

**IN THE UNITED STATES DISTRICT COURT
FOR DISTRICT OF DELAWARE**

REDWOOD TECHNOLOGIES, LLC,

Plaintiff,

v.

NETGEAR, INC.,

Defendant.

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JURY TRIAL DEMANDED

C.A. NO. _____

PLAINTIFF’S COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff Redwood Technologies, LLC (“Redwood”) files this Complaint against Defendant Netgear, Inc. (“Netgear” or “Defendant”) for infringement of U.S. Patent No. 8,005,165 (the “165 patent”), U.S. Patent No, 8,654,754 (the “754 patent”), U.S. Patent No. 9,628,300 (the “300 patent”), U.S. Patent No. 10,075,272 (the “272 patent”), and U.S. Patent No. 10,341,071 (the “071 patent”), collectively, the “Asserted Patents.”

THE PARTIES

1. Redwood Technologies, LLC is a Texas limited liability company, with a principal place of business at 812 West McDermott Dr. #1038, Allen, TX 75013.
2. On information and belief, Netgear, Inc. is a corporation organized under the laws of Delaware that maintains an established place of business at 350 E. Plumeria Drive, San Jose, CA 95134. Netgear may be served with process through its registered agent, Incorporating Services, Ltd., 3500 S. Dupont Highway, Dover, DE 19901.
3. Prior to the filing of the Complaint, Redwood sent a letter received by Netgear on November 8, 2021, where Redwood attempted to engage Netgear in licensing discussions related to the Asserted Patents for reasonable and non-discriminatory terms for a license to be taken in the

absence of litigation. Netgear ignored Redwood's request to engage in licensing discussions. Indeed, Netgear has known about each of the Asserted Patents since at least November 8, 2021, when Netgear received notice of its infringement of the Asserted Patents via the letter sent by Redwood.

4. Prior to the filing of the Complaint, Redwood sent a reminder letter received by Netgear on January 11, 2022, where Redwood again attempted to engage Netgear in licensing discussions related to the Asserted Patents for reasonable and non-discriminatory terms for a license to be taken in the absence of litigation. Netgear ignored Redwood's request to engage in licensing discussions. Indeed, Netgear has known about each of the Asserted Patents since at least January 11, 2022, when Netgear received the reminder letter of its infringement of the Asserted Patents via the letter sent by Redwood.

5. Prior to the filing of the Complaint, Redwood sent another letter received by Netgear on May 23, 2022, where Redwood again attempted to engage Netgear in licensing discussions related to the Asserted Patents for reasonable and non-discriminatory terms for a license to be taken in the absence of litigation. Netgear again ignored Redwood's request to engage in licensing discussions. Indeed, Netgear has known about each of the Asserted Patents since at least May 23, 2022, when Netgear received the second notice of its infringement of the Asserted Patents via the letter sent by Redwood.

6. Netgear's past and continuing making, using, selling, offering for sale, and/or importing, and/or inducing its subsidiaries, affiliates, retail partners, and customers in the making, using, selling, offering for sale, and/or importing the accused Wi-Fi compliant devices throughout the United States i) willfully infringe each of the Asserted Patents and ii) impermissibly take the significant benefits of Redwood's patented technologies without fair compensation to Redwood.

7. Netgear is engaged in making, using, selling, offering for sale, and/or importing, and/or induces its subsidiaries, affiliates, retail partners, and customers in the making, using, selling, offering for sale, and/or importing throughout the United States, including within this District, products, such as access points, accused of infringement.

JURISDICTION AND VENUE

8. This action arises under the patent laws of the United States, namely 35 U.S.C. §§ 271, 281, and 284-285, among others.

9. This Court has subject matter jurisdiction pursuant to 28 U.S.C. §§ 1331 and 1338(a).

10. This Court has personal jurisdiction over Netgear because it has engaged in systematic and continuous business activities in this District and is incorporated in this District's state. As described below, Netgear has committed acts of patent infringement giving rise to this action within this District.

11. Further, this Court has personal jurisdiction over Netgear because it has engaged, and continues to engage, in continuous, systematic, and substantial activities within this State, including the substantial marketing and sale of products and services within this State and this District. Indeed, this Court has personal jurisdiction over Netgear because it has committed acts giving rise to Redwood's claims for patent infringement within and directed to this District, has derived substantial revenue from its goods and services provided to individuals in this State and this District, and maintains regular and established places of business in this District.

12. Relative to patent infringement, Netgear has committed and continues to commit acts in violation of 35 U.S.C. § 271, and has made, used, marketed, distributed, offered for sale, imported, and/or sold infringing products in this State, including in this District, and otherwise

engaged in infringing conduct within and directed at, or from, this District. Such products have been and continue to be offered for sale, distributed to, sold, and used in this District, and the infringing conduct has caused, and continues to cause, injury to Redwood, including injury suffered within this District. These are purposeful acts and transactions in this State and this District such that Netgear reasonably should know and expect that it could be haled into this Court because of such activities.

13. In addition, Netgear has knowingly induced and continues to knowingly induce infringement within this District by advertising, marketing, offering for sale and/or selling devices pre-loaded with infringing functionality within this District, to consumers, customers, manufacturers, distributors, resellers, partners, and/or end users, and providing instructions, user manuals, advertising, and/or marketing materials which facilitate, direct or encourage the use of infringing functionality with knowledge thereof.

14. Venue is proper in this District under 28 U.S.C. §§ 1391 and 1400(b) because Netgear is incorporated in this District, has regular and established places of business in this District, and has committed acts of infringement in this District.

15. With respect to the '165 patent, the '300 patent, the '272 patent, and the '071 patent, the Accused Products are devices that include, but are not limited, to Defendant's devices that support IEEE 802.11n and/or IEEE 802.11ac and/or IEEE 802.11ax (e.g., Netgear Nighthawk AX5400 WiFi Gaming Router (XR1000), Orbi Pro mesh systems and devices, Orbi Pro WiFi 6 mesh systems and devices, and Nighthawk X10 Smart WiFi Router (AD7200)) and other devices, as well as, their components, and processes related to the same. With respect to the '754 patent, the Accused Products are devices that include, but are not limited, to Defendant's devices that

support IEEE 802.11ad (e.g., Nighthawk X10 Smart WiFi Router (AD7200)), as well as, their components, and processes related to the same.

THE ASSERTED PATENTS

16. On August 23, 2011, the United States Patent and Trademark Office duly and legally issued U.S. Patent No. 8,005,165 (the “’165 patent”), entitled “MIMO-OFDM Transmission Device, MIMO-OFDM Transmission Method, Reception Apparatus and Reception Method[.]” A copy of the ’165 patent is attached hereto as Exhibit 1.

17. On February 18, 2014, the United States Patent and Trademark Office duly and legally issued U.S. Patent No. 8,654,754 (the “’754 patent”), entitled “Communication System, A Communication Method, and a Communication Apparatus With Clear to Send Signal Frame[.]” A copy of the ’754 patent is attached hereto as Exhibit 2.

18. On April 18, 2017, the United States Patent and Trademark Office duly and legally issued U.S. Patent No. 9,628,300 (the “’300 patent”), entitled “Method and Signal Generating Apparatus for Generating Modulation Signals[.]” A copy of the ’300 patent is attached hereto as Exhibit 3.

19. On September 11, 2018, the United States Patent and Trademark Office duly and legally issued U.S. Patent No. 10,075,272 (the “’272 patent”), entitled “Transmission Signal Generation Apparatus, Transmission Signal Generation Method, Reception Signal Apparatus, and Reception Signal Method[.]” A copy of the ’272 patent is attached hereto as Exhibit 4.

20. On July 2, 2019, the United States Patent and Trademark Office duly and legally issued U.S. Patent No. 10,341,071 (the “’071 patent”), entitled “Radio Transmission Apparatus and Methods[.]” A copy of the ’071 patent is attached hereto as Exhibit 5.

COUNT I

(INFRINGEMENT OF U.S. PATENT NO. 8,005,165)

21. Plaintiff incorporates paragraphs 1 through 20 herein by reference.

22. Redwood is the assignee of the '165 patent, entitled "MIMO-OFDM Transmission Device, MIMO-OFDM Transmission Method, Reception Apparatus and Reception Method," with ownership of all substantial rights in the '165 patent, including the right to exclude others and to enforce, sue, and recover damages for past and future infringements.

23. The '165 patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code. The '165 patent issued from U.S. Patent Application No. 12/840,024.

24. Netgear has and continues to directly and/or indirectly infringe (by inducing infringement) one or more claims of the '165 patent in this judicial district and elsewhere in Delaware and the United States.

25. Netgear directly infringes the '165 patent via 35 U.S.C. § 271(a) by making, using, offering for sale, selling, and/or importing the Accused Products, their components and processes, and/or products containing the same that incorporate the fundamental technologies covered by the '165 patent.

26. For example, Netgear infringes claim 7 of the '165 patent via the Accused Products. The Accused Products perform a MIMO-OFDM transmission method. *See, e.g.*, Sections 19.1.1 and 19.1.2 of Part 11: Wireless LAN Medium Access Control (MAC) and Physical (PHY) Specifications of IEEE Std 802.11™ -2016 ("IEEE 802.11 2016").

27. The Accused Products each form a plurality of OFDM signals, where each of the plurality of OFDM signals comprise several pilot carriers, the several pilot carriers being located on identical carrier positions among the plurality of OFDM signals, such that orthogonal pilot

sequences are assigned to identical time slots of pilot carriers on an identical carrier position among the plurality of OFDM signals, and an identical pilot sequence is assigned to at least two of the plurality of OFDM signals. For example, each of the Accused Products form a plurality of HT-mixed format PPDUS to transmit as OFDM signals, where the stream parser divides the plurality of signals into spatial streams, such that each stream comprises a plurality of OFDM signals. *See, e.g.*, Section 19.3.3 of IEEE 802.11 2016. Each of the plurality of OFDM signals comprise four pilot carriers inserted in carrier positions -21, -7, 7, and 21. *See, e.g.*, Section 19.3.11.10 of IEEE 802.11 2016. The pilot sequences corresponding to different spatial streams are orthogonal and assigned to identical time slots of pilot carrier on an identical position among the plurality of OFDM signals. *See, e.g.*, Section 19.3.11.10 and Table 19-19 of IEEE 802.11 2016. The Accused Products assign an identical pilot sequence to each OFDM symbol corresponding to a particular spatial stream. *See, e.g.*, Section 19.3.11.10 and Table 19-19 of IEEE 802.11 2016.

28. The Accused Products each transmit the plurality of OFDM signals over an identical frequency band at an identical time. For example, transmissions from each antenna are simultaneous and use the same channel having a particular width (e.g., 20 MHz). *See, e.g.*, Section 19.3.15.1 and Tables 19-28, 19-29, and 19-30 of IEEE 802.11 2016.

29. The technology discussion above and the exemplary Accused Products provide context for Plaintiff's infringement allegations.

30. At a minimum, Netgear has known of the '165 patent at least as early as the filing date of the complaint. In addition, Netgear has known about the '165 patent since at least November 8, 2021, when Netgear and/or its agents received notice of its infringement via a letter. Redwood sent another letter, which referenced the prior notice letter, that was received by Netgear and/or its agents on January 11, 2022. Furthermore, Netgear has known about the '165 patent since

at least May 23, 2022, when Netgear and/or its agents received notice of its infringement via another letter.

31. On information and belief, since at least the above-mentioned date when Netgear was on notice of its infringement, Netgear has actively induced, under U.S.C. § 271(b), its distributors, customers, subsidiaries, importers, and/or consumers that import, use, purchase, offer to sell, or sell the Accused Products comprising all of the limitations of one or more claims of the '165 patent to directly infringe one or more claims of the '165 patent by using, offering for sale, selling, and/or importing the Accused Products. Since at least the notice provided on the above-mentioned date, Netgear does so with knowledge, or with willful blindness of the fact, that the induced acts constitute infringement of the '165 patent. Netgear intends to cause, and has taken affirmative steps to induce infringement by its distributors, importers, customers, subsidiaries, and/or consumers by at least, inter alia, creating advertisements that promote the infringing use of the Accused Products, creating and/or maintaining established distribution channels for the Accused Products into and within the United States, manufacturing the Accused Products in conformity with U.S. laws and regulations, distributing or making available instructions or manuals for these products to purchasers and prospective buyers, testing and certifying features related to infringing features in the Accused Products, and/or providing technical support, replacement parts, or services for these products to these purchasers in the United States.

32. On information and belief, despite having knowledge of the '165 patent and knowledge that it is directly and/or indirectly infringing one or more claims of the '165 patent, Netgear has nevertheless continued its infringing conduct and disregarded an objectively high likelihood of infringement. Netgear's infringing activities relative to the '165 patent have been, and continue to be, willful, wanton, malicious, in bad-faith, deliberate, consciously wrongful,

flagrant, characteristic of a pirate, and an egregious case of misconduct beyond typical infringement such that Plaintiff is entitled under 35 U.S.C. § 284 to enhanced damages up to three times the amount found or assessed.

33. Redwood has been damaged as a result of Netgear's infringing conduct described in this Count. Netgear is, thus, liable to Redwood in an amount that adequately compensates Redwood for Netgear's infringements, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

COUNT II

(INFRINGEMENT OF U.S. PATENT NO. 8,654,754)

34. Plaintiff incorporates paragraphs 1 through 33 herein by reference

35. Redwood is the assignee of the '754 patent, entitled "Communication System, a Communication Method, and a Communication Apparatus with Clear to Send Signal Frame," with ownership of all substantial rights in the '754 patent, including the right to exclude others and to enforce, sue, and recover damages for past and future infringements.

36. The '754 patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code. The '754 patent issued from U.S. Patent Application No. 13/410,961.

37. Netgear has and continues to directly and/or indirectly infringe (by inducing infringement) one or more claims of the '754 patent in this judicial district and elsewhere in Delaware and the United States.

38. Netgear directly infringes the '754 patent via 35 U.S.C. § 271(a) by making, using, offering for sale, selling, and/or importing the Accused Products, their components and processes, and/or products containing the same that incorporate the fundamental technologies covered by the '754 patent.

39. For example, Netgear infringes claim 43 of the '754 patent via the Accused Products. The Accused Products each comprise a first electronic device of claim 43.

40. The Accused Products each comprise processing configured to control transmitting a request to send signal to a second electronic device, where the request to send signal indicates a request to initiate data transmission and the request to send signal frame includes an address of the second electronic device. IEEE 802.11-2016 specifies distributed coordination functions (DCFs) for directional multi-gigabit (DMG) wireless stations. *See, e.g.*, Section 10.3.1 of IEEE 802.11 2016. For example, a first wireless station transmits a request to send (RTS) frame to a second wireless station, such that the RTS frame indicates the impending use of the medium to transmit a Data frame to the second wireless station and the RTS frame includes a receiver address (RA), which is the address of the second wireless station. *See, e.g.*, Sections 9.3.1.2, 10.3.1, and Figure 9-20 of IEEE 802.11 2016.

41. The Accused Products each comprise processing configured to control receiving a clear to send signal from the second electronic device, where the clear to send signal is transmitted in reply to the request to send signal. For example, the second wireless station responds to the RTS with a DMG clear to send (CTS) frame. *See, e.g.*, Sections 10.3.1 and 10.3.2.7 of IEEE 802.11 2016. The clear to send signal includes at least a first section, a second section, and a third section. For example, the DMG CTS frame includes a series of sections, such as Frame Control, Duration, receiver address (RA), transmitter address (TA), and frame check sequence (FCS). *See, e.g.*, Section 9.3.1.14 and Figure 9-43 of IEEE 802.11 2016. The first section includes a duration information for setting a counter value for controlling communication operation. For example, the DMG CTS frame includes duration information specifying the amount of time the RTS frame took to reach the second wireless stations after transmission. *See, e.g.*, Section 9.3.1.14 and Figure 9-

43 of IEEE 802.11 2016. The first section includes a duration information for setting a counter value for controlling communication operation. For example, the network allocation vector (NAV) uses the duration information to count down the amount of time after transmission of the DMG CTS frame necessary for the medium to be idle. *See, e.g.*, Section 10.3.2.1 of IEEE 802.11 2016. The second section includes the address of the first electronic device. For example, the RA section of the DMG CTS frame contains the address of the first wireless station. *See, e.g.*, Section 9.3.1.14 and Figure 9-43 of IEEE 802.11 2016. The third section includes the address of the second electronic device. For example, the TA section of the DMG CTS frame includes the address of the second wireless station. *See, e.g.*, Section 9.3.1.14 and Figure 9-43 of IEEE 802.11 2016.

42. The technology discussion above and the exemplary Accused Products provide context for Plaintiff's infringement allegations.

43. At a minimum, Netgear has known of the '754 patent at least as early as the filing date of the complaint. In addition, Netgear has known about the '754 patent since at least November 8, 2021, when Netgear and/or its agents received notice of its infringement via a letter. Redwood sent another letter, which referenced the prior notice letter, that was received by Netgear and/or its agents on January 11, 2022. Furthermore, Netgear has known about the '754 patent since at least May 23, 2022, when Netgear and/or its agents received notice of its infringement via another letter.

44. On information and belief, since at least the above-mentioned date when Netgear was on notice of its infringement, Netgear has actively induced, under U.S.C. § 271(b), its distributors, customers, subsidiaries, importers, and/or consumers that import, use, purchase, offer to sell, or sell the Accused Products comprising all of the limitations of one or more claims of the '754 patent to directly infringe one or more claims of the '754 patent by using, offering for sale,

selling, and/or importing the Accused Products. Since at least the notice provided on the above-mentioned date, Netgear does so with knowledge, or with willful blindness of the fact, that the induced acts constitute infringement of the '754 patent. Netgear intends to cause, and has taken affirmative steps to induce infringement by its distributors, importers, customers, subsidiaries, and/or consumers by at least, inter alia, creating advertisements that promote the infringing use of the Accused Products, creating and/or maintaining established distribution channels for the Accused Products into and within the United States, manufacturing the Accused Products in conformity with U.S. laws and regulations, distributing or making available instructions or manuals for these products to purchasers and prospective buyers, testing and certifying features related to infringing features in the Accused Products, and/or providing technical support, replacement parts, or services for these products to these purchasers in the United States.

45. On information and belief, despite having knowledge of the '754 patent and knowledge that it is directly and/or indirectly infringing one or more claims of the '754 patent, Netgear has nevertheless continued its infringing conduct and disregarded an objectively high likelihood of infringement. Netgear's infringing activities relative to the '754 patent have been, and continue to be, willful, wanton, malicious, in bad-faith, deliberate, consciously wrongful, flagrant, characteristic of a pirate, and an egregious case of misconduct beyond typical infringement such that Plaintiff is entitled under 35 U.S.C. § 284 to enhanced damages up to three times the amount found or assessed.

46. Redwood has been damaged as a result of Netgear's infringing conduct described in this Count. Netgear is, thus, liable to Redwood in an amount that adequately compensates Redwood for Netgear's infringements, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

COUNT III

(INFRINGEMENT OF U.S. PATENT NO. 9,628,300)

47. Plaintiff incorporates paragraphs 1 through 46 herein by reference.

48. Redwood is the assignee of the '300 patent, entitled "Method and Signal Generating Apparatus for Generating Modulation Signals" with ownership of all substantial rights in the '300 patent, including the right to exclude others and to enforce, sue, and recover damages for past and future infringements.

49. The '300 patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code. The '300 patent issued from U.S. Patent Application No. 14/591,346.

50. Netgear has and continues to directly and/or indirectly infringe (by inducing infringement) one or more claims of the '300 patent in this judicial district and elsewhere in Delaware and the United States.

51. Netgear directly infringes the '300 patent via 35 U.S.C. § 271(a) by making, using, offering for sale, selling, and/or importing the Accused Products, their components and processes, and/or products containing the same that incorporate the fundamental technologies covered by the '300 patent.

52. For example, Netgear infringes claim 1 of the '300 patent via the Accused Products. Each of the Accused Products perform a method of transmitting modulation signals. *See, e.g.*, Sections 19.1.1 and 19.1.2 of IEEE 802.11 2016.

53. The Accused Products each generate a plurality of modulation signals each of which is to be transmitted from a different one of a plurality of antennas. For example, each of the Accused Products generate modulation signals (e.g., HT-mixed format PPDU) which are to be transmitted from a plurality of antennas. *See, e.g.*, Section 9.3.3 of IEEE 802.11 2016. Each

modulation signal includes a pilot symbol sequence and/or a pilot subcarrier including a plurality of pilot symbols used for demodulation. For example, each OFDM symbol within a modulation signal includes a pilot symbol sequence, in a 20 MHz transmission, of four pilot symbols located at carrier positions -21, -7, 7, and 21, or a pilot symbol sequence, in a 40 MHz transmission, of six pilot symbols, where the pilot symbols are used for demodulation for detecting frequency offsets and phase noise. *See, e.g.*, Sections 17.3.5.9, 19.3.11.10, and Equation 19-54 of IEEE 802.11 2016.

54. Each of the Accused Products insert each of the pilot symbol sequences and/or pilot subcarriers at a same temporal point in each modulation signal. For example, each of the modulation signals is comprised of pilot symbol sequences that include at least four pilot symbols inserted in, for example, carrier positions -21, -7, 7, and 21, such that each modulation signal and respective pilot symbol sequence are inserted and transmitted simultaneously in time. *See, e.g.*, Section 19.3.11.10 of IEEE 802.11 2016. The pilot symbol sequences and/or pilot subcarriers are orthogonal to each other, where each pilot symbol has a non-zero amplitude. For example, the pilot sequences corresponding to different spatial streams are orthogonal to each other and have zero mutual correlation. *See, e.g.*, Table 19-19 of IEEE 802.11 2016. A quantity of the plurality of pilot symbols in each pilot symbol sequence and/or pilot subcarrier are greater than a quantity of the plurality of modulation signals to be transmitted. As previously discussed, each pilot symbol sequence contains at least four pilot symbols in a 20 MHz transmission and at least six pilot symbols in a 40 MHz transmission, such that these quantities are greater than a respective number of modulation signals to be transmitted by the Accused Device. *See, e.g.*, Sections 19.1.1, 19.3.11.10 and Equation 19-54 of IEEE 802.11 2016.

55. Each of the Accused Products transmit in an identical frequency band the plurality of modulation signals, each including different transmission data and one of the pilot symbol

sequences and/or pilot subcarriers, from the plurality of antennas. For example, each of the modulation signals is transmitted using a channel (e.g., a 20 MHz channel or a 40 MHz channel) from at least two antennas, such that each of the modulation signals include different transmission data. *See, e.g.*, Section 19.3.15.1, Tables 19-28, 19-29, and 19-30, and Figure 17-13 of IEEE 802.11 2016.

56. As previously discussed, each of the plurality of modulation signals contains one of the pilot symbol sequences and/or pilot subcarriers. *See, e.g.*, Section 19.3.11.10 of IEEE 802.11 2016.

57. The technology discussion above and the exemplary Accused Products provide context for Plaintiff's infringement allegations.

58. At a minimum, Netgear has known of the '300 patent at least as early as the filing date of the complaint. In addition, Netgear has known about the '300 patent since at least November 8, 2021, when Netgear and/or its agents received notice of its infringement via a letter and a list of relevant patents. Redwood sent another letter, which referenced the prior notice letter, that was received by Netgear and/or its agents on January 11, 2022. Furthermore, Netgear has known about the '300 patent since at least May 23, 2022, when Netgear and/or its agents received notice of its infringement via another letter.

59. On information and belief, since at least the above-mentioned date when Netgear was on notice of its infringement, Netgear has actively induced, under U.S.C. § 271(b), its distributors, customers, subsidiaries, importers, and/or consumers that import, use, purchase, offer to sell, or sell the Accused Products comprising all of the limitations of one or more claims of the '300 patent to directly infringe one or more claims of the '300 patent by using, offering for sale, selling, and/or importing the Accused Products. Since at least the notice provided on the above-

mentioned date, Netgear does so with knowledge, or with willful blindness of the fact, that the induced acts constitute infringement of the '300 patent. Netgear intends to cause, and has taken affirmative steps to induce infringement by its distributors, importers, customers, subsidiaries, and/or consumers by at least, inter alia, creating advertisements that promote the infringing use of the Accused Products, creating and/or maintaining established distribution channels for the Accused Products into and within the United States, manufacturing the Accused Products in conformity with U.S. laws and regulations, distributing or making available instructions or manuals for these products to purchasers and prospective buyers, testing and certifying features related to infringing features in the Accused Products, and/or providing technical support, replacement parts, or services for these products to these purchasers in the United States.

60. On information and belief, despite having knowledge of the '300 patent and knowledge that it is directly and/or indirectly infringing one or more claims of the '300 patent, Netgear has nevertheless continued its infringing conduct and disregarded an objectively high likelihood of infringement. Netgear's infringing activities relative to the '300 patent have been, and continue to be, willful, wanton, malicious, in bad-faith, deliberate, consciously wrongful, flagrant, characteristic of a pirate, and an egregious case of misconduct beyond typical infringement such that Plaintiff is entitled under 35 U.S.C. § 284 to enhanced damages up to three times the amount found or assessed.

61. Redwood has been damaged as a result of Netgear's infringing conduct described in this Count. Netgear is, thus, liable to Redwood in an amount that adequately compensates Redwood for Netgear's infringements, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

COUNT IV

(INFRINGEMENT OF U.S. PATENT NO. 10,075,272)

62. Plaintiff incorporates paragraphs 1 through 61 herein by reference.

63. Redwood is the assignee of the '272 patent, entitled "Transmission Signal Generation Apparatus, Transmission Signal Generation Method, Reception Signal Apparatus, and Reception Signal Method," with ownership of all substantial rights in the '272 patent, including the right to exclude others and to enforce, sue, and recover damages for past and future infringements.

64. The '272 patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code. The '272 patent issued from U.S. Patent Application No. 15/811,954.

65. Netgear has and continues to directly and/or indirectly infringe (by inducing infringement) one or more claims of the '272 patent in this judicial district and elsewhere in Delaware and the United States.

66. Netgear directly infringes the '272 patent via 35 U.S.C. § 271(a) by making, using, offering for sale, selling, and/or importing the Accused Products, their components and processes, and/or products containing the same that incorporate the fundamental technologies covered by the '272 patent.

67. For example, Netgear infringes claim 1 of the '272 patent via the Accused Products. The Accused Products comprise a transmission apparatus comprising electronic circuitry. *See, e.g.*, Sections 19.1.1, 19.3.3 of IEEE 802.11 2016.

68. The Accused Products each comprise electronic circuitry to map a first stream of input data to first complex symbols in serial format. For example, each of the Accused Products

comprises a constellation mapper configured to map a sequence of bits points on a constellation diagram, represented by complex numbers. *See, e.g.*, Section 17.3.2.2 of IEEE 802.11 2016.

69. The Accused Products each comprise electronic circuitry to convert the first complex symbols in serial format into first complex symbols in parallel format. For example, each of the Accused Products are configured to insert the complex numbers into subcarriers associated with one OFDM symbol, such that information in each subcarrier is transmitted in parallel as part of the full OFDM symbol. *See, e.g.*, Section 17.3.2.2, I.1.6.3, and Table I-20 of IEEE 802.11 2016.

70. The Accused Products each comprise electronic circuitry to perform an inverse Fourier transform on the first complex symbols in parallel format to form a first Orthogonal Frequency Division Multiplexed (OFDM) signals associated with multiple subcarriers. For example, each of the Accused Products comprise inverse Fourier transform sections configured to convert the plurality of symbols to OFDM time domain blocks for transmission. *See, e.g.*, Section 17.3.2.2 of IEEE 802.11 2016.

71. The Accused Products each comprise electronic circuitry to transmit the first OFDM signals via a first antenna over the multiple subcarriers in a same frequency band over a same time period that includes a same set of time slots. For example, each of the Accused Products comprise electronic circuitry to transmit the first OFDM symbols via a first antenna, where each OFDM symbol is a time slot, such that transmissions occur within a same time period (e.g., the 3.2 μ s DFT period) and in the same channel (e.g., a 20 MHz channel). *See, e.g.*, Sections 17.3.2.2, 17.3.5.9, 19.3.15.1, 19.3.21, 19.3.6, Figure 17.1, Equation 19-90, and Table 19-19 of IEEE 802.11 2016.

72. The Accused Products each comprise electronic circuitry to transmit first pilot information via a first antenna on a first one of a plurality of pilot subcarriers during the same set

of time slots. For example, each of the Accused Products comprise electronic circuitry configured to transmit, for example, a first pilot value of 1 via a first antenna on a first pilot subcarrier of a plurality of pilot subcarriers within an OFDM symbol. *See, e.g.*, Section 17.3.5.9 and Table 19-19 of IEEE 802.11 2016.

73. The Accused Products each comprise electronic circuitry to transmit second pilot information via a first antenna on a second one of a plurality of pilot subcarriers during the same set of time slots, where the second pilot information is different from the first pilot information. For example, each of the Accused Products comprise circuitry configured to transmit, for example, a second pilot value of -1 via a first antenna on a second pilot subcarrier of a plurality of pilot subcarriers within the OFDM symbol. *See, e.g.*, Section 17.3.5.9 and Table 19-19 of IEEE 802.11 2016.

74. The Accused Products each comprise electronic circuitry to map a second stream of input data to first complex symbols in serial format. For example, each of the Accused Products comprises a constellation mapper configured to map a sequence of bits to points on a constellation diagram, represented by complex numbers. *See, e.g.*, Section 17.3.2.2 of IEEE 802.11 2016.

75. The Accused Products each comprise electronic circuitry to convert the second complex symbols in serial format into second complex symbols in parallel format. For example, each of the Accused Products are configured to insert the second complex numbers into subcarriers associated with one OFDM symbol, such that information in each subcarrier is transmitted in parallel as part of the full OFDM symbol. *See, e.g.*, Section 17.3.2.2, I.1.6.3, and Table I-20 of IEEE 802.11 2016.

76. The Accused Products each comprise electronic circuitry to perform an inverse Fourier transform on the second complex symbols in parallel format to form second OFDM signals

associated with multiple subcarriers. For example, each of the Accused Products comprise inverse Fourier transform sections configured to convert the plurality of symbols to OFDM time domain blocks for transmission. *See, e.g.*, Section 17.3.2.2 of IEEE 802.11 2016.

77. The Accused Products each comprise electronic circuitry to transmit the second OFDM signals via a second antenna over the multiple subcarriers in the same frequency band over a same time period that includes a same set of time slots. For example, each of the Accused Products comprise electronic circuitry to transmit the second OFDM symbols via a second antenna, where each OFDM symbol is a time slot, such that transmissions occur within a same time period (e.g., the 3.2 μ s DFT period) and in the same channel (e.g., a 20 MHz channel). *See, e.g.*, Sections 17.3.2.2, 17.3.5.9, 19.3.15.1, 19.3.21, 19.3.6, Figure 17.1, Equation 19-90, and Table 19-19 of IEEE 802.11 2016.

78. The Accused Products each comprise electronic circuitry to transmit first pilot information via the second antenna on the second pilot subcarrier during the same set of time slots. For example, each of the Accused Products comprise electronic circuitry configured to transmit, for example, a first pilot value of 1 via a second antenna on the second pilot subcarrier during the same set of time slots. *See, e.g.*, Section 17.3.5.9 and Table 19-19 of IEEE 802.11 2016.

79. The Accused Products each comprise electronic circuitry to transmit the second pilot information on one of the plurality of subcarriers during the same set of time slots. For example, each of the Accused Products comprise electronic circuitry configured to transmit, for example, the second pilot value of -1 on a subcarrier within an OFDM symbol that can be transmitted at the same time as the first OFDM symbol. *See, e.g.*, Section 17.3.5.9 and Table 19-19 of IEEE 802.11 2016.

80. The technology discussion above and the exemplary Accused Products provide context for Plaintiff's infringement allegations.

81. At a minimum, Netgear has known of the '272 patent at least as early as the filing date of the complaint. In addition, Netgear has known about the '272 patent since at least November 8, 2021, when Netgear and/or its agents received notice of its infringement via a letter and a list of relevant patents. Redwood sent another letter, which referenced the prior notice letter, that was received by Netgear and/or its agents on January 11, 2022. Furthermore, Netgear has known about the '272 patent since at least May 23, 2022, when Netgear and/or its agents received notice of its infringement via another letter.

82. On information and belief, since at least the above-mentioned date when Netgear was on notice of its infringement, Netgear has actively induced, under U.S.C. § 271(b), its distributors, customers, subsidiaries, importers, and/or consumers that import, use, purchase, offer to sell, or sell the Accused Products comprising all of the limitations of one or more claims of the '272 patent to directly infringe one or more claims of the '272 patent by using, offering for sale, selling, and/or importing the Accused Products. Since at least the notice provided on the above-mentioned date, Netgear does so with knowledge, or with willful blindness of the fact, that the induced acts constitute infringement of the '272 patent. Netgear intends to cause, and has taken affirmative steps to induce infringement by its distributors, importers, customers, subsidiaries, and/or consumers by at least, inter alia, creating advertisements that promote the infringing use of the Accused Products, creating and/or maintaining established distribution channels for the Accused Products into and within the United States, manufacturing the Accused Products in conformity with U.S. laws and regulations, distributing or making available instructions or manuals for these products to purchasers and prospective buyers, testing and certifying features

related to infringing features in the Accused Products, and/or providing technical support, replacement parts, or services for these products to these purchasers in the United States.

83. On information and belief, despite having knowledge of the '272 patent and knowledge that it is directly and/or indirectly infringing one or more claims of the '272 patent, Netgear has nevertheless continued its infringing conduct and disregarded an objectively high likelihood of infringement. Netgear's infringing activities relative to the '272 patent have been, and continue to be, willful, wanton, malicious, in bad-faith, deliberate, consciously wrongful, flagrant, characteristic of a pirate, and an egregious case of misconduct beyond typical infringement such that Plaintiff is entitled under 35 U.S.C. § 284 to enhanced damages up to three times the amount found or assessed.

84. Redwood has been damaged as a result of Netgear's infringing conduct described in this Count. Netgear is, thus, liable to Redwood in an amount that adequately compensates Redwood for Netgear's infringements, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

COUNT V

(INFRINGEMENT OF U.S. PATENT NO. 10,341,071)

85. Plaintiff incorporates paragraphs 1 through 84 herein by reference.

86. Redwood is the assignee of the '071 patent, entitled "Radio Transmission Apparatus and Methods," with ownership of all substantial rights in the '071 patent, including the right to exclude others and to enforce, sue, and recover damages for past and future infringements.

87. The '071 patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code. The '071 patent issued from U.S. Patent Application No. 15/494,666.

88. Netgear has and continues to directly and/or indirectly infringe (by inducing infringement) one or more claims of the '071 patent in this judicial district and elsewhere in Delaware and the United States.

89. Netgear directly infringes the '071 patent via 35 U.S.C. § 271(a) by making, using, offering for sale, selling, and/or importing the Accused Products, their components and processes, and/or products containing the same that incorporate the fundamental technologies covered by the '071 patent.

90. For example, Netgear infringes claim 1 of the '071 patent via the Accused Products. The Accused Products each comprise a radio transmission apparatus comprising a first antenna and a second antenna. *See, e.g.*, Figure 19-2 of IEEE 802.11 2016.

91. The Accused Products each comprise circuitry configured to generate a single modulation signal or a plurality of modulation signals based on the estimated communications channel condition information. For example, each of the Accused Products comprise circuitry configured to generate a single modulation signal or a plurality of modulation signals based on information associated with a channel quality assessment and selection of an appropriate modulation and coding scheme (MCS) value. *See, e.g.*, Sections 19.3.13.4 and 19.3.5 of IEEE 802.11 2016.

92. The Accused Products each comprise circuitry configured to transmit, based on information associated with an estimated communication channel condition, the single modulation signal from the first antenna or transmit the plurality of modulation signals, which include different information from each other over an identical frequency band from the first antenna and the second antenna at an identical temporal point. For example, the Accused Products each comprise circuitry configured to transmit the single modulation signal or a plurality of modulation signals based on

the MCS value. *See, e.g.*, Sections 19.3.13.4 and 19.3.5 of IEEE 802.11 2016. When a plurality of modulation signals are transmitted, each of the modulation signals represent a respective spatial stream, where each spatial stream includes distinct information from each other. *See, e.g.*, Section 19.3.5 of IEEE 802.11 2016. The plurality of modulation signals from each antenna are transmitted simultaneously using the same channel (e.g., a 20 MHz channel). *See, e.g.*, Section 19.3.15.1 and Tables 19-28, 19-29, and 19-30 of IEEE 802.11 2016.

93. The single modulation signal and the plurality of modulation signals contain parameter information indicating a number of modulation signals transmitted at the same time. For example, the single modulation signal and the plurality of modulation signals for HT transmissions contain an HT-SIG, which contains an MCS indicating a number of modulations to multiplex and transmit at the same time. *See, e.g.*, 19.3.9.4.3 and 19.3.5 of IEEE 802.11 2016.

94. The technology discussion above and the exemplary Accused Products provide context for Plaintiff's infringement allegations.

95. At a minimum, Netgear has known of the '071 patent at least as early as the filing date of the complaint. In addition, Netgear has known about the '071 patent since at least November 8, 2021, when Netgear and/or its agents received notice of its infringement via a letter and a list of relevant patents. Redwood sent another letter, which referenced the prior notice letter, that was received by Netgear and/or its agents on January 11, 2022. Furthermore, Netgear has known about the '071 patent since at least May 23, 2022, when Netgear and/or its agents received notice of its infringement via another letter.

96. On information and belief, since at least the above-mentioned date when Netgear was on notice of its infringement, Netgear has actively induced, under U.S.C. § 271(b), its distributors, customers, subsidiaries, importers, and/or consumers that import, use, purchase, offer

to sell, or sell the Accused Products comprising all of the limitations of one or more claims of the '071 patent to directly infringe one or more claims of the '071 patent by using, offering for sale, selling, and/or importing the Accused Products. Since at least the notice provided on the above-mentioned date, Netgear does so with knowledge, or with willful blindness of the fact, that the induced acts constitute infringement of the '071 patent. Netgear intends to cause, and has taken affirmative steps to induce infringement by its distributors, importers, customers, subsidiaries, and/or consumers by at least, inter alia, creating advertisements that promote the infringing use of the Accused Products, creating and/or maintaining established distribution channels for the Accused Products into and within the United States, manufacturing the Accused Products in conformity with U.S. laws and regulations, distributing or making available instructions or manuals for these products to purchasers and prospective buyers, testing and certifying features related to infringing features in the Accused Products, and/or providing technical support, replacement parts, or services for these products to these purchasers in the United States.

97. On information and belief, despite having knowledge of the '071 patent and knowledge that it is directly and/or indirectly infringing one or more claims of the '071 patent, Netgear has nevertheless continued its infringing conduct and disregarded an objectively high likelihood of infringement. Netgear's infringing activities relative to the '071 patent have been, and continue to be, willful, wanton, malicious, in bad-faith, deliberate, consciously wrongful, flagrant, characteristic of a pirate, and an egregious case of misconduct beyond typical infringement such that Plaintiff is entitled under 35 U.S.C. § 284 to enhanced damages up to three times the amount found or assessed.

98. Redwood has been damaged as a result of Netgear's infringing conduct described in this Count. Netgear is, thus, liable to Redwood in an amount that adequately compensates

Redwood for Netgear's infringements, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

CONCLUSION

99. Plaintiff Redwood is entitled to recover from Netgear the damages sustained by Plaintiff as a result of Netgear's wrongful acts, and willful infringement, in an amount subject to proof at trial, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court.

100. Plaintiff has incurred and will incur attorneys' fees, costs, and expenses in the prosecution of this action. The circumstances of this dispute may give rise to an exceptional case within the meaning of 35 U.S.C. § 285, and Plaintiff is entitled to recover its reasonable and necessary attorneys' fees, costs, and expenses.

JURY DEMAND

101. Plaintiff hereby requests a trial by jury pursuant to Rule 38 of the Federal Rules of Civil Procedure.

PRAYER FOR RELIEF

102. Plaintiff respectfully requests that the Court find in its favor and against Netgear, and that the Court grant Plaintiff the following relief:

1. A judgment that Netgear has infringed the Asserted Patents as alleged herein, directly and/or indirectly by way of inducing infringement of such patents;
2. A judgment for an accounting of all damages sustained by Plaintiff as a result of the acts of infringement by Netgear;

3. A judgment and order requiring Netgear to pay Plaintiff damages under 35 U.S.C. § 284, including up to treble damages as provided by 35 U.S.C. § 284, and any royalties determined to be appropriate;
4. A judgment and order requiring Netgear to pay Plaintiff pre-judgment and post-judgment interest on the damages awarded;
5. A judgment and order finding this to be an exceptional case and requiring Netgear to pay the costs of this action (including all disbursements) and attorneys' fees as provided by 35 U.S.C. § 285; and
6. Such other and further relief as the Court deems just and equitable.

Dated: September 27, 2022

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