3. NXP USA is the assignee and owns all right, title, and interest to U.S. Patent Nos. 10,038,518; 10,560,158; and 10,742,780 (the "Asserted Patents").

4. On information and belief, Defendant MediaTek Inc. is a corporation organized and existing under the laws of Taiwan, and located at No. 1, Dusing Road 1, Hsinchu Science Park, Hsinchu City 30078, Taiwan.

5. On information and belief, Defendant MediaTek USA Inc. is a corporation duly organized and existing under the laws of the state of Delaware, having a regular and established place of business in the Eastern District of Texas, including at 825 Watters Creek Blvd, Suite 265, Allen, TX 75103.¹

6. On information and belief, Amazon is a corporation organized and existing under the laws of the State of Delaware with its principal place of business located at 410 Terry Avenue North, Seattle, Washington 98109. On information and belief, Amazon has a regular and established place of business in the Eastern District of Texas, including at 15201 Heritage Pkwy, Fort Worth, TX 76177 in Denton County.

7. On information and belief, Best Buy is a corporation organized and existing under the laws of the State of Minnesota with its principal place of business located at 7601 Penn Avenue South Richfield, Minnesota. On information and belief, Best Buy has a regular and established place of business in the Eastern District of Texas, including at 2800 N. Central Expy., Plano, TX 75074.

¹ <https://corp.mediatek.com/about/office-locations/mediatek-usa-offices>

BACKGROUND, JURISDICTION AND VENUE

8. This is an action arising under the patent laws of the United States, 35 U.S.C. § 1 *et seq.* Accordingly, this Court has subject matter jurisdiction pursuant to 28 U.S.C. §§ 1331 and 1338(a).

A. NXP

9. Before forming as an independent entity in 2006, NXP was the semiconductor division of Koninklijke Philips Electronics ("Philips"). That semiconductor division enjoyed an esteemed history of innovation dating back to the early 1950s, when Philips opened its first semiconductor chip production facility. In 2015, NXP merged with Freescale Semiconductor, Inc. ("Freescale") to become the world's largest automotive semiconductor supplier. Freescale, previously the Semiconductor Products Sector of Motorola, Inc., also brought decades of innovative legacy: Motorola founded the Semiconductor Products Sector in 1949.

10. Today, NXP employs approximately 29,000 people in over 30 countries, over 2,500 of them here in Texas. It had over \$8 billion in annual revenue in 2020.² Its semiconductors are used in products across industries including automotive, industrial & Internet-of-Things, mobile, and communication infrastructure. In 2020, NXP's research and development spending exceeded \$1.5 billion.

11. Over the years Motorola, Freescale, Philips, and today NXP have stayed at the forefront of cutting-edge developments in semiconductor and communications technology. For example, in 1969, the first words from the Moon to Earth were relayed by a Motorola transponder. In 2002, Philips Semiconductor partnered with Sony to invent Near Field Communication, a standard feature on all smartphones today. In 2018, NXP was honored as a Top 100 Global

² <https://www.nxp.com/company/about-nxp:ABOUT-NXP>

Innovator by Clarivate Analytics, formerly the Intellectual Property & Science business of Thomson Reuters.³

12. Today, NXP is one of the world's leading semiconductor groups, and innovations in the electronics field play a key role in NXP's technology portfolio.

13. For example, NXP is presently at the forefront of many of the newest communications and networking technologies, including the sixth generation of Wi-Fi wireless network technologies. This latest generation offers greater capacity, efficiency and performance for advanced connectivity, including thanks to the innovations of NXP's engineers. It delivers a wealth of additional connectivity improvements, including dramatically lower latency, increased capacity, and improved power efficiency across applications. NXP has developed (and is continuing to develop) a broad portfolio of products that will make these benefits available for large-scale deployment across numerous markets, bringing these benefits to a broader range of consumers.⁴

14. For example, recently released families of NXP products have enabled the world's first sixth-generation Wi-Fi gaming console.⁵ These NXP products also support a wide range of use cases, including AR/VR headsets which make full, completely wireless immersive experiences in HD possible; home theatre audio experiences; smart appliances; and industrial Internet-of-Things solutions for home and building control. NXP continues to advance the forefront of Wi-Fi

³ <https://www.nxp.com/company/about-nxp/nxp-honored-as-2017-top-100-global-innovator:NW-HONORED-TOP-100-2017>

⁴ <https://www.nxp.com/company/about-nxp/nxps-new-wi-fi-6-portfolio-accelerates-its-large-scale-adoption-across-iot-auto-access-and-industrial-markets:NW-WIFI6-PORTFOLIO>

⁵ <https://www.nxp.com/company/about-nxp/nxp-unveils-industry-leading-2x2-wi-fi-6-plus-bluetooth-solutions-and-revolutionizes-gaming-audio-industrial-and-iot-markets:NW-UNVEILS-INDUSTRY-LEADING>

technologies by introducing devices capable of utilizing the 6 GHz Wi-Fi band, which the United States FCC (along with other regions around the world) only recently approved for use.⁶

15. Further, NXP continues to create products that use previous generations of Wi-Fi networking technology.

B. MediaTek

16. MediaTek is a semiconductor company that sells electronic chips and directly competes with NXP in the marketplace. For example, MediaTek sells chips with Wi-Fi capabilities, directly competing with NXP's chips with Wi-Fi capabilities. These products include chips with the fifth generation of Wi-Fi operability ("Wi-Fi 5 Chips"), such as the MT7610, MT7612, MT7615, MT7622, MT7668, RT3593, RT3573, RT5572, RT5592, and MT7915 product families, as non-limiting examples, and also chips with the sixth generation of Wi-Fi operability ("Wi-Fi 6 Chips"), such as the MT7915 product family, as a non-limiting example.

17. MediaTek sells, offers for sale, uses, makes and/or imports Wi-Fi 5 Chips and Wi-Fi 6 Chips that infringe NXP USA's patents.

18. This Court has personal jurisdiction over MediaTek Inc. at least because MediaTek Inc. sells, offers for sale, uses, makes and/or imports products that are and have been used, offered for sale, sold, and purchased in the Eastern District of Texas, and MediaTek Inc. has committed, and continues to commit, acts of infringement in the Eastern District of Texas, has conducted business in the Eastern District of Texas, and/or has engaged in continuous and systematic activities in the Eastern District of Texas.

⁶ <https://www.nxp.com/company/about-nxp/nxp-unlocks-the-6ghz-spectrum-with-a-wi-fi-6e-tri-band-chipset-for-access-devices:NW-UNLOCKS-WIFI-TRIBAND>

19. Under 28 U.S.C. §§ 1391(b)-(d) and 1400(b), venue is proper in this judicial district as to MediaTek Inc. at least because MediaTek Inc. is a foreign corporation subject to personal jurisdiction in this judicial district and has committed acts of infringement within this judicial district giving rise to this action.

20. This Court has personal jurisdiction over MediaTek USA Inc. at least because MediaTek USA Inc. sells, offers for sale, uses, makes and/or imports products that are and have been used, offered for sale, sold, and purchased in the Eastern District of Texas, and MediaTek USA Inc. has committed, and continues to commit, acts of infringement in the Eastern District of Texas, has conducted business in the Eastern District of Texas, and/or has engaged in continuous and systematic activities in the Eastern District of Texas. Further, MediaTek USA Inc. has regular and established places of business within the Eastern District of Texas, including at 825 Watters Creek Blvd, Suite 265, Allen, TX 75103. On information and belief, MediaTek USA Inc. has physical facilities and employees at the aforementioned address. On information and belief, MediaTek USA Inc. maintains multiple offices in Texas and has numerous employees in Texas.

21. Venue is proper in this judicial district as to MediaTek USA Inc. at least because MediaTek USA Inc. maintains a regular and established place of business in this district, including at 825 Watters Creek Blvd, Suite 265, Allen, TX 75103, and has committed acts of infringement within this judicial district giving rise to this action.

C. Amazon

22. Amazon is a retailer and manufacturer that sells, offers for sale, uses, makes and/or imports electronic products incorporating infringing Wi-Fi 5 Chips and Wi-Fi 6 Chips including, for example, infringing MediaTek chips that provide Wi-Fi functionality. For example, Amazon

sells the Linksys E7350, which incorporates an MT7915: <https://www.amazon.com/Linksys-Dual-Band-AX1800-Router-E7350/dp/B08FBNH7MV>.

23. This Court has personal jurisdiction over Amazon at least because Amazon sells, offers for sale, uses, makes and/or imports products that are and have been used, offered for sale, sold, and purchased in the Eastern District of Texas, and Amazon has committed, and continues to commit, acts of infringement in the Eastern District of Texas, has conducted business in the Eastern District of Texas, and/or has engaged in continuous and systematic activities in the Eastern District of Texas. Further, Amazon has regular and established places of business within the Eastern District of Texas, including a distribution center located at 15201 Heritage Pkwy, Fort Worth, TX 76177 in Denton County. On information and belief, Amazon has physical facilities and employees at the aforementioned address. On information and belief, Amazon maintains several distribution centers in Texas and employs thousands of people in Texas.

24. Venue is proper in this judicial district as to Amazon at least because Amazon maintains a regular and established place of business in this district, including at 15201 Heritage Pkwy, Fort Worth, TX 76177, and has committed acts of infringement within this judicial district giving rise to this action.

D. Best Buy

25. Best Buy is a retailer which sells, offers for sale, uses, makes and/or imports electronic products incorporating infringing Wi-Fi 5 Chips and Wi-Fi 6 Chips including, for example, infringing MediaTek chips that provide Wi-Fi functionality. For example, Best Buy sells the Linksys E7350, which incorporates an MT7915: <https://www.bestbuy.com/site/linksys-dual-band-ax1800-wifi-6-router/6428529.p?skuId=6428529&ref=212&loc=1>.

26. This Court has personal jurisdiction over Best Buy at least because Best Buy sells, offers for sale, uses, makes and/or imports products for sale in the Eastern District of Texas, and Best Buy has committed, and continues to commit, acts of infringement in the Eastern District of Texas, has conducted business in the Eastern District of Texas, and/or has engaged in continuous and systematic activities in the Eastern District of Texas. Further, Best Buy has regular and established places of business within the Eastern District of Texas, including a facility located at 422 W Loop 281, Longview, TX 75605. On information and belief, Best Buy has physical facilities and employees at the aforementioned address. On information and belief, Best Buy maintains several retail locations in Texas and employs numerous people in Texas.

27. Venue is proper in this judicial district as to Best Buy at least because Best Buy maintains a regular and established place of business in this district, including at 422 W Loop 281, Longview, TX 75605, and has committed acts of infringement within this judicial district giving rise to this action.

FIRST CLAIM

(Infringement of U.S. Patent No. 10,038,518)

28. NXP USA re-alleges and incorporates herein by reference Paragraphs 1-27 of its Complaint.

29. U.S. Patent No. 10,038,518 (the "'518 Patent"), titled "Signaling Phy Preamble Formats" was duly and lawfully issued on July 31, 2018. A true and correct copy of the '518 Patent is attached hereto as Exhibit 1.

30. The '518 Patent names Yakun Sun and Hongyuan Zhang as co-inventors.

31. The '518 Patent has been in full force and effect since its issuance. NXP USA owns by assignment the entire right, title, and interest in and to the '518 Patent, including the right to seek damages for past, current, and future infringement thereof.

32. The '518 Patent states that it "relates generally to communication networks and, more particularly, to wireless local area networks that utilize multiple data unit formats." Ex. 1 at 1:18-20.

33. The '518 Patent explains that "[w]ireless local area networks (WLANs) have evolved rapidly over the past decade," and their development "has improved single-user peak data throughput." *Id.* at 1:24-28. The '518 Patent further states that future technologies "promise to provide even greater throughputs, such as throughputs in the tens of Gbps range." *Id.* at 1:35-37. The '518 Patent discloses approaches that, among other benefits, help wireless systems achieve high throughput.

34. NXP USA is informed and believes, and thereon alleges, that MediaTek has infringed and unless enjoined will continue to infringe one or more claims of the '518 Patent, in violation of 35 U.S.C. § 271, by, among other things, selling, offering for sale, using, making and/or importing without authority or license, infringing Wi-Fi 6 Chips that practice the claimed inventions of the '518 Patent and/or products that incorporate the same (collectively "'518 Accused Products"), such as, for example, chips within MediaTek's MT7915 product family.

35. Further, NXP USA is informed and believes, and thereon alleges, that Amazon and Best Buy have infringed, and unless enjoined will continue to infringe one or more claims of the '518 Patent, in violation of 35 U.S.C. § 271, by, among other things, selling, offering for sale, using, making and/or importing without authority or license, '518 Accused Products, such as, for

example, the Linksys E7350, which incorporates at least one infringing Wi-Fi 6 Chip (e.g., MT7915).

36. For example, the '518 Accused Products embody every limitation of at least claim 6 of the '518 Patent, literally or under the doctrine of equivalents, as set forth below. The further descriptions below, which are based on publicly available information, are preliminary examples and are non-limiting.

"An apparatus, comprising:"

37. Each of the '518 Accused Products is an apparatus, such as, for example, an electronic device capable of communicating over a wireless network. Each such apparatus further comprises the elements discussed below.

"a network interface device having one or more integrated circuits (ICs) configured to determine a format according to which a physical layer (PHY) data unit is to be generated;"

38. Each of the '518 Accused Products includes a network interface comprising one or more integrated circuit (IC) devices configured as discussed below. For example, the '518 Accused Products include a Wi-Fi interface capable of communicating with Wi-Fi networks, which interface includes at least one of the Wi-Fi 6 Chips.

39. The integrated circuits of the network interfaces of the '518 Accused Products are configured to determine a format according to which a physical layer (PHY) data unit, such as a PPDU, is to be generated. Examples of such PPDUs include, for example, HE SU PPDUs.

"select i) length information to be included in a field in a legacy portion of a PHY preamble of the PHY data unit, and ii) a phase of modulation of an orthogonal frequency division modulation (OFDM) symbol in a non-legacy portion of the PHY preamble,"

40. The integrated circuits of the network interface devices of the '518 Accused Products are configured to select i) length information to be included in a field in a legacy portion

of a PHY preamble of the PHY data unit, and ii) a phase of modulation of an orthogonal frequency division modulation (OFDM) symbol in a non-legacy portion of the PHY preamble.

41. For example, the '518 Accused Products select length information for inclusion in the L-SIG field of the PPDU preamble, which is part of a legacy, sometimes known as a "Non-HE," portion of the PHY preamble.

42. As another example, the '518 Accused Products also select a phase of modulation, such as BPSK or Q-BPSK, for modulating an HE-SIG-A2 symbol in a non-legacy, sometimes known as an "HE," portion of the PHY preamble.

"wherein the length information and the phase of modulation are selected to indicate the format from a set of multiple PHY formats defined by a communication protocol;"

43. The length of information and phase of modulation discussed above are selected by the integrated circuits of the network interface devices of the '518 Accused Products to indicate the format from a set of multiple PHY formats defined by a communication protocol.

44. For example, the integrated circuits are configured to select the length information in a manner that results in a particular remainder given a particular divisor, such as 2 and 3, and in the use of BPSK for HE-SIG-A2, in order to indicate a PHY format, such as the HE SU PPDU format of the HE communication protocol. Other example selections may indicate other formats, such as the HE MU PPDU and HE ER SU PPDU formats.

"wherein the one or more ICs are further configured to generate the data unit to include the selected length information in the field in the legacy portion of the PHY preamble and to modulate the OFDM symbol in the non-legacy portion of the PHY preamble with the selected phase, and"

45. The one or more ICs of the network interface devices of the '518 Accused Products are further configured to generate the data unit to include the selected length information in the

field in the legacy portion of the PHY preamble and to modulate the OFDM symbol in the non-legacy portion of the PHY preamble with the selected phase.

46. For example, the '518 Accused Products generate HE PPDU's with the selected length information and HE-SIG-A2 modulation discussed above in order to transmit them on a wireless network.

"transmit the data unit."

47. The one or more ICs of the network interfaces of the '518 Accused Products are further configured to transmit the data unit.

48. For example, the '518 Accused Products transmit the HE PPDU's in order to communicate with one or more devices on a wireless network.

49. NXP USA is informed and believes, and thereon alleges, that at least as through notice provided by the Complaint, Defendants actively, knowingly, and intentionally have induced infringement of the '518 Patent by, for example, controlling the design and manufacture of, offering for sale, selling, supplying, and otherwise providing instruction and guidance regarding the above-described products with the knowledge and specific intent to encourage and facilitate infringing uses of such products by its customers both inside and outside the United States. For example, MediaTek publicly provides documentation, including datasheets available through MediaTek's website and software developer's manuals, instructing customers on uses of MediaTek's products that infringe the '518 Patent. *See, e.g.,* <https://www.mediatek.com/>. As another example, Amazon and Best Buy provide support, product literature, and other information enabling infringing uses. *See, e.g.,* <https://www.amazon.com/Linksys-Dual-Band-AX1800-Router-E7350/dp/B08FBNH7MV>; <https://www.bestbuy.com/site/linksys-dual-band-ax1800-wifi-6-router/6428529.p?skuId=6428529>. On information and belief, certain customers of

Defendants sell, offer for sale, use, make and/or import, without authority or license, products containing the above-described MediaTek products.

50. NXP USA is informed and believes, and thereon alleges, that Defendants have contributed to the infringement by their customers of the '518 Patent by, without authority, importing, selling and offering to sell within the United States materials and apparatuses for practicing the claimed invention of the '518 Patent both inside and outside the United States. For example, the above-described products constitute a material part of the inventions of the '518 Patent and are not staple articles or commodities of commerce suitable for substantial noninfringing use. On information and belief, since at least notice provided by the Complaint, Defendants know that the above-described products constitute a material part of the inventions of the '518 Patent and are not staple articles or commodities of commerce suitable for substantial noninfringing use. On information and belief, Defendants' customers directly infringe the '518 Patent by, for example, selling, offering for sale, using, making and/or importing without authority or license, products containing the above-described products.

51. As a result of Defendants' infringement of the '518 Patent, NXP USA has been damaged. NXP USA is entitled to recover for damages sustained as a result of Defendants' wrongful acts in an amount subject to proof at trial.

52. In addition, Defendants' infringing acts and practices have caused and are causing immediate and irreparable harm to NXP USA. For example, NXP USA and MediaTek are direct competitors in the marketplace, and there is no adequate remedy at law to compensate NXP USA for MediaTek's infringement of NXP USA's intellectual property rights. As a further example, the sale of products by Amazon and Best Buy which infringe NXP USA's intellectual property rights has caused, and continues to cause, irreparable harm to NXP USA.

53. NXP USA is informed and believes, and thereon alleges, that Defendants' infringement of the '518 Patent is willful. Defendants have had knowledge of the '518 Patent and its infringement of the '518 Patent at least since the filing of this complaint. To the extent Defendants continue to infringe the '518 Patent, that deliberate infringement is wanton, malicious, and egregious, with reckless disregard for NXP USA's patent rights. Such infringement is consciously wrongful.

54. Based on the information alleged in this claim, as well as the information alleged in the Second and Third Claims *infra*, NXP USA is informed and believes, and thereon alleges, that this is an exceptional case, which warrants an award of attorney's fees to NXP USA pursuant to 35 U.S.C. § 285.

SECOND CLAIM

(Infringement of U.S. Patent No. 10,560,158)

55. NXP USA re-alleges and incorporates herein by reference Paragraphs 1-27 of its Complaint.

56. U.S. Patent No. 10,560,158 (the "'158 Patent"), titled "Triggered Uplink Transmissions In Wireless Local Area Networks" was duly and lawfully issued on February 11, 2020. A true and correct copy of the '158 Patent is attached hereto as Exhibit 2.

57. The '158 Patent names Liwen Chu, Yakun Sun, Hongyuan Zhang, Lei Wang, and Hui-Ling Lou as co-inventors.

58. The '158 Patent has been in full force and effect since its issuance. NXP USA owns by assignment the entire right, title, and interest in and to the '158 Patent, including the right to seek damages for past, current, and future infringement thereof.

59. The '158 Patent states it "relates generally to communication networks and, more particularly, to wireless local area networks that utilize orthogonal frequency division multiple access (OFDMA)." Ex. 2 at 1:21-24.

60. The '158 Patent explains that "[w]ireless local area networks (WLANs) have evolved rapidly over the past decade," and their development "has improved single-user peak data throughput." *Id.* at 1:28-32. The '158 Patent further states that future technologies "promise to provide even greater throughputs, such as throughputs in the tens of Gbps range." *Id.* at 1:39-41. The '158 Patent discloses approaches that, among their other benefits, help wireless systems achieve greater throughputs.

61. NXP USA is informed and believes, and thereon alleges, that MediaTek has infringed and unless enjoined will continue to infringe one or more claims of the '158 Patent, in violation of 35 U.S.C. § 271, by, among other things, selling, offering for sale, using, making and/or importing without authority or license, infringing Wi-Fi 6 Chips that practice the claimed inventions of the '158 Patent and/or products that incorporate the same (collectively "'158 Accused Products"), such as, for example, chips within MediaTek's MT7915 product family.

62. Further, NXP USA is informed and believes, and thereon alleges, that Amazon and Best Buy have infringed, and unless enjoined will continue to infringe one or more claims of the '158 Patent, in violation of 35 U.S.C. § 271, by, among other things, selling, offering for sale, using, making and/or importing without authority or license, '158 Accused Products, such as, for example, the Linksys E7350, which incorporates at least one infringing Wi-Fi 6 Chip (e.g., MT7915).

63. For example, the '158 accused products embody every limitation of at least claim 12 of the '158 Patent, literally or under the doctrine of equivalents, as set forth below. The further

descriptions below, which are based on publicly available information, are preliminary examples and are non-limiting.

"An apparatus, comprising:"

64. Each of the '158 Accused Products is an apparatus, such as, for example, an electronic device capable of communicating over a wireless network. Each such apparatus further comprises the elements discussed below.

"a wireless network interface device associated with a first communication device, wherein the wireless network interface device includes one or more integrated circuit (IC) devices configured to:"

65. Each of the '158 Accused Products includes a wireless network interface device associated with a first communication device, and the wireless network interface device includes one or more integrated circuit (IC) devices configured as discussed below. For example, the '158 Accused Products include a Wi-Fi interface capable of communicating with Wi-Fi networks, which interface includes at least one of the Wi-Fi 6 Chips.

"determine respective time duration requirements for preparing uplink transmissions by multiple second communication devices as part of an uplink multi-user (MU) transmission,"

66. The integrated circuit devices of the network interface devices of the '158 Accused Products are configured to determine respective time duration requirements for preparing uplink transmissions by multiple second communication devices as part of an uplink multi-user (MU) transmission.

67. For example, the '158 Accused Products determine minimum processing duration requirements for preparing uplink transmissions based on a MinTrigProcTime transmitted by multiple second devices on a wireless network, such as a Wi-Fi network.

"generate a physical layer (PHY) data unit that includes a trigger frame, wherein the trigger frame is for triggering simultaneous uplink transmissions by the multiple second communication devices as part of the uplink MU transmission, wherein the

trigger frame includes a trigger information portion, and wherein the PHY data unit is generated such that a duration between transmission of an end of the trigger information portion and transmission of an end of the PHY data unit is sufficient to satisfy the respective time duration requirements of the multiple second communication devices,"

68. The integrated circuit devices of the network interface devices of the '158 Accused Products are configured to generate a physical layer (PHY) data unit that includes a trigger frame, wherein the trigger frame is for triggering simultaneous uplink transmissions by the multiple second communication devices as part of the uplink MU transmission, wherein the trigger frame includes a trigger information portion, and wherein the PHY data unit is generated such that a duration between transmission of an end of the trigger information portion and transmission of an end of the PHY data unit is sufficient to satisfy the respective time duration requirements of the multiple second communication devices.

69. For example, the '158 Accused Products generate a PHY data unit, such as a PHY protocol data unit (PPDU), that includes a triggering frame, such as a Trigger frame. The triggering frame includes a trigger information portion, such as one or more User Info fields. Further, the '158 Accused Products generate the PPDU such that a duration between transmission of the end of the trigger information portion and transmission of an end of the PPDU is sufficient to satisfy respective time duration requirements of the multiple second communication devices, for example, by using a Padding field of a Trigger frame to increase the transmission time until the end of the PPDU, by using other kinds of padding, or by aggregating other medium access control protocol data units (MPDUs) after the triggering frame.

"transmit the PHY data unit, and"

70. The integrated circuit devices of the network interface devices of the '158 Accused Products are configured to transmit the PHY data unit.

71. For example, the '158 Accused Products transmit PPDU's with a triggering frame as discussed above to devices on the wireless network in order to trigger uplink (UL) MU transmissions to the '158 Accused Products by those devices.

"receive the simultaneous uplink transmissions, triggered by the trigger frame, from the multiple second communication devices."

72. The integrated circuit devices of the network interface devices of the '158 Accused Products are configured to receive the simultaneous uplink transmissions, triggered by the trigger frame, from the multiple second communication devices.

73. For example, as discussed above, the '158 Accused Products transmit PPDU's with a triggering frame as discussed above to devices on the wireless network in order to trigger UL MU transmissions to the '158 Accused Products by those devices. The '158 Accused Products then receive UL MU transmissions, which include simultaneous uplink transmissions by multiple devices on the wireless network, such as UL MU orthogonal frequency division multiple-access (OFDMA) transmissions.

74. NXP USA is informed and believes, and thereon alleges, that at least as through notice provided by the Complaint, Defendants actively, knowingly, and intentionally have induced infringement of the '158 Patent by, for example, controlling the design and manufacture of, offering for sale, selling, supplying, and otherwise providing instruction and guidance regarding the above-described products with the knowledge and specific intent to encourage and facilitate infringing uses of such products by its customers both inside and outside the United States. For example, MediaTek publicly provides documentation, including datasheets available through MediaTek's website and software developer's manuals, instructing customers on uses of MediaTek's products that infringe the '158 Patent. *See, e.g.,* <https://www.mediatek.com/>. As another example, Amazon and Best Buy provide support, product literature, and other information

enabling infringing uses. *See, e.g.*, <https://www.amazon.com/Linksys-Dual-Band-AX1800-Router-E7350/dp/B08FBNH7MV>; <https://www.bestbuy.com/site/linksys-dual-band-ax1800-wifi-6-router/6428529.p?skuId=6428529>. On information and belief, certain customers of Defendants sell, offer for sale, use, make and/or import, without authority or license, products containing the above-described MediaTek products.

75. NXP USA is informed and believes, and thereon alleges, that Defendants have contributed to the infringement by their customers of the '158 Patent by, without authority, importing, selling and offering to sell within the United States materials and apparatuses for practicing the claimed invention of the '158 Patent both inside and outside the United States. For example, the above-described products constitute a material part of the inventions of the '158 Patent and are not staple articles or commodities of commerce suitable for substantial noninfringing use. On information and belief, since at least notice provided by the Complaint, Defendants know that the above-described products constitute a material part of the inventions of the '158 Patent and are not staple articles or commodities of commerce suitable for substantial noninfringing use. On information and belief, Defendants' customers directly infringe the '158 Patent by, for example, selling, offering for sale, using, making and/or importing without authority or license, products containing the above-described MediaTek products.

76. As a result of Defendants' infringement of the '158 Patent, NXP USA has been damaged. NXP USA is entitled to recover for damages sustained as a result of Defendants' wrongful acts in an amount subject to proof at trial.

77. In addition, Defendants' infringing acts and practices have caused and are causing immediate and irreparable harm to NXP USA. For example, NXP USA and MediaTek are direct competitors in the marketplace, and there is no adequate remedy at law to compensate NXP USA

for MediaTek's infringement of NXP USA's intellectual property rights. As a further example, the sale of products by Amazon and Best Buy which infringe NXP USA's intellectual property rights has caused, and continues to cause, irreparable harm to NXP USA.

78. NXP USA is informed and believes, and thereon alleges, that Defendants' infringement of the '158 Patent is willful. Defendants have had knowledge of the '158 Patent and its infringement of the '158 Patent at least since the filing of this complaint. To the extent Defendants continue to infringe the '158 Patent, that deliberate infringement is wanton, malicious, and egregious, with reckless disregard for NXP USA's patent rights. Such infringement is consciously wrongful.

79. Based on the information alleged in this claim, as well as the information alleged in the First Claim *supra* and Third Claim *infra*, NXP USA is informed and believes, and thereon alleges, that this is an exceptional case, which warrants an award of attorney's fees to NXP USA pursuant to 35 U.S.C. § 285.

THIRD CLAIM

(Infringement of U.S. Patent No. 10,747,780)

80. NXP USA re-alleges and incorporates herein by reference Paragraphs 1-27 of its Complaint.

81. U.S. Patent No. 10,742,780 (the "'780 Patent"), titled "Encoding Parameters For A Wireless Communication System" was duly and lawfully issued on August 11, 2020. A true and correct copy of the '780 Patent is attached hereto as Exhibit 3.

82. The '780 Patent names Sudhir Srinivasa and Hongyuan Zhang as co-inventors.

83. The '780 Patent has been in full force and effect since its issuance. NXP USA owns by assignment the entire right, title, and interest in and to the '780 Patent, including the right to seek damages for past, current, and future infringement thereof.

84. The '780 Patent states that it "relates generally to communication networks and, more particularly, to parsing and encoding methods in a wireless communication system." Ex. 3 at 1:29-31. The '780 Patent discloses approaches that, among other benefits, improve the efficiency of the parsing and encoding methods used in Wi-Fi networks.

85. NXP USA is informed and believes, and thereon alleges, that MediaTek has infringed and unless enjoined will continue to infringe one or more claims of the '780 Patent, in violation of 35 U.S.C. § 271, by, among other things, selling, offering for sale, using, making and/or importing without authority or license, infringing Wi-Fi 5 Chips and Wi-Fi 6 Chips that practice the claimed inventions of the '780 Patent and/or products that incorporate the same (collectively "'780 Accused Products"), such as, for example, chips within MediaTek's MT7615 product family.

86. Further, NXP USA is informed and believes, and thereon alleges, that Amazon and Best Buy have infringed, and unless enjoined will continue to infringe one or more claims of the '780 Patent, in violation of 35 U.S.C. § 271, by, among other things, selling, offering for sale, using, making and/or importing without authority or license, '780 Accused Products, such as, for example, the Netgear R6260, which incorporated at least one infringing Wi-Fi 5 Chip (e.g., MT7615).

87. For example, the '780 accused products embody every limitation of at least claim 1 of the '780 Patent, literally or under the doctrine of equivalents, as set forth below. The further

descriptions below, which are based on publicly available information, are preliminary examples and are non-limiting.

"An apparatus, comprising:"

88. Each of the '780 Accused Products is an apparatus, such as, for example, an electronic device capable of communicating over a wireless network. Each such apparatus further comprises the elements discussed below.

"a network interface comprising one or more integrated circuit (IC) devices configured to: receive a plurality of information bits to be included in a physical layer (PHY) data unit for transmission via a communication channel,"

89. Each of the '780 Accused Products includes a network interface comprising one or more integrated circuit (IC) devices configured as discussed below. For example, the '780 Accused Products include a Wi-Fi interface capable of communicating with Wi-Fi networks, which interface comprises at least one of the Wi-Fi 5 Chips and the Wi-Fi 6 Chips.

90. The integrated circuit devices of the network interfaces of the '780 Accused Products are configured to receive a plurality of information bits to be included in a physical layer (PHY) data unit for transmission via a communication channel.

91. For example, the '780 Accused Products receive a plurality of bits from the MAC layer, such as an MSDU, for transmission in a physical layer data unit, such as a PPDU.

"determine a number N_{ES} of encoders for encoding the plurality of information bits for transmission at a particular data rate using frequency division multiplexing (OFDM),"

92. The integrated circuits of the network interfaces of the '780 Accused Products are configured to determine a number N_{ES} of encoders for encoding the plurality of information bits for transmission at a particular data rate using frequency division multiplexing (OFDM) via a communication channel, such as a Wi-Fi channel.

93. For example, the '780 Accused Products include BCC encoders. As part of generating a physical data unit, such as a PPDU, the '780 Accused Products determine how many such BCC encoders to use in order to timely encode the plurality of bits for transmission in view of a data rate, which may include a rate given, for example, in units of Mb/sec, such as, by way of a single non-limiting example, 600.0 Mb/sec.

"wherein when a number N_{DBPS} of information bits per OFDM symbol, to be used for transmission of the information bits, divided by a minimum number of encoders, operating at a particular coding rate, required for encoding the plurality of information bits for transmission at the particular data rate is a non-integer value, the number N_{ES} of encoders is selected as a number that i) is greater than the minimum number of encoders and ii) satisfies a constraint that N_{DBPS}/N_{ES} is an integer value,"

94. When a number N_{DBPS} of information bits per OFDM symbol, to be used for transmission of the information bits, divided by a minimum number of encoders, operating at a particular coding rate, required for encoding the plurality of information bits for transmission at the particular data rate is a non-integer value, the integrated circuit devices of the network interfaces of the '780 Accused Products are configured to select a number N_{ES} of encoders as a number that is greater than the minimum number of encoders and satisfies a constraint that N_{DBPS}/N_{ES} is an integer value.

95. For example, the '780 Accused Products select a number of encoders to guarantee an integer value of N_{DBPS} / N_{ES} even when the minimum number of encoders, operating at a particular coding rate, is less than the selected number.

"prior to encoding the information bits, add a number of padding bits to the information bits, wherein the number of padding bits is determined based on the determined number N_{ES} of encoders;"

96. Prior to encoding the information bits, the integrated circuit devices of the network interfaces of the '780 Accused Products are configured to add a number of padding bits to the

information bits, wherein the number of padding bits is determined based on the determined number N_{ES} of encoders.

97. For example, the '780 Accused Products add up to 7 bits per user based on the number N_{ES} of encoders.

"wherein the network interface includes a set of encoders, implemented on the one or more IC devices, the set of encoders configured to encode the information bits using the determined number N_{ES} of encoders, each of the N_{ES} of encoders operating at the particular coding rate, to generate coded bits;"

98. The network interface devices of the '780 Accused Products include a set of encoders, implemented on the one or more IC devices, the set of encoders configured to encode the information bits using the determined number N_{ES} of encoders, each of the N_{ES} of encoders operating at the particular coding rate, to generate coded bits.

99. For example, the '780 Accused Products include at least as many BCC encoders implemented on the integrated circuits as needed to achieve various data rates for various modulation and coding schemes. The BCC encoders operate at particular coding rates, such as $\frac{1}{2}$, to generate coded bits.

"and wherein the one or more IC devices are further configured to generate the PHY data unit to include the coded bits."

100. The one or more IC devices of the '780 Accused Products are further configured to generate the PHY data unit to include the coded bits.

101. For example, the '780 Accused Products generate PPDU's with the coded bits in order to transmit them on a wireless network, such as a Wi-Fi network.

102. NXP USA is informed and believes, and thereon alleges, that at least as through notice provided by the Complaint, Defendants actively, knowingly, and intentionally have induced infringement of the '780 Patent by, for example, controlling the design and manufacture of, offering for sale, selling, supplying, and otherwise providing instruction and guidance regarding

the above-described products with the knowledge and specific intent to encourage and facilitate infringing uses of such products by its customers both inside and outside the United States. For example, MediaTek publicly provides documentation, including datasheets available through MediaTek's website and software developer's manuals, instructing customers on uses of MediaTek's products that infringe the '780 Patent. *See, e.g.*, <https://www.mediatek.com/>. As another example, Amazon and Best Buy provide support, product literature, and other information enabling infringing uses. *See, e.g.*, <https://www.amazon.com/Netgear-802-11ac-Ethernet-Wireless-R6260-100NAS/dp/B07DHMFTXB>; <https://www.bestbuy.com/site/netgear-smart-ac1600-dual-band-wi-fi-5-router-black/6250951.p?skuId=6250951>. On information and belief, certain customers of Defendants sell, offer for sale, use, make and/or import without authority or license, products containing the above-described MediaTek products.

103. NXP USA is informed and believes, and thereon alleges, that Defendants have contributed to the infringement by their customers of the '780 Patent by, without authority, importing, selling and offering to sell within the United States materials and apparatuses for practicing the claimed invention of the '780 Patent both inside and outside the United States. For example, the above-described products constitute a material part of the inventions of the '780 Patent and are not staple articles or commodities of commerce suitable for substantial noninfringing use. On information and belief, since at least notice provided by the Complaint, Defendants know that the above-described products constitute a material part of the inventions of the '780 Patent and are not staple articles or commodities of commerce suitable for substantial noninfringing use. On information and belief, Defendants' customers directly infringe the '780 Patent by, for example, selling, offering for sale, using, making and/or importing without authority or license, products containing the above-described products.

104. As a result of Defendants' infringement of the '780 Patent, NXP USA has been damaged. NXP USA is entitled to recover for damages sustained as a result of Defendants' wrongful acts in an amount subject to proof at trial.

105. In addition, MediaTek's infringing acts and practices have caused and are causing immediate and irreparable harm to NXP USA. For example, NXP USA and MediaTek are direct competitors in the marketplace, and there is no adequate remedy at law to compensate NXP USA for MediaTek's infringement of NXP USA's intellectual property rights. As a further example, the sale of products by Amazon and Best Buy which infringe NXP USA's intellectual property rights has caused, and continues to cause, irreparable harm to NXP USA.

106. NXP USA is informed and believes, and thereon alleges, that Defendants' infringement of the '780 Patent is willful. Defendants have had knowledge of the '780 Patent and its infringement of the '780 Patent at least since the filing of this complaint. To the extent Defendants continue to infringe the '780 Patent, that deliberate infringement is wanton, malicious, and egregious, with reckless disregard for NXP USA's patent rights. Such infringement is consciously wrongful.

107. Based on the information alleged in this claim, as well as the information alleged in the First and Second Claims *supra*, NXP USA is informed and believes, and thereon alleges, that this is an exceptional case, which warrants an award of attorney's fees to NXP USA pursuant to 35 U.S.C. § 285.

PRAYER FOR RELIEF

WHEREFORE, NXP USA prays for judgment against Defendants as follows:

A. That Defendants have infringed, and unless enjoined will continue to infringe, each of the Asserted Patents;

- B. That Defendants have willfully infringed each of the Asserted Patents;
- C. That Defendants pay NXP USA damages adequate to compensate NXP USA for Defendants' infringement of each of the Asserted Patents, together with interest and costs under 35 U.S.C. § 284;
- D. That Defendants be ordered to pay prejudgment and post-judgment interest on the damages assessed;
- E. That Defendants pay NXP USA enhanced damages pursuant to 35 U.S.C. § 284;
- F. That Defendants be ordered to pay supplemental damages to NXP USA, including interest, with an accounting, as needed;
- G. That Defendants be enjoined from infringing the Asserted Patents, or if its infringement is not enjoined, that Defendants be ordered to pay ongoing royalties to NXP USA for any post-judgment infringement of the Asserted Patents;
- H. That this is an exceptional case under 35 U.S.C. § 285, and that Defendants pay NXP USA's attorneys' fees and costs in this action; and
- I. That NXP USA be awarded such other and further relief, including equitable relief, as this Court deems just and proper.

DEMAND FOR JURY TRIAL

Pursuant to Federal Rule of Civil Procedure 38(b), NXP USA hereby demands a trial by jury on all issues triable to a jury.

Dated: August 24, 2021

By: /s/ Benjamin W. Hattenbach
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