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

Wilus Institute of Standards and Technology Inc., *Plaintiff*, vs. Samsung Electronics Co., Ltd., Samsung Electronics America, Inc., *Defendants*.	CASE NO. 2:24-cv-00765 **Complaint for Patent Infringement** **JURY DEMANDED**

COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff Wilus Institute of Standards and Technology Inc. ("Wilus") files this complaint against Defendants Samsung Electronics Co., Ltd. ("SEC"), and Samsung Electronics America, Inc. ("SEA") (collectively, "Defendants" or "Samsung"), alleging infringement of U.S. Patent Nos. 11,129,163, 11,700,597, 11,116,035, and 11,516,879. The Accused Products are Wi-Fi 6 (802.11ax) enabled devices used, offered for sale, sold, and/or imported by Defendants in the United States and supplied by Defendants to customers in the United States.

BACKGROUND

1. This complaint arises from Defendants' infringement of the following United States patents owned by Wilus, each of which relate to the "MAC" or "medium access control layer" of wireless communications technology: United States Patent Nos. 11,129,163 ("'163 patent"), 11,700,597 ("'597 patent"), 11,116,035 ("'035 patent"), and 11,516,879 ("'879 patent") (collectively, "Asserted Patents").

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NOTICE OF THE ASSSERTED PATENTS

2. The patented technologies which are the subject of this lawsuit are well known to Defendants.

3. For example, on January 15, 2021 and December 27, 2022, Wilus submitted Letters of Assurance to the IEEE Standards Association Standards Board Patent Committee, stating that Wilus may own, control, or have the ability to license patent claims that might be or become essential patent claims for the IEEE 802.11ax and 802.11 standards. Samsung was a participant in the IEEE task group that developed the 802.11ax standard. On information and belief, Samsung was aware of the Letters of Assurance submitted by Wilus.

4. As another example, on April 8, 2022, SEC was sent a letter by Sisvel International S.A. ("Sisvel"), acting in its role as a licensing manager of certain patents related to the IEEE Wi-Fi 6 (802.11ax) standard. This letter conveyed Wilus's and Sisvel's belief that Samsung products practiced Wilus patents and required a license to these Wilus patents. The letter contained a list of "patents essential to the 802.11ax standard," which included the '163 and '035 patents. The patent applications that resulted in the '597 and '879 patents were pending before the U.S. Patent Office at the time this letter was sent. The letter identified specific Samsung products as examples of products that implement essential features of the Wi-Fi 6 standard. It also contained a link to a brochure that included a table identifying specific sections and figures of the Wi-Fi 6 standard as illustrations of what the essential patents covered in the standard. The letter included an offer to grant a patent license for Wilus patents including the '163 and '035 patents to SEC in exchange for royalty payments.

5. As another example, on October 25, 2023, SEC was sent another letter by Sisvel, acting in its role as a licensing manager of certain patents related to the IEEE Wi-Fi 6 (802.11ax)

standard. This letter again conveyed Wilus's and Sisvel's belief that Samsung products practiced Wilus patents and required a license to these Wilus patents. The letter contained a list of "SEPs" (standard-essential patents) which included the '163, '597, '035 and '879 patents. The letter identified specific Samsung products as examples of products that implement essential features of the Wi-Fi 6 standard. It also contained a link to a brochure that included a table identifying specific sections and figures of the Wi-Fi 6 standard as illustrations of what the essential patents covered in the standard. The letter included an offer to grant a patent license for Wilus patents including the '163, '597, '035 and '879 patents to SEC in exchange for royalty payments.

PLAINTIFF WILUS AND THE ASSERTED PATENTS

6. Plaintiff Wilus is a research and development company specializing in the development of new technologies related to wireless communications and multimedia, including Wi-Fi and other wireless protocols. Founded in 2012, Wilus has been at the forefront of research and development in wireless communications for more than a decade. The company is employee-owned, and its team currently consists of 20 engineers and inventors.

7. Since its formation Wilus has made over 700 technical contributions to leading standards bodies that define international standards for technologies including cellular wireless, wireless LAN, and multimedia compression. In particular, Wilus has played a crucial role in the development and standardization of Wi-Fi 6 technologies, contributing significantly to the enhanced speed, efficiency, capabilities, and performance of Wi-Fi 6 networks. Its work is significant in the context of the standards pertaining to Wi-Fi 6, both in terms of the number of technical contributions and in terms of the importance of those technical contributions to the standards.

8. Wilus is a corporation organized under the laws of South Korea, with its principal

place of business at 5F 216 Hwangsaeul-ro, Bundang-gu, Seongnam-si, Gyeonggi-do, 13595 Republic of Korea.

9. Wilus is the owner of all right, title, and interest in U.S. Patent No. 11,129,163, titled "Wireless communication method and wireless communication terminal in basic service set overlapping with another basic service set," and issued September 21, 2021. A copy of the '163 patent is attached as Exhibit 1.

10. Wilus is the owner of all right, title, and interest in U.S. Patent No. 11,700,597, titled "Wireless communication method and wireless communication terminal in basic service set overlapping with another basic service set," and issued July 11, 2023. A copy of the '597 patent is attached as Exhibit 2.

11. Wilus is the owner of all right, title, and interest in U.S. Patent No. 11,116,035, titled "Wireless communication method using enhanced distributed channel access, and wireless communication terminal using same," and issued September 7, 2021. A copy of the '035 patent is attached as Exhibit 3.

12. Wilus is the owner of all right, title, and interest in U.S. Patent No. 11,516,879, titled "Wireless communication method using enhanced distributed channel access, and wireless communication terminal using same," and issued November 9, 2022. A copy of the '879 patent is attached as Exhibit 4.

DEFENDANTS AND THE ACCUSED PRODUCTS

13. On information and belief, Defendant Samsung Electronics Co., Ltd. is a corporation organized under the laws of South Korea, with its principal place of business at 129, Samsung-Ro, YeongTong-Gu, Suwon-Si, Gyonggi-Do, 443-742, South Korea.

14. On information and belief, Defendant Samsung Electronics America, Inc. is a

United States corporation organized under the laws of the State of New York, with its principal place of business at 85 Challenger Road, Ridgefield Park, New Jersey 07660.

15. SEA is a wholly-owned subsidiary of SEC.

16. SEA distributes certain Samsung consumer electronics products, including the Accused Products, in the United States.

17. On information and belief, SEA has corporate offices in the Eastern District of Texas at 1303 East Lookout Drive, Richardson, Texas 75082, 2800 Technology Drive, Suite 200, Plano, Texas 75074, and at 6625 Excellence Way, Plano, Texas 75023.

18. SEA may be served with process through its registered agent CT Corporation System, 1999 Bryan Street, Suite 900, Dallas, Texas 75201-3136.

19. The Accused Products are all of Samsung's Wi-Fi 6 (802.11ax) enabled devices, including mobile phones, tablets, laptops, e-readers, cameras, appliances, and wearables, used, offered for sale, sold, and/or imported by Defendants in the United States.

JURISDICTION AND VENUE

20. This action arises under the patent laws of the United States, Title 35 of the United States Code.

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

22. This Court has personal jurisdiction over Samsung in this action because Samsung has committed acts of infringement within this District giving rise to this action, has a regular and established place of business in this District, and has established minimum contacts with this forum such that the exercise of jurisdiction over Samsung would not offend traditional notions of fair play and substantial justice. Samsung, directly and/or through subsidiaries or intermediaries,

conducts its business extensively throughout Texas, by shipping, distributing, offering for sale, selling, and advertising its products and/or services in Texas and the Eastern District of Texas, regularly does business or solicit business, engage in other persistent courses of conduct, and/or derives substantial revenue from products and/or services provided to individuals in Texas, and commits acts of infringement of Wilus's patents in this District by, among other things, making, using, importing, offering to sell, and selling products that infringe the asserted patents, including without limitation the Samsung Wi-Fi 6 enabled devices accused of infringement in this case.

23. Samsung, directly and/or through subsidiaries or intermediaries, has purposefully and voluntarily placed one or more products and/or services in the stream of commerce that practice the Asserted Patents with the intention and expectation that they will be purchased and used by consumers in the Eastern District of Texas. These products and/or services have been and continue to be purchased and used in the Eastern District of Texas.

24. Venue as to Samsung is proper in this District under 28 U.S.C. §§ 1391 and 1400(b). Samsung has transacted business in this District and has committed acts of direct and indirect infringement in this District by, among other things, making, using, importing, offering to sell, and selling products that infringe the Asserted Patents.

25. Defendant SEA maintains a regular and established place of business at 1301 East Lookout Drive, Richardson, Texas 75082, 2800 Technology Drive, Suite 200, Plano, Texas 75074, and 6625 Excellence Way, Plano, Texas 75023.

26. Defendant SEC is a foreign corporation. Venue is proper as to a foreign defendant in any district. 28 U.S.C. §§ 1391(c)(3).

27. Further, Samsung has admitted or not contested proper venue in this Judicial District in other patent infringement actions.

COUNT 1 – CLAIM FOR INFRINGEMENT OF THE ’163 PATENT

28. Wilus incorporates by reference each of the allegations in the foregoing paragraphs as if fully set forth herein and further alleges as follows:

29. On September 21, 2021, the United States Patent and Trademark Office issued U.S. Patent No. 11,129,163, titled “Wireless communication method and wireless communication terminal in basic service set overlapping with another basic service set.” Exhibit 1.

30. The ’163 patent claims devices and methods used to implement the MAC layer of Wi-Fi 6 wireless LANs.

31. Wilus is the owner of the ’163 patent with full rights to pursue recovery of royalties for damages for infringement, including full rights to recover past and future damages.

32. The claims of the ’163 patent were issued by the United States Patent and Trademark Office and are presumed by statute to be valid. They are not directed to abstract ideas and moreover contain inventive concepts sufficient to ensure that the patent amounts to significantly more than a patent on a patent ineligible concept itself. The written description of the ’163 patent describes in technical detail each limitation of the claims, allowing a skilled artisan to understand the scope of the claims and how the nonconventional and non-generic combination of claim limitations is patentably distinct from and improved upon what may have been considered conventional or generic in the art at the time of the invention.

33. Wilus and its predecessors in interest have satisfied the requirements of 35 U.S.C. § 287(a) with respect to the ’163 patent, and Wilus is entitled to damages for Defendants’ past infringement. For example, Sisvel’s letters conveying Wilus’s and Sisvel’s belief that Samsung products practiced Wilus’s ’163 patent and offering to license Wilus’s patents to Samsung provided Samsung with actual notice of infringement.

34. Defendants have directly infringed (literally and equivalently) and induced and contributed to infringement by others of the ’163 patent by, without a license or permission from Wilus: making, using, selling, offering for sale, or importing products that infringe the claims of the ’163 patent; and inducing and contributing to infringement by others of the claims of the ’163 patent.

35. On information and belief, Defendants use, import, offer for sale, and sell certain infringing products in the United States. The Accused Products are, for example, Wi-Fi 6 (802.11ax) enabled devices, including mobile phones, tablets, laptops, e-readers, cameras, appliances, and wearables, used, offered for sale, sold, and/or imported by Defendants in the United States.

36. The Accused Products satisfy all claim limitations of one or more claims of the ’163 Patent. On information and belief, the Accused Products employ, implement, or utilize materially the same Wi-Fi 6 technology, such that facts material to infringement by one Accused Product will be material to all Accused Products. For example, the Accused Products include “A wireless communication terminal communicating wirelessly, the wireless communication terminal”:

Samsung Galaxy S24 Ultra

Featuring Snapdragon 8 Gen 3 for Galaxy.

Introducing Samsung Galaxy S24 Ultra, now with many next-gen AI features and capabilities enabled by Snapdragon 8 Gen 3 for Galaxy. Powered with Galaxy AI, Galaxy S24 Ultra adapts to your passions and behaviors to make a new level of achievement possible. And, with Qualcomm FastConnect 7800 Mobile Connectivity System, you’ll get the best possible connection and premium WiFi 7 connectivity.

(https://www.qualcomm.com/snapdragon/device-finder/samsung-galaxy-s24-ultra)

37. The Accused Products include "a transceiver" and "a processor":

Wi-Fi	**Wi-Fi/Bluetooth System:** Qualcomm® FastConnect™ 7800
	Peak Speed: 5.8 Gbps
	Generation: Wi-Fi 7, Wi-Fi 6, Wi-Fi 5, Wi-Fi 4
	Standards: 802.11be, 802.11ax, 802.11ac, 802.11n, 802.11g, 802.11b, 802.11a

(https://www.qualcomm.com/products/mobile/snapdragon/smartphones/snapdragon-8-series-mobile-platforms/snapdragon-8-gen-3-mobile-platform)

38. In the Accused Products, the processor is configured to "receive a physical layer convergence procedure (PLCP) Processing Data Unit (PPDU) by using the transceiver":

26.17.3 BSS color

26.17.3.1 General

BSS color identifies a BSS and assists a STA receiving a PPDU that carries BSS color in identifying the BSS from which the PPDU originates so that the STA can use the channel access rules in 26.10, reduce power consumption as described in 26.14.1, or update its NAV as described in 26.2.4.

All APs that are members of a multiple BSSID set or co-hosted BSSID set shall use the same BSS color.

(IEEE 802.11ax-2021, § 26.17.3.1)

39. In the Accused Products, the processor is configured to "not to use a Basic Service Set (BSS) color when signaling information indicates that an operation based on the BSS color is not allowed":

The BSS Color Information field is defined in Figure 9-788j.

	B0 B5	B6	B7
	BSS Color	Partial BSS Color	BSS Color Disabled
Bits:	6	1	1

Figure 9-788j—BSS Color Information field format

The BSS Color subfield is an unsigned integer whose value is the BSS Color of the BSS corresponding to the AP, IBSS STA, mesh STA or TDLS STA that transmitted this element and is set as defined in 26.17.3.

The Partial BSS Color subfield is set to 1 to indicate that an AID assignment rule based on the BSS color as defined in 26.17.4 is applied for the BSS. Otherwise, the Partial BSS Color subfield is set to 0.

The BSS Color Disabled subfield is set to 1 to disable the use of color for the BSS as described in 26.17.3.3; otherwise, it is set to 0.

(IEEE 802.11ax-2021, § 9.4.2.249)

If a STA determines that the BSS color is disabled (see 26.17.3.3), then the RXVECTOR parameter BSS_COLOR of a PPDU shall not be used to classify the PPDU.

(IEEE 802.11ax-2021, § 26.2.2)

If the most recently received HE Operation element from the AP with which it is associated contained a value of 1 in the BSS Color Disabled subfield, then the following apply:

— A non-AP HE STA should use the Address 1, Address 2, and Duration/ID fields of the frames contained in the received HE PPDUs, instead of the RXVECTOR parameters BSS_COLOR and TXOP_DURATION, to determine whether the STA should update the intra-BSS NAV.

— A non-AP HE STA should use the Address 1 and Address 2 fields of the frames contained in the received HE PPDUs, instead of the RXVECTOR parameters BSS_COLOR and STA_ID, to determine whether the STA may go to doze state for the duration of that PPDU (see 26.14.1).

(IEEE 802.11ax-2021, § 26.17.3.3)

40. In the Accused Products, "the BSS color is an identifier of a BSS":

26.17.3 BSS color

26.17.3.1 General

BSS color identifies a BSS and assists a STA receiving a PPDU that carries BSS color in identifying the BSS from which the PPDU originates so that the STA can use the channel access rules in 26.10, reduce power consumption as described in 26.14.1, or update its NAV as described in 26.2.4.

All APs that are members of a multiple BSSID set or co-hosted BSSID set shall use the same BSS color.

(IEEE 802.11ax-2021, § 26.17.3.1)

41. In the Accused Products, "the signaling information is transmitted from a base wireless communication terminal to which the wireless communication terminal is associated":

> If the most recently received HE Operation element from the AP with which it is associated contained a value of 1 in the BSS Color Disabled subfield, then the following apply:
>
> — A non-AP HE STA should use the Address 1, Address 2, and Duration/ID fields of the frames contained in the received HE PPDUs, instead of the RXVECTOR parameters BSS_COLOR and TXOP_DURATION, to determine whether the STA should update the intra-BSS NAV.
>
> — A non-AP HE STA should use the Address 1 and Address 2 fields of the frames contained in the received HE PPDUs, instead of the RXVECTOR parameters BSS_COLOR and STA_ID, to determine whether the STA may go to doze state for the duration of that PPDU (see 26.14.1).

(IEEE 802.11ax-2021, § 26.17.3.3)

42. Defendants have also knowingly and intentionally induced and contributed to infringement of the '163 patent in violation of 35 U.S.C. §§ 271(b) and 271(c). For example, Defendants have had knowledge or were willfully blind of the '163 patent and the infringing nature of the Accused Products at least because SEC had received the April 8, 2022, letter from Sisvel identifying the '163 patent as "essential to the 802.11ax standard" and identifying examples of Samsung products that implement essential features of the standard.

43. Despite this knowledge of the '163 patent, Defendants have continued to actively encourage and instruct its customers to use and integrate the Accused Products in ways that directly infringe the '163 patent. Defendants have done so knowing and intending that their customers would commit these infringing acts. Defendants have also continued to make, use, offer for sale, sell, and/or import the Accused Products, despite their knowledge of the '163 patent, thereby specifically intending for and inducing their customers to infringe the '163 patent through the customers' normal and customary use of the Accused Products.

44. On information and belief, the Accused Products contain components that constitute a material part of the '163 patent invention and that are not a staple article or commodity suitable for substantial noninfringing use. On information and belief, Defendants have sold, offered for sale, and

imported into the United States such components knowing they are especially made or especially adapted for use in infringement of the ’163 patent.

45. On information and belief, Defendants’ infringement has and continues to be willful. Defendants, without a good faith belief of invalidity or non-infringement, have known or have been willfully blind to the fact that making, using, offering to sell, or selling the Accused Products to their customers, infringes the ’163 patent.

46. Defendants have induced, and continue to induce, infringement of the ’163 patent by actively encouraging others (including its customers) to use, offer to sell, sell, and import the Accused Products. On information and belief, these acts include providing information and instructions on the use of the Accused Products; providing information, education, and instructions to its customers; providing the Accused Products to customers; and indemnifying patent infringement within the United States.

47. Samsung and its customers benefit from the use of the inventions claimed in the ’163 patent. On information and belief, these benefits include higher capacity, improved coexistence, and longer battery life when using Wi-Fi 6 communications.

48. Wilus has been damaged by Defendants’ willful infringement of the ’163 patent and is entitled to damages as provided for in 35 U.S.C. § 284, including reasonable royalty damages.

COUNT 2 – CLAIM FOR INFRINGEMENT OF THE ’597 PATENT

49. Wilus incorporates by reference each of the allegations in the foregoing paragraphs as if fully set forth herein and further alleges as follows:

50. On July 11, 2023, the United States Patent and Trademark Office issued U.S. Patent No. 11,700,597, titled "Wireless communication method and wireless communication terminal in basic service set overlapping with another basic service set." Exhibit 2.

51. The '597 patent claims devices and methods used to implement the MAC layer of Wi-Fi 6 wireless LANs.

52. Wilus is the owner of the '597 patent with full rights to pursue recovery of royalties for damages for infringement, including full rights to recover past and future damages.

53. The claims of the '597 patent were issued by the United States Patent and Trademark Office and are presumed by statute to be valid. They are not directed to abstract ideas and moreover contain inventive concepts sufficient to ensure that the patent amounts to significantly more than a patent on a patent ineligible concept itself. The written description of the '597 patent describes in technical detail each limitation of the claims, allowing a skilled artisan to understand the scope of the claims and how the nonconventional and non-generic combination of claim limitations is patentably distinct from and improved upon what may have been considered conventional or generic in the art at the time of the invention.

54. Wilus and its predecessors in interest have satisfied the requirements of 35 U.S.C. § 287(a) with respect to the '597 patent, and Wilus is entitled to damages for Defendants' past infringement. For example, Sisvel's letters conveying Wilus's and Sisvel's belief that Samsung products practiced Wilus's '597 patent and offering to license Wilus's patents to Samsung provided Samsung with actual notice of infringement.

55. Defendants have directly infringed (literally and equivalently) and induced and contributed to infringement by others of the '597 patent by, without a license or permission from Wilus: making, using, selling, offering for sale, or importing products that infringe the claims of

the ’597 patent; and inducing and contributing to infringement by others of the claims of the ’597 patent.

56. On information and belief, Defendants use, import, offer for sale, and sell certain infringing products in the United States. The Accused Products are, for example, Wi-Fi 6 (802.11ax) enabled devices, including mobile phones, tablets, laptops, e-readers, cameras, appliances, and wearables, used, offered for sale, sold, and/or imported by Defendants in the United States.

57. The Accused Products satisfy all claim limitations of one or more claims of the ’597 Patent. On information and belief, the Accused Products employ, implement, or utilize materially the same Wi-Fi 6 technology, such that facts material to infringement by one Accused Product will be material to all Accused Products. For example, the Accused Products include “A wireless communication terminal communicating wirelessly, the wireless communication terminal”:

Samsung Galaxy S24 Ultra

Featuring Snapdragon 8 Gen 3 for Galaxy.

Introducing Samsung Galaxy S24 Ultra, now with many next-gen AI features and capabilities enabled by Snapdragon 8 Gen 3 for Galaxy. Powered with Galaxy AI, Galaxy S24 Ultra adapts to your passions and behaviors to make a new level of achievement possible. And, with Qualcomm FastConnect 7800 Mobile Connectivity System, you’ll get the best possible connection and premium WiFi 7 connectivity.

(https://www.qualcomm.com/snapdragon/device-finder/samsung-galaxy-s24-ultra)

58. The Accused Products include “a transceiver” and “a processor”:

Wi-Fi	**Wi-Fi/Bluetooth System:** Qualcomm® FastConnect™ 7800
	Peak Speed: 5.8 Gbps
	Generation: Wi-Fi 7, Wi-Fi 6, Wi-Fi 5, Wi-Fi 4
	Standards: 802.11be, 802.11ax, 802.11ac, 802.11n, 802.11g, 802.11b, 802.11a

(https://www.qualcomm.com/products/mobile/snapdragon/smartphones/snapdragon-8-series-mobile-platforms/snapdragon-8-gen-3-mobile-platform)

59. In the Accused Products, the processor is configured to "receive a physical layer convergence procedure (PLCP) Protocol Data Unit (PPDU) by using the transceiver":

26.17.3 BSS color

26.17.3.1 General

BSS color identifies a BSS and assists a STA receiving a PPDU that carries BSS color in identifying the BSS from which the PPDU originates so that the STA can use the channel access rules in 26.10, reduce power consumption as described in 26.14.1, or update its NAV as described in 26.2.4.

All APs that are members of a multiple BSSID set or co-hosted BSSID set shall use the same BSS color.

(IEEE 802.11ax-2021, § 26.17.3.1)

60. In the Accused Products, the processor is configured to "not to use a Basic Service Set (BSS) color indicated by the PPDU when signaling information indicates that an operation based on the BSS color is not allowed":

The BSS Color Information field is defined in Figure 9-788j.

	B0 B5	B6	B7
	BSS Color	Partial BSS Color	BSS Color Disabled
Bits:	6	1	1

Figure 9-788j—BSS Color Information field format

The BSS Color subfield is an unsigned integer whose value is the BSS Color of the BSS corresponding to the AP, IBSS STA, mesh STA or TDLS STA that transmitted this element and is set as defined in 26.17.3.

The Partial BSS Color subfield is set to 1 to indicate that an AID assignment rule based on the BSS color as defined in 26.17.4 is applied for the BSS. Otherwise, the Partial BSS Color subfield is set to 0.

The BSS Color Disabled subfield is set to 1 to disable the use of color for the BSS as described in 26.17.3.3; otherwise, it is set to 0.

(IEEE 802.11ax-2021, § 9.4.2.249)

If a STA determines that the BSS color is disabled (see 26.17.3.3), then the RXVECTOR parameter BSS_COLOR of a PPDU shall not be used to classify the PPDU.

(IEEE 802.11ax-2021, § 26.2.2)

If the most recently received HE Operation element from the AP with which it is associated contained a value of 1 in the BSS Color Disabled subfield, then the following apply:

— A non-AP HE STA should use the Address 1, Address 2, and Duration/ID fields of the frames contained in the received HE PPDUs, instead of the RXVECTOR parameters BSS_COLOR and TXOP_DURATION, to determine whether the STA should update the intra-BSS NAV.

— A non-AP HE STA should use the Address 1 and Address 2 fields of the frames contained in the received HE PPDUs, instead of the RXVECTOR parameters BSS_COLOR and STA_ID, to determine whether the STA may go to doze state for the duration of that PPDU (see 26.14.1).

(IEEE 802.11ax-2021, § 26.17.3.3)

61. In the Accused Products, "the BSS color is an identifier of a BSS":

26.17.3 BSS color

26.17.3.1 General

BSS color identifies a BSS and assists a STA receiving a PPDU that carries BSS color in identifying the BSS from which the PPDU originates so that the STA can use the channel access rules in 26.10, reduce power consumption as described in 26.14.1, or update its NAV as described in 26.2.4.

All APs that are members of a multiple BSSID set or co-hosted BSSID set shall use the same BSS color.

(IEEE 802.11ax-2021, § 26.17.3.1)

62. In the Accused Products, "the signaling information is transmitted from a base wireless communication terminal to which the wireless communication terminal is associated":

> If the most recently received HE Operation element from the AP with which it is associated contained a value of 1 in the BSS Color Disabled subfield, then the following apply:
>
> — A non-AP HE STA should use the Address 1, Address 2, and Duration/ID fields of the frames contained in the received HE PPDUs, instead of the RXVECTOR parameters BSS_COLOR and TXOP_DURATION, to determine whether the STA should update the intra-BSS NAV.
>
> — A non-AP HE STA should use the Address 1 and Address 2 fields of the frames contained in the received HE PPDUs, instead of the RXVECTOR parameters BSS_COLOR and STA_ID, to determine whether the STA may go to doze state for the duration of that PPDU (see 26.14.1).

(IEEE 802.11ax-2021, § 26.17.3.3)

63. Defendants have also knowingly and intentionally induced and contributed to infringement of the '597 patent in violation of 35 U.S.C. §§ 271(b) and 271(c). For example, Defendants have had knowledge or were willfully blind of the '597 patent and the infringing nature of the Accused Products at least because SEC had received the October 25, 2023, letter from Sisvel identifying the '597 patent as an "SEP" and identifying examples of Samsung products that implement essential features of the standard.

64. Despite this knowledge of the '597 patent, Defendants have continued to actively encourage and instruct its customers to use and integrate the Accused Products in ways that directly infringe the '597 patent. Defendants have done so knowing and intending that their customers would commit these infringing acts. Defendants have also continued to make, use, offer for sale, sell, and/or import the Accused Products, despite their knowledge of the '597 patent, thereby specifically intending for and inducing their customers to infringe the '597 patent through the customers' normal and customary use of the Accused Products.

65. On information and belief, the Accused Products contain components that constitute a material part of the '597 patent invention and that are not a staple article or commodity

suitable for substantial noninfringing use. On information and belief, Defendants have sold, offered for sale, and imported into the United States such components knowing they are especially made or especially adapted for use in infringement of the ’597 patent.

66. On information and belief, Defendants’ infringement has and continues to be willful. Defendants, without a good faith belief of invalidity or non-infringement, have known or have been willfully blind to the fact that making, using, offering to sell, or selling the Accused Products to their customers, infringes the ’597 patent.

67. Defendants have induced, and continue to induce, infringement of the ’597 patent by actively encouraging others (including its customers) to use, offer to sell, sell, and import the Accused Products. On information and belief, these acts include providing information and instructions on the use of the Accused Products; providing information, education, and instructions to its customers; providing the Accused Products to customers; and indemnifying patent infringement within the United States.

68. Samsung and its customers benefit from the use of the inventions claimed in the ’597 patent. On information and belief, these benefits include higher capacity, improved coexistence, and longer battery life when using Wi-Fi 6 communications.

69. Wilus has been damaged by Defendants’ willful infringement of the ’597 patent and is entitled to damages as provided for in 35 U.S.C. § 284, including reasonable royalty damages.

COUNT 3 – CLAIM FOR INFRINGEMENT OF THE ’035 PATENT

70. Wilus incorporates by reference each of the allegations in the foregoing paragraphs as if fully set forth herein and further alleges as follows:

71. On September 7, 2021, the United States Patent and Trademark Office issued U.S. Patent No. 11,116,035, titled "Wireless communication method using enhanced distributed channel access, and wireless communication terminal using same." Exhibit 3.

72. The '035 patent claims devices and methods used to implement the MAC layer of Wi-Fi 6 wireless LANs.

73. Wilus is the owner of the '035 patent with full rights to pursue recovery of royalties for damages for infringement, including full rights to recover past and future damages.

74. The claims of the '035 patent were issued by the United States Patent and Trademark Office and are presumed by statute to be valid. They are not directed to abstract ideas and moreover contain inventive concepts sufficient to ensure that the patent amounts to significantly more than a patent on a patent ineligible concept itself. The written description of the '035 patent describes in technical detail each limitation of the claims, allowing a skilled artisan to understand the scope of the claims and how the nonconventional and non-generic combination of claim limitations is patentably distinct from and improved upon what may have been considered conventional or generic in the art at the time of the invention.

75. Wilus and its predecessors in interest have satisfied the requirements of 35 U.S.C. § 287(a) with respect to the '035 patent, and Wilus is entitled to damages for Defendants' past infringement. For example, Sisvel's letters conveying Wilus's and Sisvel's belief that Samsung products practiced Wilus's '035 patent and offering to license Wilus's patents to Samsung provided Samsung with actual notice of infringement.

76. Defendants have directly infringed (literally and equivalently) and induced and contributed to infringement by others of the '035 patent by, without a license or permission from Wilus: making, using, selling, offering for sale, or importing products that infringe the claims of

the ’035 patent; and inducing and contributing to infringement by others of the claims of the ’035 patent.

77. On information and belief, Defendants use, import, offer for sale, and sell certain infringing products in the United States. The Accused Products are, for example, Wi-Fi 6 (802.11ax) enabled devices, including mobile phones, tablets, laptops, e-readers, cameras, appliances, and wearables, used, offered for sale, sold, and/or imported by Defendants in the United States.

78. The Accused Products satisfy all claim limitations of one or more claims of the ’035 Patent. On information and belief, the Accused Products employ, implement, or utilize materially the same Wi-Fi 6 technology, such that facts material to infringement by one Accused Product will be material to all Accused Products. For example, the Accused Products include “A wireless communication terminal that wirelessly communicates with a base wireless communication terminal, the wireless communication terminal”:

Samsung Galaxy S24 Ultra

Featuring Snapdragon 8 Gen 3 for Galaxy.

Introducing Samsung Galaxy S24 Ultra, now with many next-gen AI features and capabilities enabled by Snapdragon 8 Gen 3 for Galaxy. Powered with Galaxy AI, Galaxy S24 Ultra adapts to your passions and behaviors to make a new level of achievement possible. And, with Qualcomm FastConnect 7800 Mobile Connectivity System, you’ll get the best possible connection and premium WiFi 7 connectivity.

(https://www.qualcomm.com/snapdragon/device-finder/samsung-galaxy-s24-ultra)

79. The Accused Products include “a transceiver” and “a processor”:

Wi-Fi	**Wi-Fi/Bluetooth System:** Qualcomm® FastConnect™ 7800
	Peak Speed: 5.8 Gbps
	Generation: Wi-Fi 7, Wi-Fi 6, Wi-Fi 5, Wi-Fi 4
	Standards: 802.11be, 802.11ax, 802.11ac, 802.11n, 802.11g, 802.11b, 802.11a

(https://www.qualcomm.com/products/mobile/snapdragon/smartphones/snapdragon-8-series-mobile-platforms/snapdragon-8-gen-3-mobile-platform)

80. In the Accused Products, the processor is configured to "transmit, to the base wireless communication terminal, a trigger-based physical layer protocol data unit (PPDU) using the transceiver":

> A non-AP HE STA that receives a Basic Trigger frame that contains a User Info field addressed to the STA shall update its CWmin[AC], CWmax[AC], AIFSN[AC], and MUEDCATimer[AC] state variables to the values contained in the dot11MUEDCATable, for all the ACs from which at least one QoS Data frame was transmitted successfully in an HE TB PPDU in response to the Trigger frame. A QoS Data frame is
>
> transmitted successfully by the STA in an HE TB PPDU for an AC if it requires immediate acknowledgment and the STA receives an immediate acknowledgment for that frame, or if the QoS Data frame does not require immediate acknowledgment.

(IEEE 802.11ax-2021, § 26.2.7)

81. In the Accused Products, the processor is configured to "switch a parameter set, which is a set of parameters used for the channel access, from a first parameter set to a second parameter set based on whether the base wireless communication terminal triggers a multi-user uplink transmission participation of the wireless communication terminal":

> A non-AP HE STA that receives a Basic Trigger frame that contains a User Info field addressed to the STA shall update its CWmin[AC], CWmax[AC], AIFSN[AC], and MUEDCATimer[AC] state variables to the values contained in the dot11MUEDCATable, for all the ACs from which at least one QoS Data frame was transmitted successfully in an HE TB PPDU in response to the Trigger frame. A QoS Data frame is
>
> transmitted successfully by the STA in an HE TB PPDU for an AC if it requires immediate acknowledgment and the STA receives an immediate acknowledgment for that frame, or if the QoS Data frame does not require immediate acknowledgment.

(IEEE 802.11ax-2021, § 26.2.7)

A non-AP STA shall not transmit an HE TB PPDU if all of the conditions in 26.5.2.3.2 are satisfied. Otherwise, a non-AP STA shall transmit an HE TB PPDU a SIFS after a received PPDU if all of the following conditions are met:

— The received PPDU contains either a Trigger frame (that is not an MU-RTS variant) with a User Info field addressed to the non-AP STA or a frame addressed to the non-AP STA that contains an TRS Control subfield. A User Info field in the Trigger frame is addressed to a non-AP STA if one of the following conditions are met:

(IEEE 802.11ax-2021, § 26.5.2.3.1)

82. In the Accused Products, the processor is configured to "when a MAC protocol data unit (MPDU) included in the trigger-based PPDU does not request an immediate response, set a second parameter set timer for an access category of the MPDU when the transmission of the trigger-based PPDU ends":

A non-AP HE STA that receives a Basic Trigger frame that contains a User Info field addressed to the STA shall update its CWmin[AC], CWmax[AC], AIFSN[AC], and MUEDCATimer[AC] state variables to the values contained in the dot11MUEDCATable, for all the ACs from which at least one QoS Data frame was transmitted successfully in an HE TB PPDU in response to the Trigger frame. A QoS Data frame is

transmitted successfully by the STA in an HE TB PPDU for an AC if it requires immediate acknowledgment and the STA receives an immediate acknowledgment for that frame, or if the QoS Data frame does not require immediate acknowledgment.

The MUEDCATimer[AC] state variable is updated with the value contained in the MU EDCA Timer subfield of the MU EDCA Parameter Set element. The backoff counter maintenance corresponding to the updated state variables shall follow the rules in 10.23.2.2, except that if AIFSN[AC] is 0, then the EDCAF corresponding to that AC shall be suspended until the MUEDCATimer[AC] reaches 0 or is reset to 0. The updated MUEDCATimer[AC] shall start at the end of the immediate response if the transmitted HE TB PPDU contains at least one QoS Data frame for that AC that requires immediate acknowledgment, and shall start at the end of the HE TB PPDU if the transmitted HE TB PPDU does not contain any QoS Data frames for that AC that require immediate acknowledgment.

(IEEE 802.11ax-2021, § 26.2.7)

83. In the Accused Products, the processor is configured to "when the MPDU included in the trigger-based PPDU requests the immediate response, set the second parameter set timer for the access category of the MPDU for which immediate response is received":

A non-AP HE STA that receives a Basic Trigger frame that contains a User Info field addressed to the STA shall update its CWmin[AC], CWmax[AC], AIFSN[AC], and MUEDCATimer[AC] state variables to the values contained in the dot11MUEDCATable, for all the ACs from which at least one QoS Data frame was transmitted successfully in an HE TB PPDU in response to the Trigger frame. A QoS Data frame is

transmitted successfully by the STA in an HE TB PPDU for an AC if it requires immediate acknowledgment and the STA receives an immediate acknowledgment for that frame, or if the QoS Data frame does not require immediate acknowledgment.

The MUEDCATimer[AC] state variable is updated with the value contained in the MU EDCA Timer subfield of the MU EDCA Parameter Set element. The backoff counter maintenance corresponding to the updated state variables shall follow the rules in 10.23.2.2, except that if AIFSN[AC] is 0, then the EDCAF corresponding to that AC shall be suspended until the MUEDCATimer[AC] reaches 0 or is reset to 0. The updated MUEDCATimer[AC] shall start at the end of the immediate response if the transmitted HE TB PPDU contains at least one QoS Data frame for that AC that requires immediate acknowledgment, and shall start at the end of the HE TB PPDU if the transmitted HE TB PPDU does not contain any QoS Data frames for that AC that require immediate acknowledgment.

(IEEE 802.11ax-2021, § 26.2.7)

84. In the Accused Products, the processor is configured to "when the second parameter set timer expires, terminate an application of the second parameter set":

The MU EDCA Timer field indicates the duration of time, in units of 8 TUs, during which the HE STA uses the MU EDCA parameters for the corresponding AC, as defined in 26.2.7, except that the value 0 is reserved.

(IEEE 802.11ax-2021, § 9.4.2.251)

If the MUEDCATimer[AC] of a non-AP HE STA reaches 0, either by counting down or due to a reset following the reception of an MU EDCA Reset frame, the STA shall update CWmin[AC], CWmax[AC], and AIFSN[AC] to the values that are contained in the most recently received EDCA Parameter Set element sent by the AP with which the STA is associated.

(IEEE 802.11ax-2021, § 26.2.7)

85. In the Accused Products, the processor is configured to "access a channel according to a priority of data to be transmitted to the base communication terminal by the wireless communication terminal and the parameter set":

A non-AP HE STA that receives a Basic Trigger frame that contains a User Info field addressed to the STA shall update its CWmin[AC], CWmax[AC], AIFSN[AC], and MUEDCATimer[AC] state variables to the values contained in the dot11MUEDCATable, for all the ACs from which at least one QoS Data frame was transmitted successfully in an HE TB PPDU in response to the Trigger frame. A QoS Data frame is

transmitted successfully by the STA in an HE TB PPDU for an AC if it requires immediate acknowledgment and the STA receives an immediate acknowledgment for that frame, or if the QoS Data frame does not require immediate acknowledgment.

The MUEDCATimer[AC] state variable is updated with the value contained in the MU EDCA Timer subfield of the MU EDCA Parameter Set element. The backoff counter maintenance corresponding to the updated state variables shall follow the rules in 10.23.2.2, except that if AIFSN[AC] is 0, then the EDCAF corresponding to that AC shall be suspended until the MUEDCATimer[AC] reaches 0 or is reset to 0. The updated MUEDCATimer[AC] shall start at the end of the immediate response if the transmitted HE TB PPDU contains at least one QoS Data frame for that AC that requires immediate acknowledgment, and shall start at the end of the HE TB PPDU if the transmitted HE TB PPDU does not contain any QoS Data frames for that AC that require immediate acknowledgment.

(IEEE 802.11ax-2021, § 26.2.7)

10.23.2 HCF contention based channel access (EDCA)

10.23.2.2 EDCA backoff procedure

(IEEE 802.11-2020, § 10.23.2.2)

86. Defendants have also knowingly and intentionally induced and contributed to infringement of the ’035 patent in violation of 35 U.S.C. §§ 271(b) and 271(c). For example, Defendants have had knowledge or were willfully blind of the ’035 patent and the infringing nature of the Accused Products at least because SEC had received the April 8, 2022, letter from Sisvel identifying the ’035 patent as “essential to the 802.11ax standard” and identifying examples of Samsung products that implement essential features of the standard.

87. Despite this knowledge of the ’035 patent, Defendants have continued to actively encourage and instruct its customers to use and integrate the Accused Products in ways that directly infringe the ’035 patent. Defendants have done so knowing and intending that their customers would commit these infringing acts. Defendants have also continued to make, use, offer for sale, sell, and/or import the Accused Products, despite their knowledge of the ’035 patent, thereby specifically intending for and inducing their customers to infringe the ’035 patent through the customers’ normal and customary use of the Accused Products.

88. On information and belief, the Accused Products contain components that constitute a material part of the ’035 patent invention and that are not a staple article or commodity suitable for substantial noninfringing use. On information and belief, Defendants have sold, offered for sale, and imported into the United States such components knowing they are especially made or especially adapted for use in infringement of the ’035 patent.

89. On information and belief, Defendants’ infringement has and continues to be willful. Defendants, without a good faith belief of invalidity or non-infringement, have known or have been willfully blind to the fact that making, using, offering to sell, or selling the Accused Products to their customers, infringes the ’035 patent.

90. Defendants have induced, and continue to induce, infringement of the ’035 patent by actively encouraging others (including its customers) to use, offer to sell, sell, and import the Accused Products. On information and belief, these acts include providing information and instructions on the use of the Accused Products; providing information, education, and instructions to its customers; providing the Accused Products to customers; and indemnifying patent infringement within the United States.

91. Samsung and its customers benefit from the use of the inventions claimed in the ’035 patent. On information and belief, these benefits include higher capacity and improved coexistence when using Wi-Fi 6 communications.

92. Wilus has been damaged by Defendants’ willful infringement of the ’035 patent and is entitled to damages as provided for in 35 U.S.C. § 284, including reasonable royalty damages.

COUNT 4 – CLAIM FOR INFRINGEMENT OF THE ’879 PATENT

93. Wilus incorporates by reference each of the allegations in the foregoing paragraphs as if fully set forth herein and further alleges as follows:

94. On November 9, 2022, the United States Patent and Trademark Office issued U.S. Patent No. 11,516,879, titled “Wireless communication method using enhanced distributed channel access, and wireless communication terminal using same.” Exhibit 4.

95. The ’879 patent claims devices and methods used to implement the MAC layer of Wi-Fi 6 wireless LANs.

96. Wilus is the owner of the ’879 patent with full rights to pursue recovery of royalties for damages for infringement, including full rights to recover past and future damages.

97. The claims of the ’879 patent were issued by the United States Patent and Trademark Office and are presumed by statute to be valid. They are not directed to abstract ideas and moreover contain inventive concepts sufficient to ensure that the patent amounts to significantly more than a patent on a patent ineligible concept itself. The written description of the ’879 patent describes in technical detail each limitation of the claims, allowing a skilled artisan to understand the scope of the claims and how the nonconventional and non-generic combination of claim limitations is patentably distinct from and improved upon what may have been considered conventional or generic in the art at the time of the invention.

98. Wilus and its predecessors in interest have satisfied the requirements of 35 U.S.C. § 287(a) with respect to the ’879 patent, and Wilus is entitled to damages for Defendants’ past infringement. For example, Sisvel’s letters conveying Wilus’s and Sisvel’s belief that Samsung products practiced Wilus’s ’879 patent and offering to license Wilus’s patents to Samsung provided Samsung with actual notice of infringement.

99. Defendants have directly infringed (literally and equivalently) and induced and contributed to infringement by others of the ’879 patent by, without a license or permission from Wilus: making, using, selling, offering for sale, or importing products that infringe the claims of the ’879 patent; and inducing and contributing to infringement by others of the claims of the ’879 patent.

100. On information and belief, Defendants use, import, offer for sale, and sell certain infringing products in the United States. The Accused Products are, for example, Wi-Fi 6 (802.11ax) enabled devices, including mobile phones, tablets, laptops, e-readers, cameras, appliances, and wearables, used, offered for sale, sold, and/or imported by Defendants in the United States.

101. The Accused Products satisfy all claim limitations of one or more claims of the ’879 Patent. On information and belief, the Accused Products employ, implement, or utilize materially the same Wi-Fi 6 technology, such that facts material to infringement by one Accused Product will be material to all Accused Products. For example, the Accused Products include “A wireless communication terminal that wirelessly communicates with a base wireless communication terminal, the wireless communication terminal”:

Samsung Galaxy S24 Ultra

Featuring Snapdragon 8 Gen 3 for Galaxy.

Introducing Samsung Galaxy S24 Ultra, now with many next-gen AI features and capabilities enabled by Snapdragon 8 Gen 3 for Galaxy. Powered with Galaxy AI, Galaxy S24 Ultra adapts to your passions and behaviors to make a new level of achievement possible. And, with Qualcomm FastConnect 7800 Mobile Connectivity System, you’ll get the best possible connection and premium WiFi 7 connectivity.

(https://www.qualcomm.com/snapdragon/device-finder/samsung-galaxy-s24-ultra)

102. The Accused Products include "a transceiver" and "a processor":

Wi-Fi	**Wi-Fi/Bluetooth System:** Qualcomm® FastConnect™ 7800
	Peak Speed: 5.8 Gbps
	Generation: Wi-Fi 7, Wi-Fi 6, Wi-Fi 5, Wi-Fi 4
	Standards: 802.11be, 802.11ax, 802.11ac, 802.11n, 802.11g, 802.11b, 802.11a

(https://www.qualcomm.com/products/mobile/snapdragon/smartphones/snapdragon-8-series-mobile-platforms/snapdragon-8-gen-3-mobile-platform)

103. In the Accused Products, the processor is configured to "receive, from the base wireless communication terminal, a trigger frame using the transceiver, wherein the trigger frame triggers a orthogonal frequency division multiple access (OFDMA) uplink transmission of the wireless communication terminal":

> A non-AP HE STA that receives a Basic Trigger frame that contains a User Info field addressed to the STA shall update its CWmin[AC], CWmax[AC], AIFSN[AC], and MUEDCATimer[AC] state variables to the values contained in the dot11MUEDCATable, for all the ACs from which at least one QoS Data frame was transmitted successfully in an HE TB PPDU in response to the Trigger frame. A QoS Data frame is
>
> transmitted successfully by the STA in an HE TB PPDU for an AC if it requires immediate acknowledgment and the STA receives an immediate acknowledgment for that frame, or if the QoS Data frame does not require immediate acknowledgment.

(IEEE 802.11ax-2021, § 26.2.7)

> An HE AP sends a Trigger frame to initiate UL MU operation using UL OFDMA or UL MU-MIMO transmissions or a frame containing a TRS Control subfield to initiate UL OFDMA transmissions. The frame initiating these transmissions in the uplink direction is a triggering frame. The triggering frame identifies non-AP STAs participating in UL MU operation and assigns RUs and/or spatial streams to these STAs. Multi-STA BlockAck frames can be used by the AP to acknowledge the frames transmitted by multiple non-AP STAs. The scheduling of these Trigger frames can be set up between a non-AP STA and the AP using TWT operation to save power and reduce collisions.

(IEEE 802.11ax-2021, § 4.3.15a)

104. In the Accused Products, the processor is configured to "transmit, to the base wireless communication terminal, a trigger-based physical layer protocol data unit (PPDU) in response to the trigger frame using the transceiver":

26.5.2 UL MU operation

26.5.2.1 General

UL MU operation allows an AP to solicit simultaneous immediate response frames from one or more non-AP HE STAs. A non-AP HE STA shall follow the rules in this subclause for the transmission of response frames in an HE TB PPDU, unless the Trigger frame is an MU-RTS Trigger frame, in which case the response is a CTS frame sent in a non-HT PPDU (see 26.2.6).

A non-AP STA shall not send a triggering frame.

(IEEE 802.11ax-2021, § 26.5.2.1)

105. In the Accused Products, the processor is configured to "switch a parameter set, which is a set of parameters used for the channel access, from a first parameter set to a second parameter set based on whether the base wireless communication terminal triggers a multi-user uplink transmission participation of the wireless communication terminal":

A non-AP HE STA that receives a Basic Trigger frame that contains a User Info field addressed to the STA shall update its CWmin[AC], CWmax[AC], AIFSN[AC], and MUEDCATimer[AC] state variables to the values contained in the dot11MUEDCATable, for all the ACs from which at least one QoS Data frame was transmitted successfully in an HE TB PPDU in response to the Trigger frame. A QoS Data frame is

transmitted successfully by the STA in an HE TB PPDU for an AC if it requires immediate acknowledgment and the STA receives an immediate acknowledgment for that frame, or if the QoS Data frame does not require immediate acknowledgment.

(IEEE 802.11ax-2021, § 26.2.7)

A non-AP STA shall not transmit an HE TB PPDU if all of the conditions in 26.5.2.3.2 are satisfied. Otherwise, a non-AP STA shall transmit an HE TB PPDU a SIFS after a received PPDU if all of the following conditions are met:

— The received PPDU contains either a Trigger frame (that is not an MU-RTS variant) with a User Info field addressed to the non-AP STA or a frame addressed to the non-AP STA that contains an TRS Control subfield. A User Info field in the Trigger frame is addressed to a non-AP STA if one of the following conditions are met:

(IEEE 802.11ax-2021, § 26.5.2.3.1)

106. In the Accused Products, the processor is configured to "when a MAC protocol data unit (MPDU) included in the trigger-based PPDU does not request an immediate response, set a

second parameter set timer for an access category of the MPDU when the transmission of the trigger-based PPDU ends":

> A non-AP HE STA that receives a Basic Trigger frame that contains a User Info field addressed to the STA shall update its CWmin[AC], CWmax[AC], AIFSN[AC], and MUEDCATimer[AC] state variables to the values contained in the dot11MUEDCATable, for all the ACs from which at least one QoS Data frame was transmitted successfully in an HE TB PPDU in response to the Trigger frame. A QoS Data frame is
>
> transmitted successfully by the STA in an HE TB PPDU for an AC if it requires immediate acknowledgment and the STA receives an immediate acknowledgment for that frame, or if the QoS Data frame does not require immediate acknowledgment.
>
> The MUEDCATimer[AC] state variable is updated with the value contained in the MU EDCA Timer subfield of the MU EDCA Parameter Set element. The backoff counter maintenance corresponding to the updated state variables shall follow the rules in 10.23.2.2, except that if AIFSN[AC] is 0, then the EDCAF corresponding to that AC shall be suspended until the MUEDCATimer[AC] reaches 0 or is reset to 0. The updated MUEDCATimer[AC] shall start at the end of the immediate response if the transmitted HE TB PPDU contains at least one QoS Data frame for that AC that requires immediate acknowledgment, and shall start at the end of the HE TB PPDU if the transmitted HE TB PPDU does not contain any QoS Data frames for that AC that require immediate acknowledgment.

(IEEE 802.11ax-2021, § 26.2.7)

107. In the Accused Products, the processor is configured to "when the MPDU included in the trigger-based PPDU requests the immediate response, set the second parameter set timer for the access category of the MPDU for which immediate response is received":

> A non-AP HE STA that receives a Basic Trigger frame that contains a User Info field addressed to the STA shall update its CWmin[AC], CWmax[AC], AIFSN[AC], and MUEDCATimer[AC] state variables to the values contained in the dot11MUEDCATable, for all the ACs from which at least one QoS Data frame was transmitted successfully in an HE TB PPDU in response to the Trigger frame. A QoS Data frame is
>
> transmitted successfully by the STA in an HE TB PPDU for an AC if it requires immediate acknowledgment and the STA receives an immediate acknowledgment for that frame, or if the QoS Data frame does not require immediate acknowledgment.
>
> The MUEDCATimer[AC] state variable is updated with the value contained in the MU EDCA Timer subfield of the MU EDCA Parameter Set element. The backoff counter maintenance corresponding to the updated state variables shall follow the rules in 10.23.2.2, except that if AIFSN[AC] is 0, then the EDCAF corresponding to that AC shall be suspended until the MUEDCATimer[AC] reaches 0 or is reset to 0. The updated MUEDCATimer[AC] shall start at the end of the immediate response if the transmitted HE TB PPDU contains at least one QoS Data frame for that AC that requires immediate acknowledgment, and shall start at the end of the HE TB PPDU if the transmitted HE TB PPDU does not contain any QoS Data frames for that AC that require immediate acknowledgment.

(IEEE 802.11ax-2021, § 26.2.7)

108. In the Accused Products, the processor is configured to "when the second parameter set timer expires, terminate an application of the second parameter set":

> The MU EDCA Timer field indicates the duration of time, in units of 8 TUs, during which the HE STA uses the MU EDCA parameters for the corresponding AC, as defined in 26.2.7, except that the value 0 is reserved.

(IEEE 802.11ax-2021, § 9.4.2.251)

> If the MUEDCATimer[AC] of a non-AP HE STA reaches 0, either by counting down or due to a reset following the reception of an MU EDCA Reset frame, the STA shall update CWmin[AC], CWmax[AC], and AIFSN[AC] to the values that are contained in the most recently received EDCA Parameter Set element sent by the AP with which the STA is associated.

(IEEE 802.11ax-2021, § 26.2.7)

109. In the Accused Products, the processor is configured to "access a channel according to a priority of data to be transmitted to the base communication terminal by the wireless communication terminal and the parameter set":

> A non-AP HE STA that receives a Basic Trigger frame that contains a User Info field addressed to the STA shall update its CWmin[AC], CWmax[AC], AIFSN[AC], and MUEDCATimer[AC] state variables to the values contained in the dot11MUEDCATable, for all the ACs from which at least one QoS Data frame was transmitted successfully in an HE TB PPDU in response to the Trigger frame. A QoS Data frame is
>
> transmitted successfully by the STA in an HE TB PPDU for an AC if it requires immediate acknowledgment and the STA receives an immediate acknowledgment for that frame, or if the QoS Data frame does not require immediate acknowledgment.
>
> The MUEDCATimer[AC] state variable is updated with the value contained in the MU EDCA Timer subfield of the MU EDCA Parameter Set element. The backoff counter maintenance corresponding to the updated state variables shall follow the rules in 10.23.2.2, except that if AIFSN[AC] is 0, then the EDCAF corresponding to that AC shall be suspended until the MUEDCATimer[AC] reaches 0 or is reset to 0. The updated MUEDCATimer[AC] shall start at the end of the immediate response if the transmitted HE TB PPDU contains at least one QoS Data frame for that AC that requires immediate acknowledgment, and shall start at the end of the HE TB PPDU if the transmitted HE TB PPDU does not contain any QoS Data frames for that AC that require immediate acknowledgment.

(IEEE 802.11ax-2021, § 26.2.7)

10.23.2 HCF contention based channel access (EDCA)

10.23.2.2 EDCA backoff procedure

(IEEE 802.11-2020, § 10.23.2.2)

110. Defendants have also knowingly and intentionally induced and contributed to infringement of the ’879 patent in violation of 35 U.S.C. §§ 271(b) and 271(c). For example, Defendants have had knowledge or were willfully blind of the ’879 patent and the infringing nature of the Accused Products at least because SEC had received the October 25, 2023, letter from Sisvel identifying the ’879 patent as an “SEP” and identifying examples of Samsung products that implement essential features of the standard.

111. Despite this knowledge of the ’879 patent, Defendants have continued to actively encourage and instruct its customers to use and integrate the Accused Products in ways that directly infringe the ’879 patent. Defendants have done so knowing and intending that their customers would commit these infringing acts. Defendants have also continued to make, use, offer for sale, sell, and/or import the Accused Products, despite their knowledge of the ’879 patent, thereby specifically intending for and inducing their customers to infringe the ’879 patent through the customers’ normal and customary use of the Accused Products.

112. On information and belief, the Accused Products contain components that constitute a material part of the ’879 patent invention and that are not a staple article or commodity suitable for substantial noninfringing use. On information and belief, Defendants have sold, offered for sale, and imported into the United States such components knowing they are especially made or especially adapted for use in infringement of the ’879 patent.

113. On information and belief, Defendants’ infringement has and continues to be willful. Defendants, without a good faith belief of invalidity or non-infringement, have known or have been willfully blind to the fact that making, using, offering to sell, or selling the Accused Products to their customers, infringes the ’879 patent.

114. Defendants have induced, and continue to induce, infringement of the ’879 patent by actively encouraging others (including its customers) to use, offer to sell, sell, and import the Accused Products. On information and belief, these acts include providing information and instructions on the use of the Accused Products; providing information, education, and instructions to its customers; providing the Accused Products to customers; and indemnifying patent infringement within the United States.

115. Samsung and its customers benefit from the use of the inventions claimed in the ’879 patent. On information and belief, these benefits include higher capacity and improved coexistence when using Wi-Fi 6 communications.

116. Wilus has been damaged by Defendants’ willful infringement of the ’879 patent and is entitled to damages as provided for in 35 U.S.C. § 284, including reasonable royalty damages.

JURY DEMAND

117. Wilus demands a jury trial pursuant to Federal Rule of Civil Procedure 38.

RELIEF REQUESTED

Wilus prays for the following relief:

A. A judgment in favor of Wilus that Defendants have infringed the Asserted Patents, and that the Asserted Patents are valid and enforceable;

B. A judgment and order requiring Defendants to pay Wilus past and future damages arising out of Defendants’ infringement of the Asserted Patents in an amount no less than a reasonable royalty, costs, expenses, and pre- and post-judgment interest for its infringement of the Asserted Patents, as provided under 35 U.S.C. § 284;

C. A permanent injunction prohibiting Defendants from further acts of infringement of the Asserted Patents;

D. A judgment and order requiring Defendants to provide an accounting and to pay supplemental damages to Wilus, including, without limitation, pre-judgment and post-judgment interest;

E. A judgement that Defendants' infringement is willful and enhanced damages and fees as a result of that willfulness under 35 U.S.C. § 284;

F. A finding that this case is exceptional under 35 U.S.C. § 285, and an award of Wilus' reasonable attorney's fees and costs; and

G. Any and all other relief to which Wilus may be entitled.

Dated: September 20, 2024

Respectfully submitted,

/s/ Marc Fenster

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