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

VASU HOLDINGS, LLC, a Texas Corporation,	)	
	)	Civil Action No.
Plaintiff,	)	**JURY TRIAL DEMANDED**
v.	)	
SAMSUNG ELECTRONICS CO., LTD., a Korean Corporation, and SAMSUNG ELECTRONICS AMERICA, INC., a New York Corporation,	)	
Defendants.	)	

COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff Vasu Holdings, LLC ("Plaintiff" or "Vasu") files this Complaint for Patent Infringement and Demand for Jury Trial against Samsung Electronics Co., Ltd. ("SEC") and Samsung Electronics America, Inc. ("SEA") (collectively with SEC, "Defendants" or "Samsung") and allege as follows:

THE PARTIES

1. Vasu is a Texas corporation with its principal place of business at 9900 Spectrum Dr., Austin, TX 78717-4555.

2. SEC is a Korean corporation with its principal place of business at 129 Samsung-Ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-742, Republic of Korea.

3. SEA is a wholly owned subsidiary corporation of SEC and a New York corporation with its principal place of business at 85 Challenger Road, Ridgefield Park, New Jersey 07660. SEA may be served with process through its registered agent, CT Corporation System, 1999 Bryan Street, Suite 900, Dallas, Texas 75201.

4. SEA oversees domestic sales and distributions of Samsung's consumer and enterprise electronics products and networks, including the products accused of infringement in this case.

5. SEA conducts business operations within this District through its office located at 6625 Excellence Way, Plano, Texas 75023 and a retail store located at 2601 Preston Road, Frisco, Texas 75034.

JURISDICTION AND VENUE

6. This action for patent infringement arises under the patent laws of the United States, 35 U.S.C. § 1 *et seq.* This Court has original jurisdiction over this controversy pursuant to 28 U.S.C. §§ 1331 and 1338(a) because this is a civil action arising under the Patent Act.

7. Venue is proper in this Court pursuant to 28 U.S.C. §§ 1391(b) and (c) and/or 1400(b). Defendant SEC is a foreign corporation. Venue is proper as to a foreign defendant in any district. 28 U.S.C. § 1391(c)(3).

8. The Court has personal jurisdiction over SEA because SEA has continuous and systematic contacts with this District. Defendant SEA has regular and established places of business in this District, including locations at 6625 Excellence Way, Plano, Texas 75023 and 2601 Preston Road, Frisco, Texas 75034.

9. On information and belief, SEA deems its Plano location a flagship campus:

10. Long committed to the North Texas community, Samsung's move to Plano further demonstrates the company's dedication to Texas and being an invested corporate citizen. North Texas is home to Samsung Electronics America's second biggest employee population in the U.S. across multiple divisions - Customer Care, Mobile, Mobile R&D and Engineering. In all, more than 1,000 regional employees from two current locations in Richardson and Plano will be relocated to the new location. Over time, the space will accommodate growth and foster

greater innovation for the brand. Exhibit 1 at 2. Defendant SEA employs full-time personnel, such as sales and engineers, at its Plano campus.

11. Additionally, the Court can exercise personal jurisdiction over Defendants in this action because Defendants have committed acts of infringement in this District, including through selling and offering for sale infringing products and services in this District, as further described below, because Vasu's claims arise out of and relate to Defendants' acts of infringement in this District, and because the exercise of jurisdiction by the Court over Defendants in this action would be reasonable and would not offend traditional notions of fair play and substantial justice, given Defendant's persistent presence and contact with this District.

VASU

12. Vasu developed and provides patented technology for Seamless Session Continuity ("SSC"), which is used for telecommunications, Wi-Fi, and networking. Vasu's SSC enables automatic switch between cellular and Wi-Fi networks, and Wi-Fi and Wi-Fi networks while maintaining uninterrupted sessions for communications over cellular or landline using voice, video, or data. Vasu also provides patented technology for controlling broadband access and distribution of content and communications. Vasu's technology also allows for controlling the ability to dynamically manage and administer broadband content provided to end-user devices.

13. Through years of research and development, Vasu has built a prototype of its SSC service based on virtual network computing. It supports all content types in telecommunications, including voices, videos, data exchange, and multimedia. Vasu also provides a customized schematic design, Application-Specific Integrated Circuit ("ASIC"), for SSC in the mobile processor or the Wi-Fi chip.

14. Vasu's innovative SSC applications are able to embed big data for smart analytics to increase or create revenues.

15. Vasu further developed technology that enables the ability to dynamically manage and administer broadband content provided to end-user devices. For instance, Quality of Service ("QoS") content parameters such as jitter, priority, and level of filtering are set or reset based on the content's origin, specific content, or content characteristics. Vasu's approach allows for a content-specific QoS, where QoS is applied to the actual content rather than the physical media delivering the content. This ability further enables the gathering of usage statistics for the content accessed through access points.

VASU'S ASSERTED PATENTS

16. On August 27, 2013, the United States Patent and Trademark Office ("USPTO") issued U.S. Patent No. 8,520,605 (the "'605 Patent"), entitled "Apparatus for Controlling Broadband Access and Distribution of Content and Communications Through an Access Point." The '605 Patent lists Vasudevan Ganesan as its inventor and states that it was assigned to Vasu Networks Corporation. Attached hereto as Exhibit 2 is a true and correct copy of the '605 Patent.

17. The '605 Patent generally discloses a method and a system for broadband/infrastructure providers to set, control, and operate a coercive/disruptive controller to manage and provide broadband content to an end-user device. A controller controls broadband content and communication from a broadband network access device to an end-user device.

18. On November 11, 2014, the USPTO issued U.S. Patent No. 8,886,181 (the "'181 Patent"), entitled "Mobile Telephone VOIP/Cellular Seamless Roaming Switching Controller." The '181 Patent lists Vasudevan Ganesan as its inventor and states that it was assigned to Vasu

Networks Corporation. Attached hereto as Exhibit 3 is a true and correct copy of the '181 Patent.

19. The '181 Patent generally discloses a nomadic server and a related system that provides seamless roaming for a mobile communication device between different types of wireless networks, such as Wi-Fi and cellular networks, for voice, data, and video communication.

20. On February 17, 2015, the USPTO issued U.S. Patent No. 8,958,434 (the "'434 Patent"), entitled "Method of Determining Broadband Content Usage Within a System." The '434 Patent lists Vasudevan Ganesan as its inventor and states that it was assigned to Vasu Networks Corporation. Attached hereto as Exhibit 4 is a true and correct copy of the '434 Patent.

21. The '434 Patent generally discloses an end-user network access point monitors and collects usage statistics associated with all content accessed by the end-user devices through the access point. One or more external control servers collect the usage statistics from each access point and compile macro-level statistics.

22. On February 12, 2019, the USPTO issued U.S. Patent No. 10,206,154 (the "'154 Patent"), entitled "Mobile Device WiFi/Cellular Seamless Roaming, Seamless Session Continuity, Always Connected Switching Controller." The '154 Patent lists Vasudevan Ganesan as its inventor and states that it was assigned to Vasu Networks Corporation. Attached hereto as Exhibit 5 is a true and correct copy of the '154 Patent.

23. The '154 Patent generally discloses a nomadic server and a related system that provides seamless roaming for a mobile communication device between different types of wireless networks, such as Wi-Fi and cellular networks for voice, data, and video

communication. The nomadic server redirects the communication links between networks to the mobile communication device.

24. On July 30, 2019, the USPTO issued U.S. Patent No. 10,368,281 (the "'281 Patent"), entitled "Telephone with Automatic Switching Between Cellular and VOIP Networks." The '281 Patent lists Vasudevan Ganesan as its inventor and states that it was assigned to Vasu Networks Corporation. Attached hereto as Exhibit 6 is a true and correct copy of the '281 Patent.

25. The '281 Patent generally discloses a mobile communication device that includes a cellular communication module, a Wi-Fi communication module, a signal monitoring circuit, and a switching circuit adapted to switch an existing communication between the cellular communication module and the Wi-Fi communication module.

26. On September 17, 2019, the USPTO issued U.S. Patent No. 10,419,996 (the "'996 Patent"), entitled "Mobile Device with Automatic Switching between Cellular and WiFi Networks." The '996 Patent lists Vasudevan Ganesan and Stephane H. Maes as its inventors and states that it was assigned to Vasu Networks Corporation. Attached hereto as Exhibit 7 is a true and correct copy of the '996 Patent.

27. The '996 Patent generally discloses a mobile communication device that includes a cellular communication module, a Wi-Fi communication module, and a switching circuit adapted to switch an existing communication between the cellular communication module and the Wi-Fi communication module if the context changes for the known network to favor a new network.

28. On January 12, 2024, Vasu sent Defendants a letter identifying the patent numbers of the Asserted Patents and notifying Defendants that its products infringe the Asserted

Patents. Exhibit 8. This letter was confirmed delivered to CT Corporation System, 1999 Bryan Street, Suite 900, Dallas, Texas 75201 on January 15, 2024. Exhibit 9.

PATENT ELIGIBILITY

29. The asserted claims in the Asserted Patents are directed to patent-eligible subject matter because they are not abstract and include inventive concepts that distinguish them from what was well known in the art.

30. Before Vasu's inventions, conventional systems restrict telephone communications over wireless cellular networks to use with only one specific network. These drawbacks imply that in-progress telephone communications cannot be seamlessly switched among cellular, VOIP, and circuit-switched networks without losing the connections. One type of system addressed in the '181, '154, '281, and '996 Patents were VoIP phones, which function in Wi-Fi coverage area corresponding to a Wi-Fi access point. However, Wi-Fi availability is limited due to the small geographical areas supported by each Wi-Fi access point.

31. The claims in the Asserted Patents improve the performance of networks and the computers/mobile devices operating on those networks by providing SSC. In particular, Vasu's claimed inventions address drawbacks found in conventional systems. For example, the '181 Patent and '154 Patent claim inventions that improve the mobility of telephony communication among multiple types of networks and reduce the costs associated with cellular or landline networks. The '181 Patent and the '154 Patent achieve this improvement through a specific technical solution whereby an interface server coupled to the Wi-Fi access points for configuration of the communication paths. Exhibit 3 at 3:55-4:14; Exhibit 5 at 3:63-4:13. The technical solution involves an interface server, referred to as a nomadic server, which enables seamless roaming for a mobile communication device between different types of wireless networks, such as the Wi-Fi and cellular networks. Improvements derived include a server that

manages voice, data, and video communication without dropping the ongoing communication during network switching. The solution monitoring signal strength establishes communication links over different network types and manages transitions between these networks. This approach allows the mobile communication device to maintain uninterrupted communication as it moves between different network coverage areas.

32. The claims of the '181 Patent, the '154 Patent, and the '281 Patent improve the operation of networks and computers/mobile devices because the mobile communication device can be associated with a nomadic/interface server, wherein the nomadic/interface server is coupled to one or more Wi-Fi access points. A first Wi-Fi communication link is established between the mobile communication device and a first Wi-Fi access point. The mobile communication device is registered with the nomadic/interface server. A communication path to the mobile communication device is configured via the nomadic server according to the IP address of the first Wi-Fi access point and the first Wi-Fi communication link. After movement of the mobile communication device into a second Wi-Fi access point is detected, the mobile communication device is registered with the nomadic server, including an IP address of the second Wi-Fi access point. The communication path is re-configured according to the IP address of the second Wi-Fi access point and the second Wi-Fi communication link.

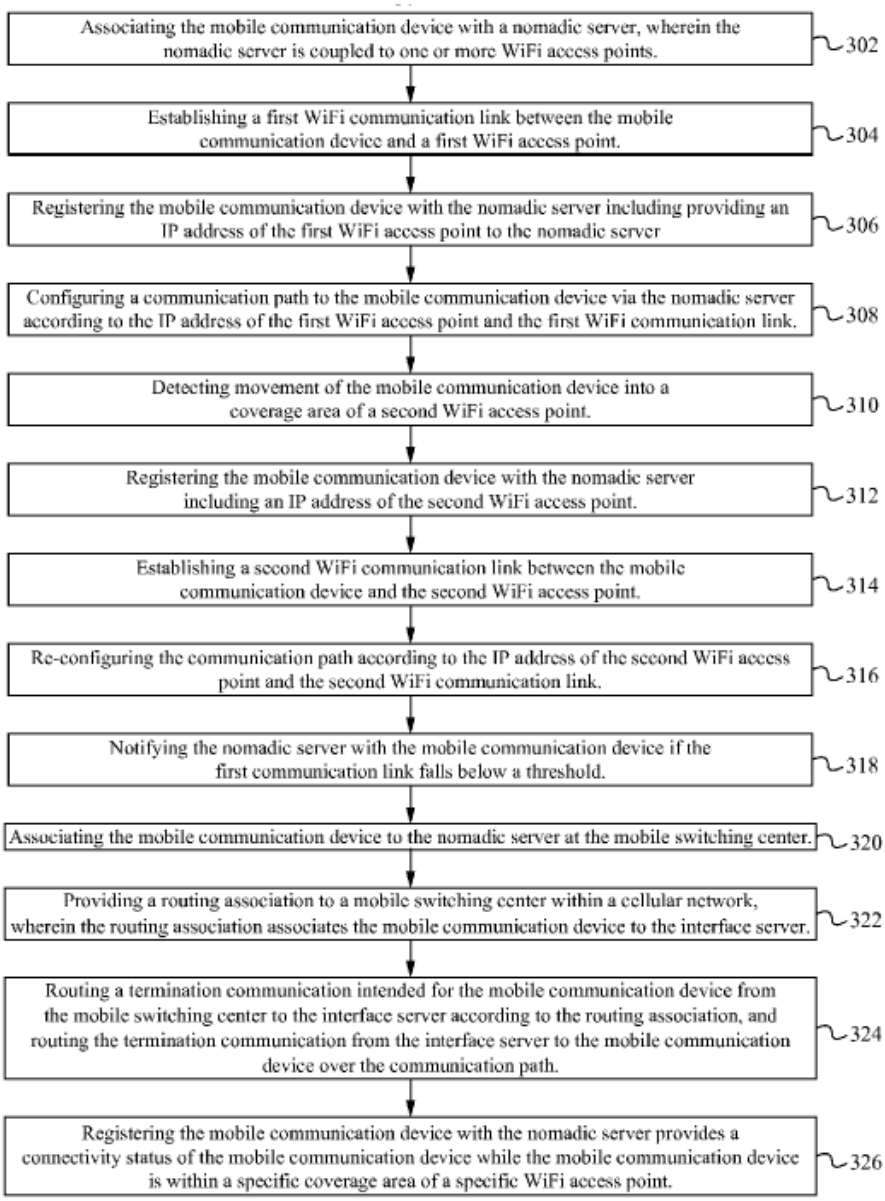


Fig. 3

Exhibit 3, Figure 3.

33. Before Vasu's inventions, the QoS for the broadband transmission is traditionally applied to the physical transmission medium in the broadband infrastructure. As a result, content provided over the given physical medium could be subject to the same QoS. This conventional paradigm enables broadband transmission infrastructure with required quality levels but does not

provide selective control of the content from different providers transmitted over the same infrastructure.

34. Vasu's inventions provide a controller to manage and control broadband content transmitted to the end-user devices and set the QoS content parameters for broadband content provided by any given content provider. In an exemplary implementation, the controller is designed to receive multiple content data streams from various content providers, each stream being associated with a specific provider. The content parameters module stores values that define the QoS transmission characteristics for each content provider. The controller then processes these data streams selectively based on the stored parameters, thereby optimizing the delivery and quality of broadband content to end-user devices. This implementation of a controller allows for a content-specific QoS, where QoS is applied to the actual content rather than the physical media delivering the content.

35. Vasu developed SSC technology well before the advent of modern smartphones and tablets. Indeed, even geofencing technologies, such as commercial GPS and wireless computer networks (Wi-Fi or IEEE 802.11, Bluetooth, and GSM/LTE networks), were in their nascent stages of use and could hardly be considered conventional at the time that Vasu came up with the technology embodied in the asserted claims.

36. Vasu's patents have likewise been cited in patent applications by technology companies, such as AT&T Mobility II Inc., Samsung Electronics Co., Ltd., and Microsoft Technology Licensing, LLC. This further proves the patent claims are directed to the technical advancements discussed above.

37. A person of ordinary skill in the art would understand that the asserted claims in the Asserted Patents recite elements that are not merely a conventional system or method to

provide wireless telecommunications over multiple networks to end-user devices but are an improvement to a communication system to cover a wider and extensive geographical area with higher video and voice qualities and an improvement to broadband infrastructure to dynamically manage the provided content with QoS.

38. Vasu's patents have undergone examination before the USPTO. The USPTO expressly considered the eligibility of the patent claims of the '605 Patent under 35 U.S.C. § 101. The Examiner first rejected claims 1-11 and 29 in the '605 Patent for their alleged failure to fall into the four enumerated categories of 35 U.S.C. § 101 because the claims only recited software. Vasu amended the claims to recite a controller device, and the Examiner determined the claims recited patent-eligible subject matter and ultimately allowed the claims in view of the amendments.

39. An excerpt from the prosecution history of the '605 Patent is attached hereto as Exhibit 10, and includes an Office Action by the USPTO rejecting claims under 35 U.S.C. § 101, Vasu's response to the Office Action setting forth amendments of the rejected claims, and the Examiner's withdrawal of the Section 101 rejections.

DEFENDANTS' INFRINGING PRODUCTS

40. Defendants are part of a multibillion-dollar worldwide technology conglomerate.

41. Defendants make, use, sell, offer for sale, and/or import into the United States and this District phones, tablets, and access point products that infringe the Asserted Patents.

42. The Accused Products include at least the following Galaxy phones and tablets (collectively, the "Accused Galaxy Products"):

- Galaxy A Series
- Galaxy J Series

- Galaxy Note Series
- Galaxy S Series
- Galaxy XCover Series
- Galaxy Z Series
- Galaxy Tab A Series
- Galaxy Tab E Series
- Galaxy Tab S Series
- Galaxy Tab View Series

43. The Accused Products include at least the following Samsung Wireless Local Area Network ("WLAN") Access Point products (collectively, the "Accused WEA Products"):

- WEA300 Series
- WEA400 Series
- WEA500 Series
- WEA Access Point Controllers
- Wireless Enterprise Managers

SAMSUNG GALAXY PHONES AND TABLETS

44. The Accused Galaxy Products are communication, entertainment, and productivity devices that work across both smartphones and tablets.

45. The Accused Galaxy phones consist of flagship product series: A Series, J Series, Note Series, S Series, XCover Series, and Z Series. *See*, *e.g.*, Exhibit 11 (Galaxy S Series).

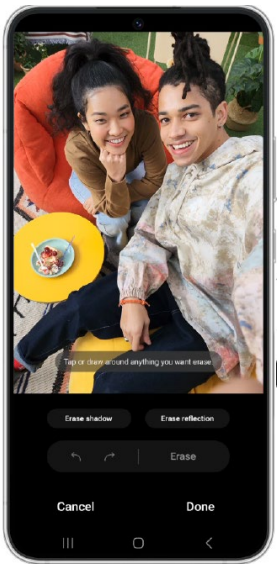
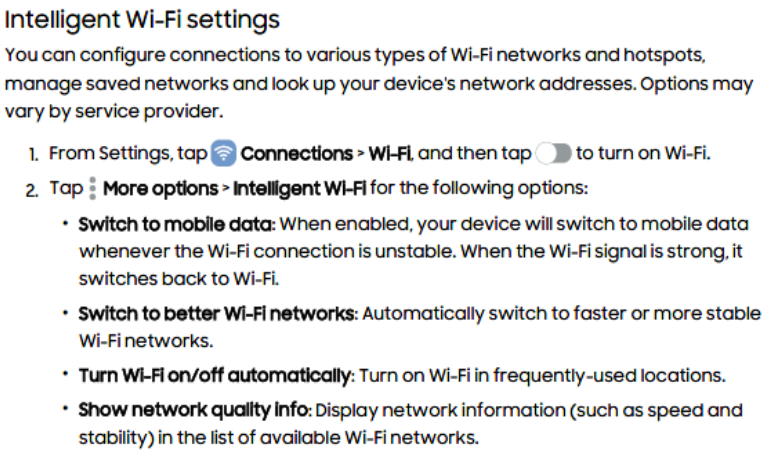


Exhibit 12 at 16 (exemplary Galaxy S22 phone).

46. The Accused Galaxy tablets are marketed as similar product series: Tab A Series, Tab E Series, Tab S Series, and Tab View Series. Exhibit 13 (Galaxy Tab S); Exhibit 14 (Galaxy Tab A); *see*, *e.g.*, Exhibit 15 (Galaxy View).

Exhibit 14 (Galaxy Tab A) at 2 (exemplary Galaxy tablet).

47. The Accused Galaxy Products are mobile communication devices that support dual mode services, switching between mobile and Wi-Fi networks seamlessly. Particularly, Intelligent/Adaptive Wi-Fi and "Switch to Mobile Data" feature automatically switch from Wi-Fi to mobile networks without losing communication links between devices.



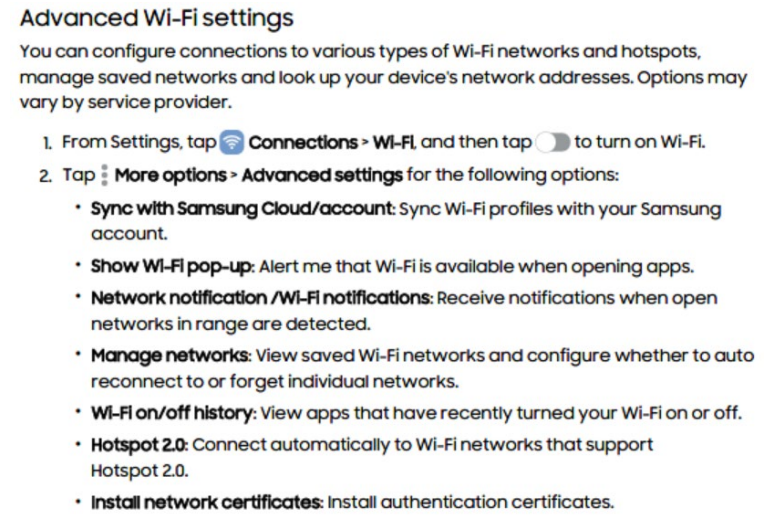
Intelligent Wi-Fi settings

You can configure connections to various types of Wi-Fi networks and hotspots, manage saved networks and look up your device's network addresses. Options may vary by service provider.

1. From Settings, tap **Connections** > **Wi-Fi**, and then tap to turn on Wi-Fi.
2. Tap **More options** > **Intelligent Wi-Fi** for the following options:
   - **Switch to mobile data**: When enabled, your device will switch to mobile data whenever the Wi-Fi connection is unstable. When the Wi-Fi signal is strong, it switches back to Wi-Fi.
   - **Switch to better Wi-Fi networks**: Automatically switch to faster or more stable Wi-Fi networks.
   - **Turn Wi-Fi on/off automatically**: Turn on Wi-Fi in frequently-used locations.
   - **Show network quality info**: Display network information (such as speed and stability) in the list of available Wi-Fi networks.

Exhibit 16 (S20 FE 5G User Manual) at 104.

48. The Accused Galaxy Products connect to Samsung Cloud to seamlessly "backup, sync, restore, and upgrade" across all Galaxy devices. Exhibit 17 (Samsung Cloud) at 1. Users can set up and manage preferences and restore Galaxy devices from a stored backup. *Id*.



Advanced Wi-Fi settings

You can configure connections to various types of Wi-Fi networks and hotspots, manage saved networks and look up your device's network addresses. Options may vary by service provider.

1. From Settings, tap **Connections** > **Wi-Fi**, and then tap to turn on Wi-Fi.
2. Tap **More options** > **Advanced settings** for the following options:
   - **Sync with Samsung Cloud/account**: Sync Wi-Fi profiles with your Samsung account.
   - **Show Wi-Fi pop-up**: Alert me that Wi-Fi is available when opening apps.
   - **Network notification /Wi-Fi notifications**: Receive notifications when open networks in range are detected.
   - **Manage networks**: View saved Wi-Fi networks and configure whether to auto reconnect to or forget individual networks.
   - **Wi-Fi on/off history**: View apps that have recently turned your Wi-Fi on or off.
   - **Hotspot 2.0**: Connect automatically to Wi-Fi networks that support Hotspot 2.0.
   - **Install network certificates**: Install authentication certificates.

Exhibit 16 (S20 FE 5G User Manual) at 105 (syncing Wi-Fi settings with Samsung Cloud/account).

SAMSUNG WLAN ACCESS POINT

49. Samsung WLAN network is a wireless infrastructure solution that provides mobility in the enterprise using "WLAN Access Points (APs) and one or more AP Controllers

(APCs)." Exhibit 18 at 8. This infrastructure provides user authentication, QoS, handover, and security by "centrally managing and integrating WLAN APs." *Id.* Additionally, enhanced WLAN management, statistics, and security can be achieved with the Wireless Enterprise Manager ("WEM") and the Wireless Enterprise Security ("WES") add-on products. *Id.*

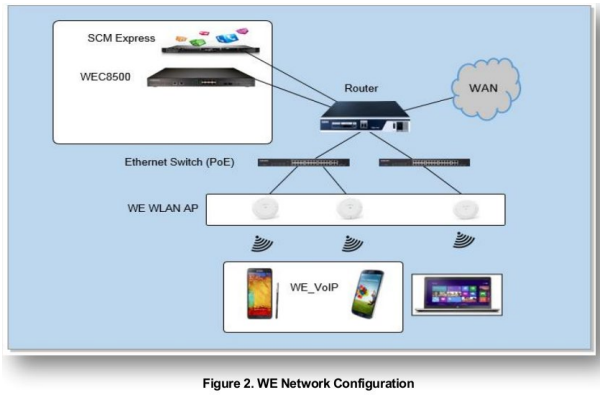


Figure 2. WE Network Configuration

Id. at 9 (Wireless Enterprise network configuration).

50. The WLAN access point is a device to provide wireless access service for a user device. Exhibit 18 at 9. It must be installed considering the service area to be provided in the enterprise environment. *Id.*

51. Samsung 300 series access point, WEA303, is a dual radio 802.11n access point with both internal and external antenna models. Exhibit 19 at 1. It enables "LTE style seamless mobility" when the device moves from one access point to another. *Id.* at 2. It optimizes routing and QoS of real-time communication traffic and assures clear, real-time voice and video collaboration over Wi-Fi. *Id.*

Id. (WEA303 QoS).

52. Samsung WEA400 series access points include WEA403, WEA412, and WEA453. The WEA400 series includes a range of indoor and outdoor "802.11 ac Wi-Fi access points" with patented voice-aware traffic schedule technology. Exhibit 20 (WEA400 Series datasheet) at 1. This patented technology effectively sends voice frames to "multiple devices using mobile communication traffic scheduling technology." *Id*. at 3.

Id. at 4 (WEA400 series devices). For example, the WEA453e is an outdoor WLAN access point that allows for the extension of the WLAN network to an outdoor environment, allowing end users to create or maintain a connection to the enterprise network between their wireless devices while outdoors "without sacrificing features or security." Exhibit 18 at 9.

53. The Samsung WEA500 Series products include WEA504 and WEA514. It provides an 802.11ac Wave 2 access point for environments where multiple terminals are connected or large amounts of data are frequently transmitted. Exhibit 21 (WEA500 Series datasheet) at 1. Its intelligent beam-selectable antenna extends coverage in moderate and weak electric fields. *Id*.

500 Series WLAN Access Point

WEA504

Exhibit 22 at 1.

54. The access point controller is a device that manages all access points installed in the enterprises and manages user information and network traffic. Exhibit 18 at 9. It is one of the most important elements relating to management and performance in a WLAN environment. *Id*. WEA access point controllers include WEC8500 and WEC8050. WEC8500 comprises the cabinet with 1U size installed on the 482.6 mm wide rack and the functional server operating outside. *Id*. at 21.

Figure 3. WEC8500 Configuration

Id. (WEC8500 external configuration).

55. Various access request messages delivered to the WLAN access point by the wireless terminal are delivered to WEC8500/WEC8050 instead of "direct handling" of WLAN access point. Exhibit 18 at 37. These controller devices guarantee the transmission quality of WLAN by "optimally managing the wireless resources" of all access points by methods such as

dynamic power control and dynamic channel selection. *Id*. at 40. The Web UI is a tool for configuration and managing WEC8500/WEC8050 and the access points.

Figure 23. Web UI Map

Id. at 54.

56. Wireless Enterprise Manager (WEM WDS-LM500) is a software tool for managing multiple access point controllers and access points that construct the enterprise WLAN. Exhibit 18 at 107.

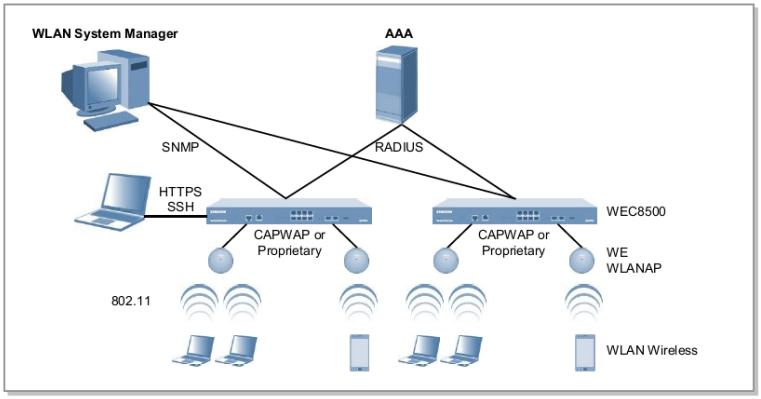


Figure 34. WEM Configuration

Id. The WEM provides a WLAN administrator with additional tools, including enhanced configuration, fault reporting, security detection, and performance monitoring, all through "a single web-based GUI." *Id*. at 10.

DEFENDANTS' INFRINGEMENT OF VASU'S PATENTS

57. Defendants have infringed and continue to infringe one or more claims of each of the Asserted Patents by engaging in acts that constitute infringement under 35 U.S.C. § 271, including but not necessarily limited to making, using, selling, and/or offering for sale, in this

District and elsewhere in the United States, and/or importing into this District and elsewhere in the United States the Accused Products.

58. In addition to directly infringing the Asserted Patents pursuant to 35 U.S.C. § 271(a), literally and/or under the doctrine of equivalents, Defendants indirectly infringes all the Asserted Patents under 35 U.S.C. §§ 271(b) and (c), literally and/or under the doctrine of equivalents. Defendants induce infringement of the Asserted Patents by instructing, directing and/or requiring others, including its customers, purchasers, users, and developers, to meet claim elements, literally and/or under the doctrine of equivalents, of the Asserted Patents. Defendants contributorily infringe the Asserted Patents by making and supplying products that are components in an infringing system with components from manufacturers, customers, purchasers, users, and developers that together meet all claim elements in the Asserted Patents, literally and/or under the doctrine of equivalents. Vasu is informed and believes that Defendants had knowledge of the Asserted Patents at least as early as January 12, 2024, when it was sent a letter identifying the Asserted Patents and describing Defendants' infringement, and at the very least, have become aware of its infringement as of the filing of this Complaint.

COUNT I
(Direct Infringement of the '605 Patent)

59. Vasu repeats, realleges, and incorporates by reference, as if fully set forth herein, the allegations of the preceding paragraphs, as set forth above.

60. Defendants have infringed and continue to infringe the '605 Patent, including at least exemplary Claim 1, in violation of 35 U.S.C. § 271(a) by, among other things, making, using, importing, selling, and offering for sale in the United States infringing products including each of the Accused WEA Products.

61. Defendants' infringement is based upon literal infringement or infringement under the doctrine of equivalents, or both.

62. Defendants' acts of making, using, importing, selling, and/or offering for sale infringing products and services have been without the permission, consent, authorization, or license of Vasu.

63. To the extent any components of the claimed systems are provided by Defendants' customers, Defendants directly infringe by acting as the final assembler of the infringing system. Defendants act as the final assembler by configuring the final infringing products at the direction of their customers through product preferences and settings.

64. Defendants further directly infringe by directing and controlling the infringing systems, and obtain benefits from their control of the systems as a whole, for example, when Defendants sync, backup, and restore the infringing products for their customers through WEM WDS-LM500 and the controller device.

65. Defendants' customers directly infringe by using and making the Accused WEA Products as a communication device to the extent Defendants are the final assembler of the infringing products. As set forth with respect to Count II, Defendants induce and contribute to their customers' direct infringement.

66. Claim 1 of the '605 Patent recites an apparatus to selectively process broadband content transmitted to an end-user device. The apparatus comprises a controller device to receive simultaneous content streams. Each content stream is associated with a specific content provider distinguished by the specific content provider, and each content data stream is transmitted to the end-user device by the specific content provider. The apparatus also includes a content parameter module to store content parameter values associated with each content

provider, and each content parameter defines a QoS transmission characteristic. The controller device selectively processes a first data content stream according to the content parameter values corresponding to a first content provider and generates the processed content data stream transmitted to the end-user device.

67. The Accused WEA Products are WLAN access points. They are apparatus to selectively process the broadband content over Wi-Fi to an end-user device. The Samsung WEA300 Series products are dual radio two/three spatial 802.11n access points that deliver data rates of 300/450 Mbps to enable high-performance Wi-Fi in high-density environments. Exhibit 19 at 1. The Samsung WEA400 series access points enable the next generation of enterprise Wi-Fi networking with higher throughput and less interference. Exhibit 20 (WEA400 Series datasheet) at 1. The Samsung WEA500 series (802.11ac Wave AP) is a high-speed, high-performing access point for environments where multiple terminals are connected or where large amounts of data are frequently transmitted. Exhibit 21 (WEA500 Series datasheet) at 1.

68. The Accused WEA Products can either operate standalone or managed by controllers. Exhibit 20 (WEA400 Series datasheet) at 2. The controller accesses the content streams through Wi-Fi (transmission infrastructure) according to IEEE 802.11 standards.

69. Samsung Wireless Enterprise access point controller (WEC8500 and WEC8050) is a device to manage all access points installed in the enterprise and further manage user information and network traffic. Exhibit 18 at 9. Together with access points, they provide "user authentication, quality of service (QoS), handover, and security" by centrally managing and integrating WLAN access points. *Id*. at 8. Enhanced WLAN management, statistics, and security can be achieved with the Wireless Enterprise Manager ("WEM"). *Id*.

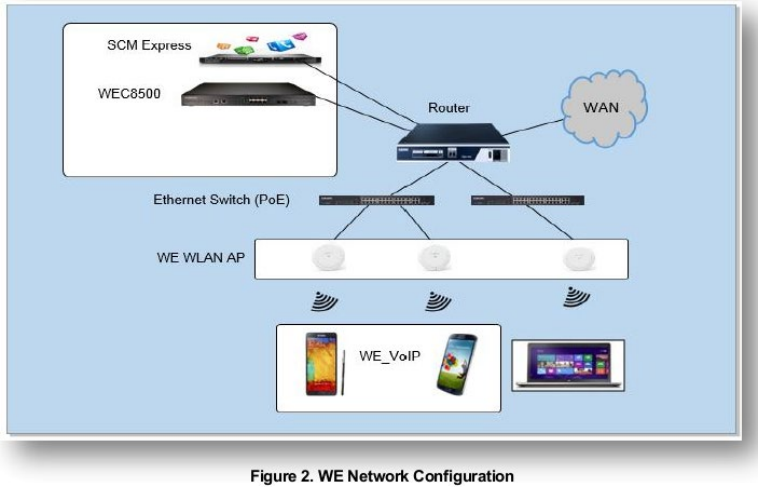


Figure 2. WE Network Configuration

Id. at 9.

70. The Accused WEA Products include a Voice-aware Traffic Scheduler ("VaTS"). The controller device receives simultaneous voice streams from multiple devices (*i.e.*, multiple phone calls at the same time). Samsung's traffic schedule technology ensures the most optimized Wi-Fi service by allocating equal airtime to multiple devices. Exhibit 20 (WEA400 Series datasheet) at 2. This service guarantees airtime fairness when multiple users need to connect to the network simultaneously. *Id*. It also allows seamless service in an environment with multiple devices with different traffic types without compromising the service quality. *Id*.

71. The content parameter module identifies the media access control ("MAC") parameters associated with each content provider. Samsung has obtained the values of the MAC parameter set that translates into "maximum quality of voice service," allowing maximum throughput of lower priority traffic during concurrent calls. Exhibit 24 at 6. Moreover, the Accused WEA Products' Network Controlled Voice Optimization ("NCVO") algorithm dynamically sets the MAC parameter values according to the content stream carried by the enterprise WLAN. *Id*.

72. Additionally, Enhanced Distribution Channel Access ("EDCA") of the WLAN access points is a content parameter module for Enhanced Distributed Channel Access parameters. Exhibit 18 at 41. It provisions the wireless QoS associated with the content provider for the WEC8500/MEC8050. *Id.*

73. The VaTS operates according to the IEEE standard. Exhibit 24 at 3. IEEE 801.11e standard defines an Enhanced Distributed Channel Access with four different access category queues: voice, video, best effort, and background. Exhibit 24 at 5. The MAC assigns different access parameters to each specific access category based on QoS constraints. *Id.* Each access category is assigned a different priority. *Id.*

Access Category	Traffic Priority	Traffic Type	ALFSN	CWmin	Cwmax	MAX TXOP
AC_VO	7,6	Voice	1 or 2	3	7	1.504ms
AC_VI	5,4	Video	2	7	15	3.008ms
AC_BE	3,2	Best Effort	3	15	1023	0
AC_BK	1,0	Back-ground	7	15	1023	0
Legacy DCF	N/A	Best Effort	2	15	1023	0

Id. For example, as shown in the table above, the AC_VO access category has a priority of 7.6, whereas the AC_BK category has a 1.0 priority. The VaTS selectively processes the content data streams according to the access parameters and priorities and transmits the generated content by increasing the access group's "channel access probability." *Id.*

74. Pursuant to 35 U.S.C. §§ 283, 284, and 285, Vasu is entitled to injunctive relief, damages, and attorney's fees and costs.

75. Defendants were aware of their direct infringement of the '605 Patent no later than January 12, 2024, when Vasu sent Defendants a letter notifying them of their infringement

of the '605 Patent, and any continued infringement was done willfully, knowingly, or being willfully blind to its infringement. Exhibit 8.

COUNT II
(Indirect Infringement of the '605 Patent)

76. Vasu repeats, realleges, and incorporates by reference, as if fully set forth herein, the allegations of the preceding paragraphs.

77. As set forth with respect to Count I, Defendants' customers directly infringe the '605 Patent when they use or assemble the Accused WEA Products. In addition to directly infringing the '605 Patent, as discussed above, Defendants have induced and contributed to their customers' direct infringement of the '605 Patent under 35 U.S.C. § 271(b) by instructing, encouraging, directing, and requiring third parties to make, install, and use the Accused WEA Products as a system infringing at least exemplary Claim 1.

78. Defendants know about the '605 Patent and that the Accused WEA Products infringe the '605 Patent, at least from their receipt of Vasu's notice letter on January 15, 2024. Exhibit 9.

79. Defendants knowingly and actively aided and abetted the direct infringement of the '605 Patent. As discussed above, the Accused WEA Products infringe the '605 Patent through the provision of IEEE 802.11e standard and VaTS. Defendants instruct and encourage their customers on how to use each of these core features of the Accused WEA Products, including through direct communication, training materials, reference materials, user guides, promotional materials, support contracts, sales calls, release notes, webinars, guidelines, video, manuals, and white papers, which are all intended to enable and encourage the infringing use and installation of the Accused WEA Products.

80. For example, Defendants operate an online "Networking Support" with manuals, specifications, and guides covering the use of the specific model of the Accused WEA Products in an infringing manner (as described above). Exhibit 25 at 1.

81. Defendants support customers' use and configuration of the Accused WEA Products through a dedicated support center. "Product Support" offers search functionality in its knowledge base to cover, for example, in-depth the installation and configuration of the Accused WEA Products, Q&A, and exchange of ideas regarding the Accused WEA Products for individual product models. Exhibit 26 at 1.

82. Defendants are also liable for contributory infringement of the Accused WEA Products pursuant to 35 U.S.C. § 271(c) by knowing or being willfully blind to the fact that they are contributing to infringement of at least exemplary Claim 1 by offering to sell and selling in the United States the Accused WEA Products. To the extent Claim 1 of the '605 Patent requires an end-user device as an element of the system to connect to the controller device that Defendants provide, the controller device is, at a minimum, a material component of the system that infringes Claim 1 of the '605 Patent.

83. The Accused WEA Products are not staple articles or commodities of commerce suitable for substantial noninfringing use. The function of the Accused WEA Products is to provide the controller device and access points to transmit content streams to the end-user device, which infringes when it operates, and it has no purpose without transmitting content to the end-user device. In particular, at least by their receipt of Vasu's notice letter, Defendants know that their WEA products are particularly suited to be used in a manner that infringes the '605 Patent, as discussed above. Defendants, therefore, know or are willfully blind to the fact

that they are contributing to the infringement of one or more claims of the '605 Patent, including Claim 1.

84. Defendants' indirect infringement of the '605 Patent has injured and continues to injure Vasu in an amount to be proven at trial, but not less than a reasonable royalty.

85. Pursuant to 35 U.S.C. §§ 283, 284, and 285, Vasu is entitled to injunctive relief, damages, and attorney's fees and costs.

COUNT III
(Direct Infringement of the '181 Patent)

86. Vasu repeats, realleges, and incorporates by reference, as if fully set forth herein, the allegations of the preceding paragraphs, as set forth above.

87. Defendants have infringed and continue to infringe the '181 Patent, including at least exemplary Claim 1, in violation of 35 U.S.C. § 271(a) by, among other things, making, using, importing, selling, and offering for sale in the United States infringing products including each of the Accused Galaxy Products.

88. Defendants' infringement is based upon literal infringement or infringement under the doctrine of equivalents, or both.

89. Defendants' acts of making, using, importing, selling, and/or offering for sale infringing products and services have been without the permission, consent, authorization, or license of Vasu.

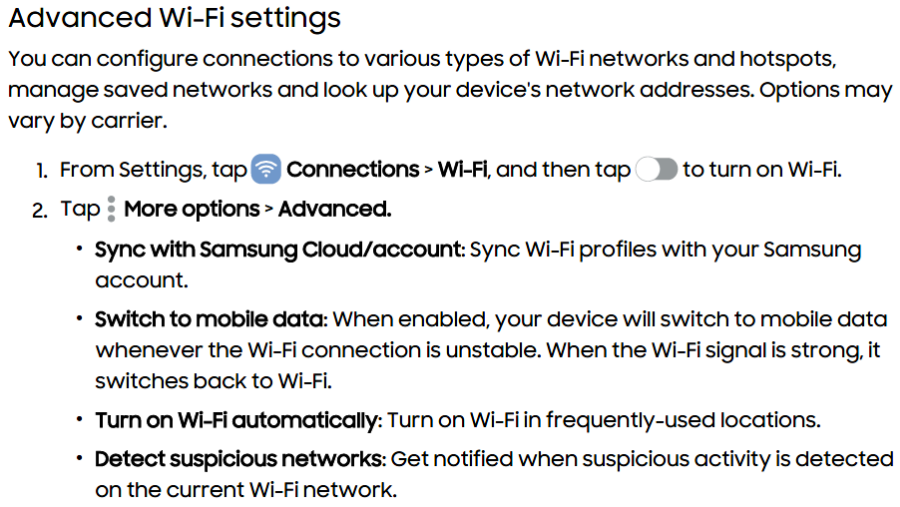
90. Defendants directly infringe by directing and controlling the infringing systems and obtain benefits from their control of the systems as a whole, for example, when Defendants sync, backup, and restore the infringing products for their customers through Samsung Cloud.

91. Defendants' customers directly infringe by using and making the Accused Galaxy Products as a communication device to the extent that Defendants direct and control the

infringing products. As set forth with respect to Count IV, Defendants induce and contribute to their customers' direct infringement.

92. Claim 1 of the '181 Patent recites a method for uninterrupted communications between the communication device and the destination device. After a first communication link is established between the mobile communication device and the destination device, an interface server will facilitate the switch to the second communication link with the second wireless network without disrupting the first communication link, when the signal strength at the first wireless network drops below a threshold.

93. The Accused Galaxy Products are communication devices that perform each step of Claim 1. The Accused Galaxy Products include Intelligent Wi-Fi or "Switch to Mobile Data" feature for seamless roaming between different types of wireless networks, including mobile and Wi-Fi.

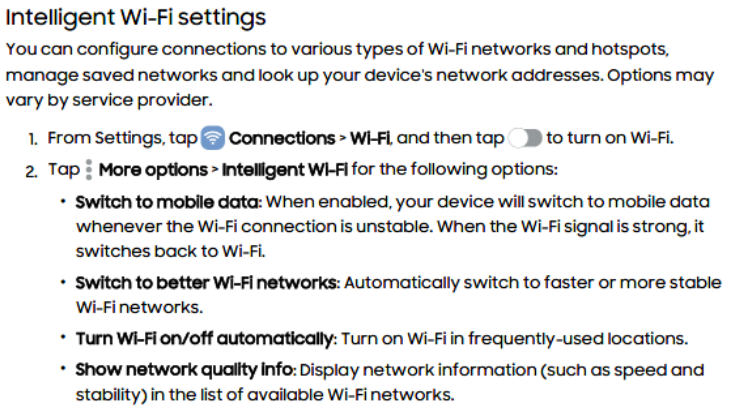


Advanced Wi-Fi settings

You can configure connections to various types of Wi-Fi networks and hotspots, manage saved networks and look up your device's network addresses. Options may vary by carrier.

1. From Settings, tap **Connections** > **Wi-Fi**, and then tap to turn on Wi-Fi.
2. Tap **More options** > **Advanced.**
   - **Sync with Samsung Cloud/account:** Sync Wi-Fi profiles with your Samsung account.
   - **Switch to mobile data:** When enabled, your device will switch to mobile data whenever the Wi-Fi connection is unstable. When the Wi-Fi signal is strong, it switches back to Wi-Fi.
   - **Turn on Wi-Fi automatically:** Turn on Wi-Fi in frequently-used locations.
   - **Detect suspicious networks:** Get notified when suspicious activity is detected on the current Wi-Fi network.

Exhibit 27 (A13 User Manual) at 92.



Intelligent Wi-Fi settings

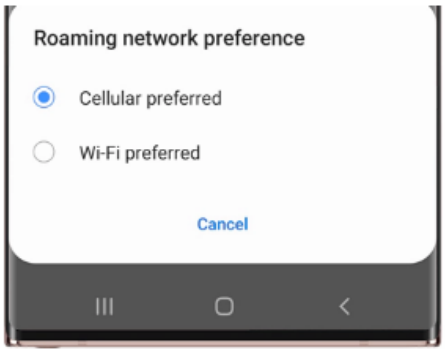
You can configure connections to various types of Wi-Fi networks and hotspots, manage saved networks and look up your device's network addresses. Options may vary by service provider.

1. From Settings, tap **Connections** > **Wi-Fi**, and then tap to turn on Wi-Fi.
2. Tap **More options** > **Intelligent Wi-Fi** for the following options:
   - **Switch to mobile data**: When enabled, your device will switch to mobile data whenever the Wi-Fi connection is unstable. When the Wi-Fi signal is strong, it switches back to Wi-Fi.
   - **Switch to better Wi-Fi networks**: Automatically switch to faster or more stable Wi-Fi networks.
   - **Turn Wi-Fi on/off automatically**: Turn on Wi-Fi in frequently-used locations.
   - **Show network quality info**: Display network information (such as speed and stability) in the list of available Wi-Fi networks.

Exhibit 16 (S20 FE 5G User Manual) at 104.

94. The Accused Galaxy Products establish a first communication link to a destination device with a Wi-Fi network through Wi-Fi calling. The Intelligent/Adaptive Wi-Fi detects a Wi-Fi network and automatically turns Wi-Fi capabilities on. Intelligent Wi-Fi is the new brand name of Adaptive Wi-Fi. Exhibit 29 at 2. The automatic network switching feature, "Switch to Mobile Data," quickly switches from Wi-Fi to a mobile data network when a gray area is countered. *Id*. at 2. These gray areas are detected through "sensors and artificial intelligence" in elevators when a sudden loss of connection occurs or Wi-Fi is not stable. *Id*. Moreover, Intelligent Wi-Fi leverages "AI algorithm" to analyze and predict traffic patterns of applications used within the devices and Wi-Fi link quality in real time. Exhibit 30 at 2.

95. The Accused Galaxy Products connect to the first network (Wi-Fi) to provide Telephony services through Voice over Wi-Fi ("VoWiFi"), delivered over Voice over IP ("VoIP) technologies. Exhibit 31 at 1. The same voice service is also delivered over mobile networks by Voice over LTE ("VoLTE) technologies. *Id*. Wi-Fi calling enables communications between the mobile communication device and an end destination device when there are no cellular signals. The Wi-Fi calling feature allows users to prefer either mobile or Wi-Fi networks for the call when roaming. Exhibit 32 at 3.



Id. at 3. If mobile is preferred, Wi-Fi will only be used when the mobile network is unavailable. *Id*.

96. The Accused Products monitor the signal strength of the first Wi-Fi network that they connected to. The Accused Galaxy Products select preferred networks from existing Wi-Fi configurations or create new configurations for candidate networks but will remove the networks if the Received Signal Strength Indicator ("RSSI") is below a certain threshold. Exhibit 33 at 3.

97. Once connected, the Wi-Fi service calculates "a connected score" based on the RSSI and determines whether to connect to a Wi-Fi network or another network type, such as a mobile network. *Id*. at 3-4. When the device is connected, a connected score periodically monitors Wi-Fi quality by looking at signals, such as RSSI and the number of packets transferred. *Id*. at 6. If the Wi-Fi quality is bad, a scan will get triggered. *Id*.

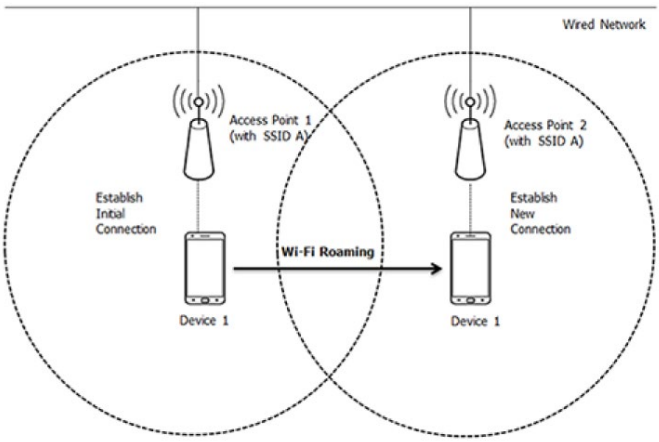
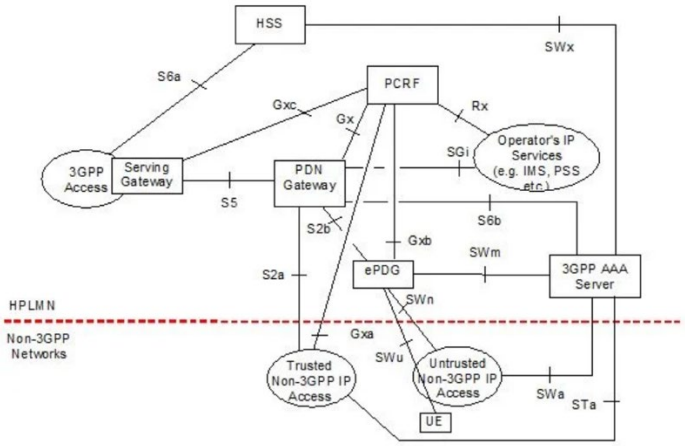


Exhibit 34 at 2 (roaming from one Wi-Fi to another Wi-Fi access point is triggered due to weak signal).

98. The preferred network offload provides the Accused Galaxy Products with a list of preferred networks and notifies the communication device if any of the preferred networks are present. Exhibit 33 at 1. If the connected Wi-Fi network's signal is not sufficient, the Accused Galaxy Products scan for additional networks by calling network nominators. *Id*. at 2. The scan results are filtered to remove discovered networks by Basic Service Set identifiers ("BSSIs") that have an RSSI below an entry threshold. *Id*. at 3. The discovered networks are also filtered for connection failure or frequent disconnects. *Id*. If the communication device is rapidly moving, the discovered network might be filtered if its RSSI varies rapidly. *Id*.

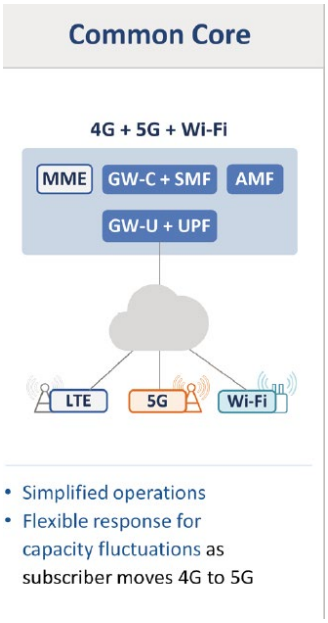
99. The mobile network operators deploy interface servers (on-site servers from customers or base stations from mobile carriers) to switch between the first communication link and the second communication link without interruption. The deployment is based on the 3GPP (3rd Generation Partnership Project) architecture to allow connection between Wi-Fi network (non-3GPP) to the mobile network (3GPP)'s evolve packet core functions over S2b interface via an enhanced packet data gateway ("ePDG"). Exhibit 31 at 1.



TS-23-402 architecture enhancements for non-3GPP (non-roaming) access

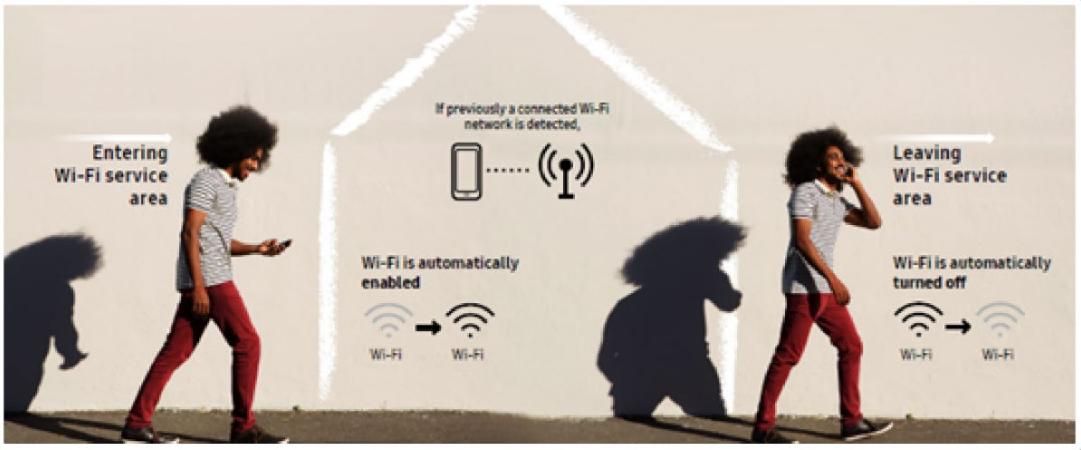
Id.

100. Samsung also provides 5G Core mobile functions to enable the integration of access networks from 5G and LTE to Wi-Fi. Exhibit 35 at 6.



Id. It supports service-based architecture and provides a service using a "Service-Based Interface" based on HTTP/2 protocol. *Id*. at 4.

101. During roaming, data is muted over the first Wi-Fi network until the Accused Galaxy Products completes the connection to a new access point. Exhibit 34 at 3. The Accused Galaxy Products also include a geofencing feature to enable location-based service to turn Wi-Fi on or off. Exhibit 36 at 4. When a favorable network is not available after leaving the area, the Wi-Fi is turned off.



Id.

102. The mobile network will prompt to switch networks between Wi-Fi and mobile networks when the first communication link is unstable.

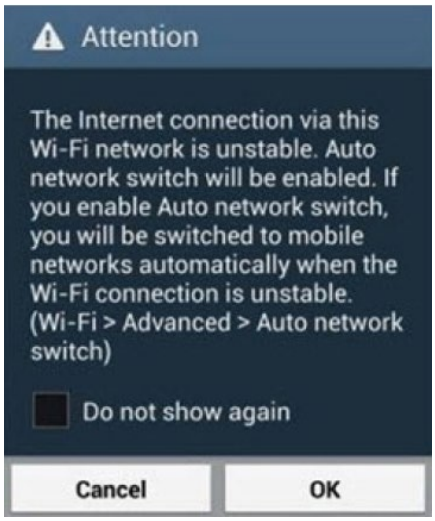


Exhibit 37 at 1.

103. Pursuant to 35 U.S.C. §§ 283, 284, and 285, Vasu is entitled to injunctive relief, damages, and attorney's fees and costs.

104. Defendants were aware of their direct infringement of the '181 Patent no later than January 12, 2024, when Vasu sent Defendants a letter notifying them of their infringement

of the ’181 Patent, and any continued infringement was done willfully, knowingly or being willfully blind to its infringement. Exhibit 8.

COUNT IV
(Indirect Infringement of the ’181 Patent)

105. Vasu repeats, realleges, and incorporates by reference, as if fully set forth herein, the allegations of the preceding paragraphs.

106. As set forth with respect to Count III, Defendants’ customers directly infringe the ’181 Patent when they use or assemble the Accused Galaxy Products. In addition to directly infringing the ’181 Patent, as discussed above, Defendants have induced and contributed to their customers’ direct infringement of the ’181 Patent under 35 U.S.C. § 271(b) by instructing, encouraging, directing, and requiring third parties to make, install, and use the Accused Galaxy Products as systems infringing at least exemplary Claim 1.

107. Defendants know about the ’181 Patent and that the Accused Galaxy Products infringe the ’181 Patent, at least from their receipt of Vasu’s notice letter on January 15, 2024. Exhibit 9.

108. Defendants knowingly and actively aided and abetted the direct infringement of the ’181 Patent. As discussed above, the Accused Galaxy Products infringe the ’181 Patent through the provision of Intelligent/Adaptive Wi-Fi, Smart Network Switch, Auto Network Switch, or “Switch to Mobile Data.” Defendants instruct and encourage their customers on how to use each of these core features of the Accused Galaxy Products, including through direct communication, training materials, reference materials, user guides, promotional materials, support contracts, release notes, webinars, guidelines, video, manuals, and white papers, which are all intended to enable and encourage the infringing use and installation of the Accused Galaxy Products.

109. For example, Defendants operate an online "Official Samsung Support" with manuals, drivers, and software covering the use of the Accused Galaxy Products in an infringing manner (as described above). Exhibit 38 at 1.

110. Defendants support customers' use and configuration of the Accused Galaxy Products through a dedicated support center. "Product Support" offers search functionality in its knowledge base to cover, for example, in-depth the installation and configuration of the Accused Galaxy Products, Q&A, and exchange of ideas regarding the Accused Galaxy Products for individual product models. Exhibit 26 at 1. Moreover, Defendants' "Get Support" site provides interactive guides for the diagnosis of a specific product model to avoid product service interruptions. Exhibit 39 at 1.

111. Defendants also published numerous video tutorials on the Samsung Care YouTube Channel that offer setup tips, product feature highlights, and troubleshooting for operating and configuring the Accused Galaxy Products in the infringing manner described above. *See*, *e.g.*, Exhibit 40 at 1.

112. Similarly, Defendants publish online simulators for the Accused Galaxy Products to walk through the hardware and software features step by step in the infringing matter described above. Exhibit 41 at 1.

113. Defendants are also liable for contributory infringement of the Accused Galaxy Products pursuant to 35 U.S.C. § 271(c) by knowing or being willfully blind to the fact that they are contributing to infringement of at least exemplary Claim 1 by offering to sell and selling the Accused Galaxy Products in the United States. To the extent Claim 1 of the Accused Galaxy Products requires an interface server and an end destination device as an element of the system to connect to the mobile communication device that Defendants provide, the mobile

communication device is, at a minimum, a material component of the system that infringes Claim 1 of the '181 Patent.

114. The Accused Galaxy Products are not staple articles or commodities of commerce suitable for substantial noninfringing use. The function of the Accused Galaxy Products is to provide the controller device to transmit content streams to the end-user device, which infringes when it operates, and it has no purpose without transmitting content to the end-user device. In particular, at least by their receipt of Vasu's notice letter, Defendants know that their Galaxy products are particularly suited to be used in a manner that infringes the '181 Patent, as discussed above. Defendants, therefore, know or are willfully blind to the fact that they are contributing to the infringement of one or more claims of the '181 Patent, including Claim 1.

115. Defendants' indirect infringement of the '181 Patent has injured and continues to injure Vasu in an amount to be proven at trial, but not less than a reasonable royalty.

116. Pursuant to 35 U.S.C. §§ 283, 284, and 285, Vasu is entitled to injunctive relief, damages, and attorney's fees and costs.

COUNT V
(Direct Infringement of the '434 Patent)

117. Vasu repeats, realleges, and incorporates by reference, as if fully set forth herein, the allegations of the preceding paragraphs, as set forth above.

118. Defendants have infringed and continue to infringe the '434 Patent, including at least exemplary Claim 1, in violation of 35 U.S.C. § 271(a) by, among other things, making, using, importing, selling, and offering for sale in the United States infringing products including each of the Accused WEA Products.

119. Defendants' infringement is based upon literal infringement or infringement under the doctrine of equivalents, or both.

120. Defendants' acts of making, using, importing, selling, and/or offering for sale infringing products and services have been without the permission, consent, authorization, or license of Vasu.

121. To the extent any components of the claimed systems are provided by Defendants' customers, Defendants directly infringe by acting as the final assembler of the infringing system. Defendants act as the final assembler by configuring the final infringing products at the direction of their customers through product preferences and settings.

122. Defendants further directly infringe by directing and controlling the infringing systems, and obtain benefits from their control of the systems as a whole, for example, when Defendants sync, backup, and restore the infringing products for their customers through WEM WDS-LM500 and the controller device.

123. Defendants' customers directly infringe by using and making the Accused Galaxy Products as a communication device to the extent Defendants are the final assembler of the infringing products. As set forth with respect to Count VI, Defendants induce and contribute to their customers' direct infringement.

124. Claim 1 of the '434 Patent recites an apparatus to collect usage statistics related to broadband content provided to one or more end-user devices. The apparatus includes a controller to access the content streams over a transmission infrastructure having a first QoS that applies to all the content streams, wherein each content stream is identified by a content provider. The controller is configured to receive a request for a specific content stream from an end-user device and selectively transmits the content data streams according to a second QoS based on the content provider, different from the first QoS.

125. The Accused WEA Products are apparatus acting as the WLAN access points and collect usage statistics related to the content provided to an end-user device.

126. The Samsung WEA300 Series products are dual radio two/three spatial 802.11n access points that deliver data rates of 300/450 Mbps to enable high-performance Wi-Fi in high-density environments. Exhibit 19 at 1. The Samsung WEA400 series access points enable the next generation of enterprise Wi-Fi networking with higher throughput and less interference. Exhibit 20 at 1. The Samsung WEA 500 series (802.11ac Wave AP) is a high-speed, high-performing access point for environments where multiple terminals are connected or where large amounts of data are frequently transmitted. Exhibit 21 (WEA500 Series datasheet) at 1.

127. The WEC8500/WEC8050 provides Wi-Fi functions to detect "failure in VoIP call and various call statistics by [b]ase [s]tation." Exhibit 18 at 42.

128. The Accused WEA Products can either operate standalone or managed by controllers. Exhibit 20 (WEA400 Series datasheet) at 2. The controller accesses the content stream through Wi-Fi (transmission infrastructure) according to the IEEE 802.11 standards.

129. Samsung Wireless Enterprise access point controller (WEC8500 and WEC8050) is a device that manages all access points installed in the enterprise and further manages user information and network traffic. Exhibit 18 at 9. Together with access points, they provide "user authentication, quality of service (QoS), handover, and security" by centrally managing and integrating WLAN access points. *Id*. at 8. Enhanced WLAN management, statistics, and security can be achieved with the WEM. *Id*.

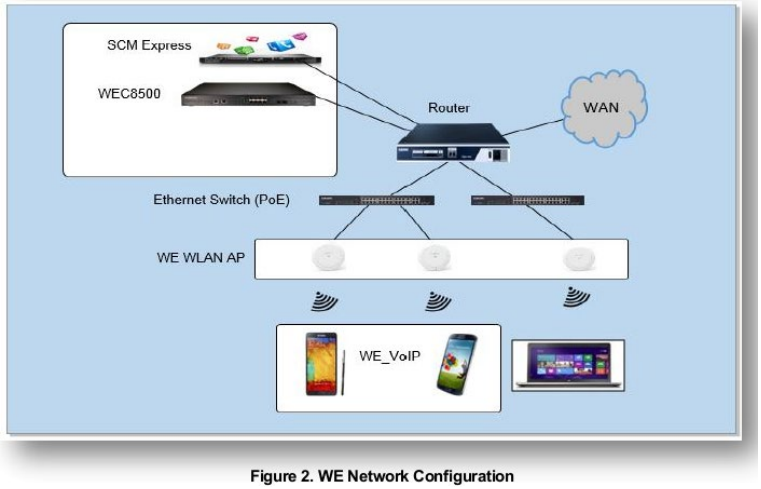
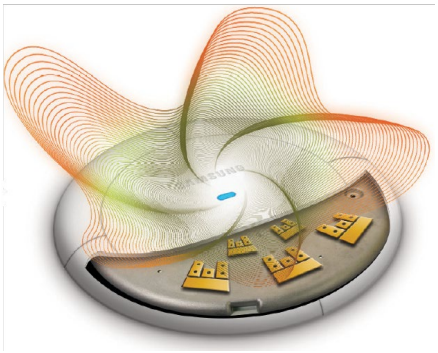


Figure 2. WE Network Configuration

Id. at 9.

130. They use Samsung's Intelligent Beam Selectable Antenna technology to "facilitate networks where multiple devices are requiring concurrent access." Exhibit 20 at 2. By optimizing its radio frequency pattern, coverage is extended and sensitivity improves. *Id*.



Id.

131. The Accused WEA Products' traffic schedule technology ensures the most optimized Wi-Fi service by allocating equal airtime to multiple devices the same QoS to all content streams. Exhibit 20 (WEA400 Series datasheet) at 2. This service guarantees airtime fairness when multiple users need to simultaneously connect to the network. *Id*. It also allows seamless service in an environment with multiple devices with different traffic types without compromising service quality. *Id*.

132. The Accused WEA Products collect usage statistics to accommodate the Quality of Service ("QoS") according to the IEEE802.11e standard. Exhibit 20 at 4; Exhibit 21 (WEA500 Series datasheet) at 1. IEEE 802.11e allows the use of multimedia traffic and improves channel efficiency by introducing "differentiated service mechanisms for different types of traffic." Exhibit 24 at 2. The traffic stream is divided according to its QoS constraints into different priority traffic groups (access category). *Id*. at 5.

Access Category	Traffic Priority	Traffic Type	ALFSN	CWmin	Cwmax	MAX TXOP
AC_VO	7,6	Voice	1 or 2	3	7	1.504ms
AC_VI	5,4	Video	2	7	15	3.008ms
AC_BE	3,2	Best Effort	3	15	1023	0
AC_BK	1,0	Back-ground	7	15	1023	0
Legacy DCF	N/A	Best Effort	2	15	1023	0

Id. Therefore, the first QoS is different from the second QoS depending on traffic types.

133. VaTS and NCVO are the technologies from Samsung to achieve optimized performance for voice traffic, giving preference to airtime resources for real-time transmission (second QoS). Exhibit 24 at 3. VaTS aims to reduce the redundant overhead in voice frame transmission to increase the efficiency of the network resource utilization and maximize the system capacity. *Id*. at 3. NCVO's objective is to reduce the probability of packet collision by "finely tuning the MA parameters" according to the network status. *Id*. at 2.

134. The voice-aware traffic scheduling ensures real-time voice and video call collaboration over Wi-Fi for "optimized routing and QoS of real-time communication traffic." Exhibit 19 at 2.

Exhibit 19 at 2; Exhibit 20 at 3.

135. Pursuant to 35 U.S.C. §§ 283, 284, and 285, Vasu is entitled to injunctive relief, damages, and attorney's fees and costs.

136. Defendants were aware of their direct infringement of the '434 Patent no later than January 12, 2024, when Vasu sent Defendants a letter notifying them of their infringement of the '434 Patent, and any continued infringement was done willfully, knowingly or being willfully blind to its infringement. Exhibit 8.

COUNT VI
(Indirect Infringement of the '434 Patent)

137. Vasu repeats, realleges, and incorporates by reference, as if fully set forth herein, the allegations of the preceding paragraphs.

138. As set forth with respect to Count V, Defendants' customers directly infringe the '434 Patent when they use or assemble the Accused WEA Products. In addition to directly infringing the '434 Patent, as discussed above, Defendants have induced and contributed to their customers' direct infringement of the '434 Patent under 35 U.S.C. § 271(b) by instructing, encouraging, directing, and requiring third parties to make, install, and use the Accused WEA Products as a system infringing at least exemplary Claim 1.

139. Defendants know about the ’434 Patent and that the Accused WEA Products infringe the ’434 Patent, at least from their receipt of Vasu’s notice letter on January 15, 2024. Exhibit 9.

140. Defendants knowingly and actively aided and abetted the direct infringement of the ’434 Patent. As discussed above, the Accused WEA Products infringe the ’434 Patent through the provision of the IEEE802.11e standard and VaTS. Defendants instruct and encourage their customers on how to use each of these core features of the Accused WEA Products, including through direct communication, training materials, reference materials, user guides, promotional materials, support contracts, sales calls, release notes, webinars, guidelines, video, manuals, and white papers, which are all intended to enable and encourage the infringing use and installation of the Accused WEA Products.

141. For example, Defendants operate an online “Networking Support” with manuals, specifications, and guides covering the use of the specific model of the Accused WEA Products in an infringing manner (as described above). Exhibit 25 at 1.

142. Defendants support customers’ use and configuration of the Accused WEA Products through a dedicated support center. “Product Support” offers search functionality in its knowledge base to cover, for example, in-depth the installation and configuration of the Accused WEA Products, Q&A, and exchange of ideas regarding the Accused WEA Products for individual product models. Exhibit 26 at 1.

143. Defendants are also liable for contributory infringement of the Accused WEA Products pursuant to 35 U.S.C. § 271(c) by knowing or being willfully blind to the fact that they are contributing to infringement of at least exemplary Claim 1 by offering to sell and selling in the United States the Accused WEA Products. To the extent Claim 1 of the ’434 Patent requires

an end-user device as an element of the system to connect to the controller device that Defendants provide, the controller device is, at a minimum, a material component of the system that infringes Claim 1 of the '434 Patent.

144. The Accused WEA Products are not staple articles or commodities of commerce suitable for substantial noninfringing use. The function of the Accused WEA Products is to provide the controller device to transmit content streams to the end-user device, which infringes when it operates, and it has no purpose without transmitting content to the end-user device. In particular, at least by their receipt of Vasu's notice letter, Defendants know that their WEA products are particularly suited to be used in a manner that infringes the '434 Patent, as discussed above. Defendants, therefore, know or are willfully blind to the fact that they are contributing to the infringement of one or more claims of the '434 Patent, including Claim 1.

145. Defendants' indirect infringement of the '434 Patent has injured and continues to injure Vasu in an amount to be proven at trial, but not less than a reasonable royalty.

146. Pursuant to 35 U.S.C. §§ 283, 284, and 285, Vasu is entitled to injunctive relief, damages, and attorney's fees and costs.

COUNT VII
(Direct Infringement of the '154 Patent)

147. Vasu repeats, realleges, and incorporates by reference, as if fully set forth herein, the allegations of the preceding paragraphs, as set forth above.

148. Defendants have infringed and continue to infringe the '154 Patent, including at least exemplary Claim 1, in violation of 35 U.S.C. § 271(a) by, among other things, making, using, importing, selling, and offering for sale in the United States infringing products including each of the Accused Galaxy Products.

149. Defendants' infringement is based upon literal infringement or infringement under the doctrine of equivalents, or both.

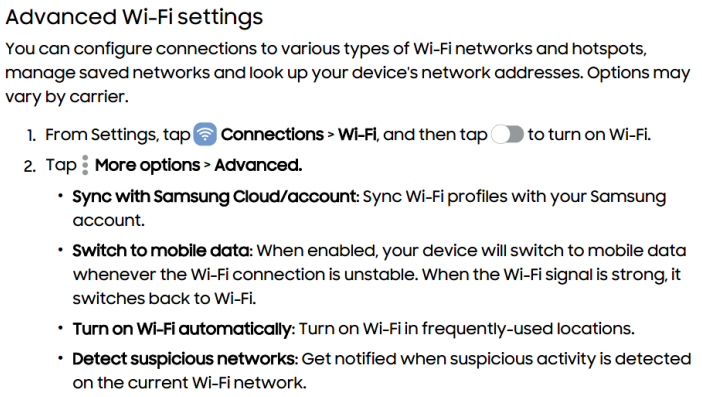
150. Defendants' acts of making, using, importing, selling, and/or offering for sale infringing products and services have been without the permission, consent, authorization, or license of Vasu.

151. Defendants directly infringe by directing and controlling the infringing systems and obtain benefits from their control of the systems as a whole, for example, when Defendants sync, backup, and restore the infringing products for their customers through Samsung Cloud.

152. Defendants' customers directly infringe by using and making the Accused Galaxy Products as a communication device to the extent that Defendants direct and control of the infringing products. As set forth with respect to Count VIII, Defendants induce and contribute to their customers' direct infringement.

153. Claim 1 of the '154 Patent recites a method for a communication device to roam between multiple networks. After the first communication link is established between the communication device and the destination device, the communication device switches to a second type of wireless network from a set of known or newly discovered networks to communicate with the destination device via a second communication link, with a client. The communication device terminates transmission over the first communication link after the network switch.

154. The Accused Galaxy Products are communication devices that perform each step of Claim 1. The Accused Galaxy Products include Intelligent/Adaptive Wi-Fi or "Switch to Mobile Data" feature for seamless roaming between mobile and Wi-Fi or Wi-Fi and Wi-Fi networks.

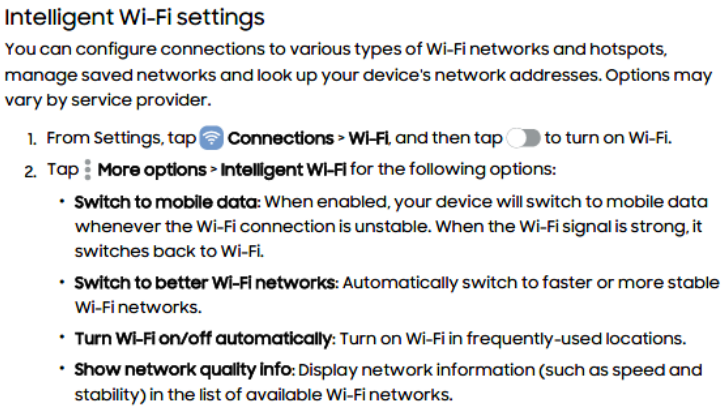


Advanced Wi-Fi settings

You can configure connections to various types of Wi-Fi networks and hotspots, manage saved networks and look up your device's network addresses. Options may vary by carrier.

1. From Settings, tap **Connections** > **Wi-Fi**, and then tap to turn on Wi-Fi.
2. Tap **More options** > **Advanced**.
   - **Sync with Samsung Cloud/account**: Sync Wi-Fi profiles with your Samsung account.
   - **Switch to mobile data**: When enabled, your device will switch to mobile data whenever the Wi-Fi connection is unstable. When the Wi-Fi signal is strong, it switches back to Wi-Fi.
   - **Turn on Wi-Fi automatically**: Turn on Wi-Fi in frequently-used locations.
   - **Detect suspicious networks**: Get notified when suspicious activity is detected on the current Wi-Fi network.

Exhibit 27 (A13 User Manual) at 92.



Intelligent Wi-Fi settings

You can configure connections to various types of Wi-Fi networks and hotspots, manage saved networks and look up your device's network addresses. Options may vary by service provider.

1. From Settings, tap **Connections** > **Wi-Fi**, and then tap to turn on Wi-Fi.
2. Tap **More options** > **Intelligent Wi-Fi** for the following options:
   - **Switch to mobile data**: When enabled, your device will switch to mobile data whenever the Wi-Fi connection is unstable. When the Wi-Fi signal is strong, it switches back to Wi-Fi.
   - **Switch to better Wi-Fi networks**: Automatically switch to faster or more stable Wi-Fi networks.
   - **Turn Wi-Fi on/off automatically**: Turn on Wi-Fi in frequently-used locations.
   - **Show network quality info**: Display network information (such as speed and stability) in the list of available Wi-Fi networks.

Exhibit 16 (S20 FE 5G User Manual) at 104.

155. The Accused Galaxy Products establish a first communication link to a destination device with a Wi-Fi network through Wi-Fi calling. The Accused Galaxy Products connect to a first network (Wi-Fi) to provide telephony services through VoWiFi, delivered over VoIP technologies. Exhibit 31 at 1. The same voice service is also delivered over mobile network by VoLTE technologies. *Id.*

156. The Intelligent/Adaptive Wi-Fi detects a Wi-Fi network and automatically Turns Wi-Fi capabilities on. Intelligent Wi-Fi is the new brand name of Adaptive Wi-Fi. Exhibit 29 at 2. The automatic network switching feature "Switch to Mobile Data" quickly switches from Wi-Fi to a mobile data network when a gray area is countered. *Id.* at 2. These

gray areas are detected through "sensors and artificial intelligence" in elevators when a sudden loss of connection occurs or Wi-Fi is not stable on moving vehicles. *Id*.

157. Moreover, Intelligent Wi-Fi leverages "AI algorithm" to analyze and predict traffic patterns of applications used within the devices and the Wi-Fi link quality in real time. Exhibit 30 at 2.

158. Wi-Fi calling enables communications between the mobile communication device and an end destination device when there are no cellular signals. The Wi-Fi calling feature allows users to prefer either the mobile or Wi-Fi networks for the call when roaming. Exhibit 32 at 3. *Id*. at 3. If mobile is preferred, Wi-Fi will only be used when the mobile network is unavailable. *Id*.

159. The Accused Products monitor the signal strength of the first Wi-Fi network that they connected to. The Accused Galaxy Products also monitor their Wi-Fi link conditions for roaming. With the support of Basic Service Set Transition Management, an access point can request the Galaxy devices to roam to another access point with better network conditions. Exhibit 34 at 8. The switch is based on network quality, user preference, and network usage patterns. Exhibit 29 at 3.

Id.

160. The Accused Galaxy Products select preferred networks from existing Wi-Fi configurations or create new configurations for candidate networks, but will remove the networks if RSSI is below a certain threshold. Exhibit 33 at 3.

161. Once connected, the Wi-Fi service calculates "a connected score" based on the RSSI and determines whether to connect to a Wi-Fi network or another network type, such as a mobile network. *Id*. at 3-4. When the device is connected, a connected score periodically monitors the Wi-Fi quality by looking at signals, such as RSSI and the number of packets transferred. *Id*. at 6. If the Wi-Fi quality is bad, a scan will get triggered. *Id*.

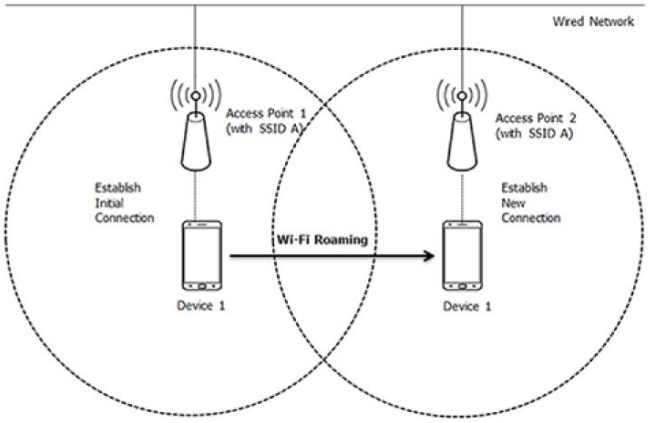
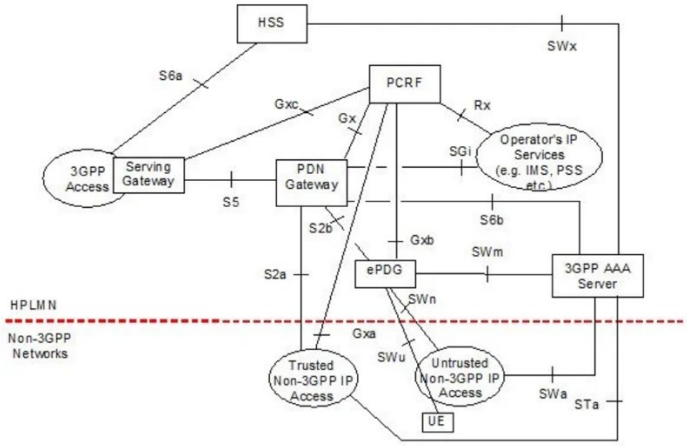


Exhibit 34 at 2 (roaming from one Wi-Fi to another Wi-Fi access point is triggered due to weak signal).

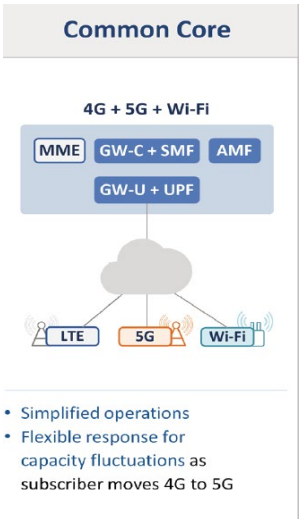
162. The mobile network operators deploy interface servers (on-site servers from customers or base stations from mobile carriers) to switch between the first communication link and the second communication link without interruption. The deployment is based on the 3GPP (3rd Generation Partnership Project) architecture to allow connection between Wi-Fi network (non-3GPP) to the mobile network (3GPP)'s evolve packet core functions over S2b interface via an enhanced packet data gateway ("ePDG"). Exhibit 31 at 1.



TS-23-402 architecture enhancements for non-3GPP (non-roaming) access

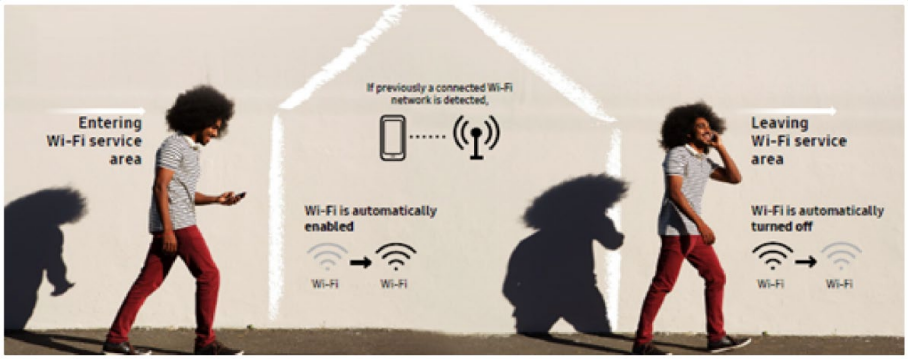
Id.

163. Samsung also provides 5G Core mobile functions to enable the integration of access networks from 5G and LTE to Wi-Fi. Exhibit 35 at 6.



Id. It supports service-based architecture and provides a service using a "Service-Based Interface" based on HTTP/2 protocol. *Id*. at 4.

164. During roaming, data is muted until the Accused Galaxy Products completes the Connection to a new access point. Exhibit 34 at 3. The Accused Galaxy Products also include a geofencing feature to enable location-based service to turn Wi-Fi on or off. Exhibit 36 at 4. When a favorable network is not available after leaving the area, the Wi-Fi is turned off.



Id.

165. Preferred network offload provides the Accused Galaxy Products a list of preferred networks and notifies the communication device if any of the preferred network is present. Exhibit 33 at 1. If the connected Wi-Fi network's signal is not sufficient, the Accused Galaxy Products scan for additional networks by calling network nominators. *Id*. at 2. The scan results are filtered to remove discovered networks by BSSIs that have an RSSI below an entry threshold. *Id*. at 3. The discovered networks are also filtered for connection failure or frequent disconnects. *Id*. If the communication device is rapidly moving, the discovered network might be filtered if its RSSI varies rapidly. *Id*.

166. The mobile network will prompt to switch networks between Wi-Fi and mobile networks when the first communication link is unstable.

Exhibit 37 at 1.

167. Pursuant to 35 U.S.C. §§ 283, 284, and 285, Vasu is entitled to injunctive relief, damages, and attorney's fees and costs.

168. Defendants were aware of their direct infringement of the '154 Patent no later than January 12, 2024, when Vasu sent Defendants a letter notifying them of their infringement of the '154 Patent, and any continued infringement was done willfully, knowingly or being willfully blind to its infringement. Exhibit 8.

COUNT VIII
(Indirect Infringement of the '154 Patent)

169. Vasu repeats, realleges, and incorporates by reference, as if fully set forth herein, the allegations of the preceding paragraphs.

170. As set forth with respect to Count VII, Defendants' customers directly infringe the '154 Patent when they use or assemble the Accused Galaxy Products. In addition to directly infringing the '154 Patent, as discussed above, Defendants have induced and contributed to their customers' direct infringement of the '154 Patent under 35 U.S.C. § 271(b) by instructing, encouraging, directing, and requiring third parties to make, install, and use the Accused Galaxy Products as systems infringing at least exemplary Claim 1.

171. Defendants know about the '154 Patent and that the Accused Galaxy Products infringe the '154 Patent, at least from their receipt of Vasu's notice letter on January 15, 2024. Exhibit 9.

172. Defendants knowingly and actively aided and abetted the direct infringement of the '154 Patent. As discussed above, the Accused Galaxy Products infringe the '154 Patent through the provision of Intelligent/Adaptive Wi-Fi, Smart Network Switch, Auto Network Switch, or "Switch to Mobile Data." Defendants instruct and encourage their customers on how to use each of these core features of the Accused Galaxy Products, including through direct

communication, training materials, reference materials, user guides, promotional materials, support contracts, release notes, webinars, guidelines, video, manuals, and white papers, which are all intended to enable and encourage the infringing use and installation of the Accused Galaxy Products.

173. For example, Defendants operate an online "Official Samsung Support" with manuals, drivers, and software covering the use of the Accused Galaxy Products in an infringing manner (as described above). Exhibit 38 at 1.

174. Defendants support customers' use and configuration of the Accused Galaxy Products through a dedicated support center. "Product Support" offers search functionality in its knowledge base to cover, for example, in-depth the installation and configuration of the Accused Galaxy Products, Q&A, and exchange of ideas regarding the Accused Galaxy Products for individual product models. Exhibit 26 at 1. Moreover, Defendants' "Get Support" site provides interactive guides for the diagnosis of a specific product model to avoid product service interruptions. Exhibit 39 at 1.

175. Defendants also published numerous video tutorials on the Samsung Care YouTube Channel that offer setup tips, product feature highlights, and troubleshooting for operating and configuring the Accused Galaxy Products in the infringing manner described above. *See*, *e.g.*, Exhibit 40 at 1.

176. Similarly, Defendants publish online simulators for the Accused Galaxy Products to walk through the hardware and software features step by step in the infringing matter described above. Exhibit 41 at 1.

177. Defendants are also liable for contributory infringement of the Accused Galaxy Products pursuant to 35 U.S.C. § 271(c) by knowing or being willfully blind to the fact that they

are contributing to infringement of at least exemplary Claim 1 by offering to sell and selling the Accused Galaxy Products in the United States. To the extent Claim 1 of the Accused Galaxy Products requires an interface server and an end destination device as an element of the system to connect to the mobile communication device that Defendants provide, the mobile communication device is, at a minimum, a material component of the system that infringes Claim 1 of the '154 Patent.

178. The Accused Galaxy Products are not staple articles or commodities of commerce suitable for substantial noninfringing use. The function of the Accused Galaxy Products is to provide the client with the ability to maintain the communication link, which infringes when it operates, and it has no purpose without maintaining the communication link with the end destination device. In particular, at least by their receipt of Vasu's notice letter, Defendants know that their Galaxy products are particularly suited to be used in a manner that infringes the '154 Patent, as discussed above. Defendants, therefore, know or are willfully blind to the fact that they are contributing to the infringement of one or more claims of the '154 Patent, including Claim 1.

179. Defendants' indirect infringement of the '154 Patent has injured and continues to injure Vasu in an amount to be proven at trial, but not less than a reasonable royalty.

180. Pursuant to 35 U.S.C. §§ 283, 284, and 285, Vasu is entitled to injunctive relief, damages, and attorney's fees and costs.

COUNT IX
(Direct Infringement of the '281 Patent)

181. Vasu repeats, realleges, and incorporates by reference, as if fully set forth herein, the allegations of the preceding paragraphs, as set forth above.

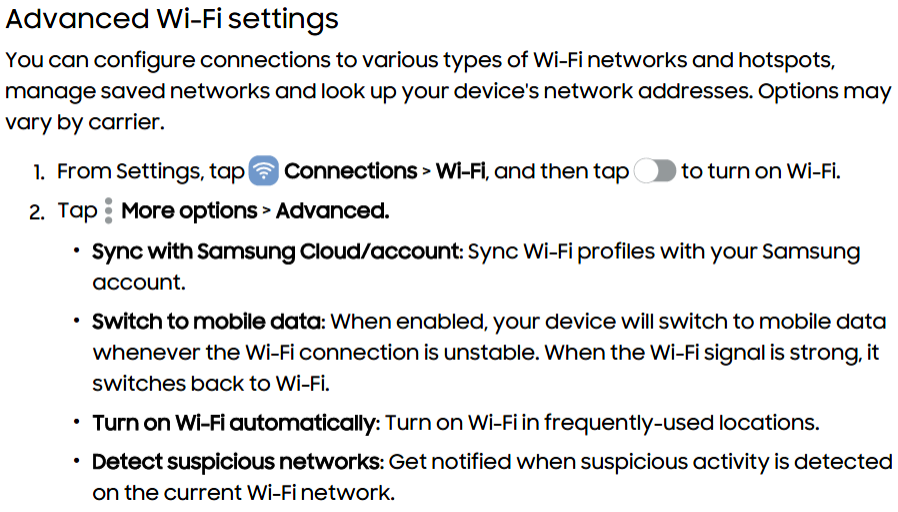
182. Defendants have infringed and continue to infringe the ’281 Patent, including at least exemplary Claim 1, in violation of 35 U.S.C. § 271(a) by, among other things, making, using, importing, selling, and offering for sale in the United States infringing products including each of the Accused Galaxy Products.

183. Defendants’ infringement is based upon literal infringement or infringement under the doctrine of equivalents, or both.

184. Defendants’ acts of making, using, importing, selling, and/or offering for sale infringing products and services have been without the permission, consent, authorization, or license of Vasu.

185. Claim 1 of the ’281 Patent recites a device that includes a switching system to switch an established communication to a second communication over a second network, a preferred network based on context within a set of networks. A timer with a predefined is activated to wake the second communication module from sleep mode to active mode. If the Wi-Fi signal is below a second predefined threshold value, the timer is activated with a predefined size and a third, but smaller than the second predefined threshold value.

186. The Accused Galaxy Products are communication devices that have Intelligent Wi-Fi or “Switch to Mobile Data” features for seamless roaming between mobile and Wi-Fi or Wi-Fi and Wi-Fi networks.

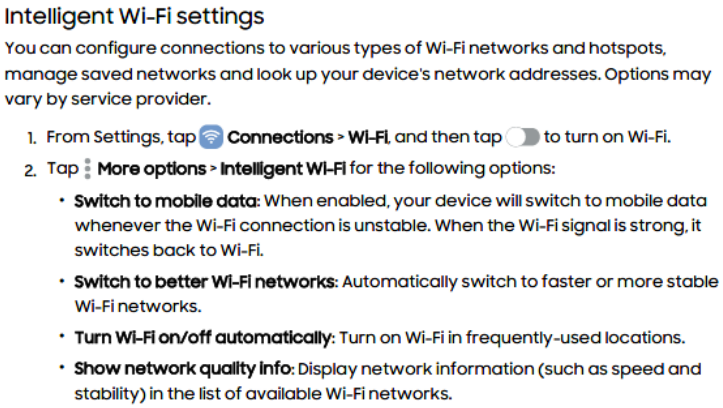


Advanced Wi-Fi settings

You can configure connections to various types of Wi-Fi networks and hotspots, manage saved networks and look up your device's network addresses. Options may vary by carrier.

1. From Settings, tap **Connections** > **Wi-Fi**, and then tap to turn on Wi-Fi.
2. Tap **More options** > **Advanced.**
   - **Sync with Samsung Cloud/account:** Sync Wi-Fi profiles with your Samsung account.
   - **Switch to mobile data:** When enabled, your device will switch to mobile data whenever the Wi-Fi connection is unstable. When the Wi-Fi signal is strong, it switches back to Wi-Fi.
   - **Turn on Wi-Fi automatically:** Turn on Wi-Fi in frequently-used locations.
   - **Detect suspicious networks:** Get notified when suspicious activity is detected on the current Wi-Fi network.

Exhibit 27 (A13 User Manual) at 92.



Intelligent Wi-Fi settings

You can configure connections to various types of Wi-Fi networks and hotspots, manage saved networks and look up your device's network addresses. Options may vary by service provider.

1. From Settings, tap **Connections** > **Wi-Fi**, and then tap to turn on Wi-Fi.
2. Tap **More options** > **Intelligent Wi-Fi** for the following options:
   - **Switch to mobile data:** When enabled, your device will switch to mobile data whenever the Wi-Fi connection is unstable. When the Wi-Fi signal is strong, it switches back to Wi-Fi.
   - **Switch to better Wi-Fi networks:** Automatically switch to faster or more stable Wi-Fi networks.
   - **Turn Wi-Fi on/off automatically:** Turn on Wi-Fi in frequently-used locations.
   - **Show network quality info:** Display network information (such as speed and stability) in the list of available Wi-Fi networks.

Exhibit 16 (S20 FE 5G User Manual) at 104.

187. The Accused Galaxy Products include a switching system between Wi-Fi Service (first communication module) and connectivity service (second communication module) via intelligent/adaptive Wi-Fi and "Switch to Mobile Data." The Intelligent/Adaptive Wi-Fi detects a Wi-Fi network and automatically turns Wi-Fi capabilities on without having to adjust the Wi-Fi settings. Intelligent Wi-Fi is the new brand name of Adaptive Wi-Fi. Exhibit 29 at 2. The automatic network switching feature, "Switch to Mobile Data," quickly switches from Wi-Fi to a mobile data network when a gray area is countered. *Id*. at 2. These gray areas are detected

through "sensors and artificial intelligence" in elevators when a sudden loss of connection occurs or Wi-Fi is not stable on moving vehicles. *Id.*

188. Moreover, Smart Network Switch will connect the Accused Galaxy Products automatically to the mobile network if the Wi-Fi network connection is unstable.

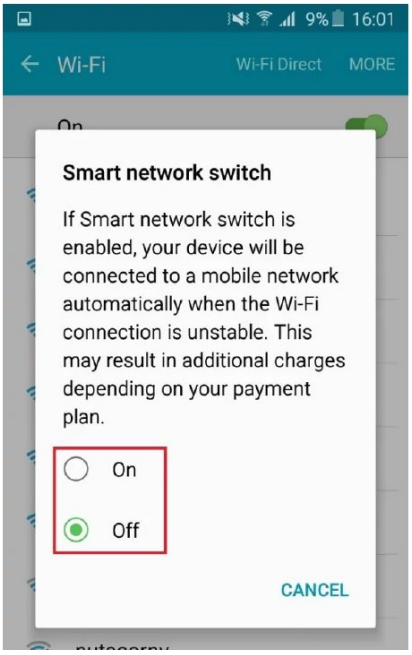
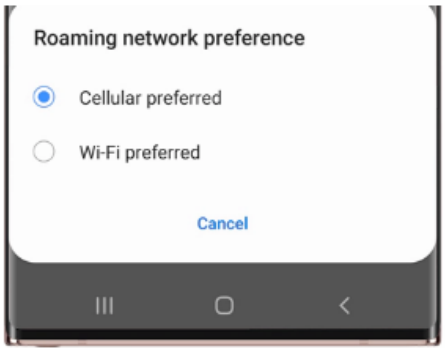


Exhibit 42 at 7.

189. The Accused Galaxy Products monitor its Wi-Fi link condition for roaming. With the support of Basic Service Set Translon Management, an access point can request the Galaxy devices to roam to another access point with better network conditions. Exhibit 34 at 8. The switch is based on network quality, user preference and network usage patterns. Exhibit 29 at 3.

Id.

190. Wi-Fi calling enables communications between the mobile communication device and an end destination device when there are no cellular signals. The Wi-Fi calling features give the user the ability to prefer either mobile or Wi-Fi networks for the call when roaming. Exhibit 32 at 3.



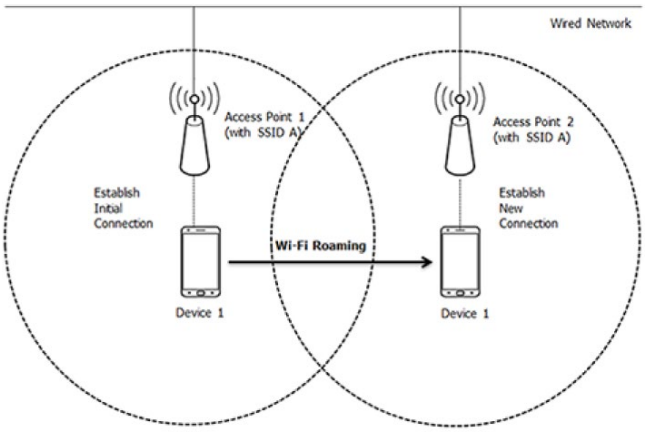
Id. at 3. If mobile is preferred, Wi-Fi will only be used when cellular is unavailable. *Id*.

191. The Accused Galaxy Products select preferred networks from existing Wi-Fi configurations or create new configurations for candidate networks, but will remove the networks if RSSI is below a certain threshold. Exhibit 33 at 3.

192. Once connected, the Wi-Fi service calculates "a connected score" based on the RSSI and determines whether to connect to a Wi-Fi network or another network type, such as a mobile network. *Id*. at 3-4. When the device is connected, a connected score periodically monitors Wi-Fi quality by looking at signals, such as RSSI and the number of packets transferred. *Id*. at 6. If the connected Wi-Fi network's signal is not sufficient, the Accused Galaxy Products scan for additional networks by calling network nominators. *Id*. at 2. The scan

results are filtered to remove discovered networks by BSSIs that have an RSSI below an entry threshold. *Id*. at 3. The discovered networks are also filtered for connection failure or frequent disconnects. *Id*. If the communication device is rapidly moving, the discovered network might be filtered if its RSSI varies rapidly. *Id*.

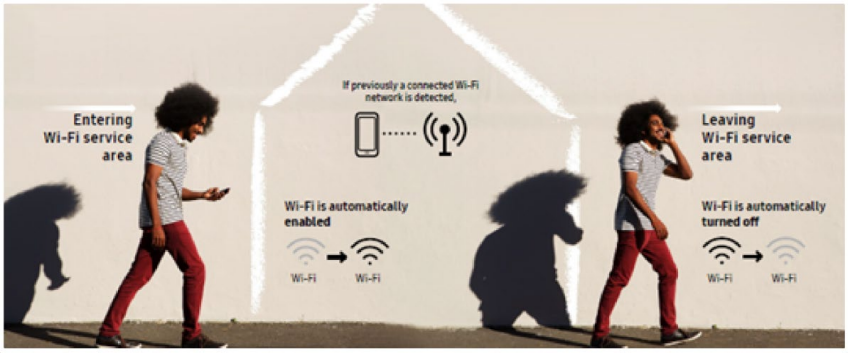
193. Roaming is triggered when the Accused Galaxy Products receive a weak signal (RSSI value is below a first threshold), a packet is considered lost after a set time window, or multiple devices are connected to the same access point. Exhibit 34 at 2.



Id.

194. If a device is rapidly moving, the Wi-Fi network scan results are "filtered to remove BSSIDs whose RSSI varies rapidly," indicating they are not moving with the devices. Exhibit 33 at 3. A winning candidate network is decided based on user connect choice and the candidate scorer. *Id*. at 3. The device is associated with the winning candidate if it does not match the current network. *Id*. at 3-4.

195. The Accused Galaxy Products also include a geofencing feature to enable location-based service to turn on or off Wi-Fi (sleep to active mode). Exhibit 36 at 4. When a favorite network is not available after leaving the area, the Wi-Fi is turned off.



Id.

196. The Wi-Fi service (first communication module) polls RSSI and link-layer stats every 3 seconds (the timer). Exhibit 33 at 4. But this polling interval changes dynamically "based on the device mobility state and RSSI." *Id*. at 4.

> - The polling interval is extended to 6 seconds (configured by the `config_wifiPollRssiLongIntervalMilliseconds` overlay) when the device is stationary **and** RSSI is above -68 dBm (configured by the `config_wifiClientRssiMonitorThresholdDbm` and `config_wifiClientRssiMonitorHysteresisDb` overlays).
> - The polling interval is reduced back to 3 seconds (configured by the `config_wifiPollRssiIntervalMilliseconds` overlay) when the device is non-stationary **or** RSSI is below -73 dBm (configured by the `config_wifiClientRssiMonitorThresholdDbm` overlay).

Id. Therefore, a third predefined threshold (-73dBm) can be established with a second time window (6 seconds) to determine a network switch. The Wi-Fi service calculates a connected score based on the RSSI and link-layer stats. *Id*. at 4. The Wi-Fi service passes the score to the connectivity service (second communication module) to determine whether to switch the network by activating a mobile network from sleep to active mode. *Id*. at 4-5.

197. Pursuant to 35 U.S.C. §§ 283, 284, and 285, Vasu is entitled to injunctive relief, damages, and attorney's fees and costs.

198. Defendants were aware of their direct infringement of the '281 Patent no later than January 12, 2024, when Vasu sent Defendants a letter notifying them of their infringement

of the '281 Patent, and any continued infringement was done willfully, knowingly or being willfully blind to its infringement. Exhibit 8.

COUNT X
(Indirect Infringement of the '281 Patent)

199. Vasu repeats, realleges, and incorporates by reference, as if fully set forth herein, the allegations of the preceding paragraphs.

200. As set forth with respect to Count IX, Defendants' customers directly infringe the '281 Patent when they use or assemble the Accused Galaxy Products. In addition to directly infringing the '281 Patent, as discussed above, Defendants have induced and contributed to their customers' direct infringement of the '281 Patent under 35 U.S.C. § 271(b) by instructing, encouraging, directing, and requiring third parties to make, install, and use the Accused Galaxy Products as systems infringing at least exemplary Claim 1.

201. Defendants know about the '281 Patent and that the Accused Galaxy Products infringe the '281 Patent, at least from their receipt of Vasu's notice letter on January 15, 2024. Exhibit 9.

202. Defendants knowingly and actively aided and abetted the direct infringement of the '281 Patent. As discussed above, the Accused Galaxy Products infringe the '281 Patent through the provision of Intelligent/Adaptive Wi-Fi, Smart Network Switch, Auto Network Switch, or "Switch to Mobile Data." Defendants instruct and encourage their customers on how to use each of these core features of the Accused Galaxy Products, including through direct communication, training materials, reference materials, user guides, promotional materials, support contracts, release notes, webinars, guidelines, video, manuals, and white papers, which are all intended to enable and encourage the infringing use and installation of the Accused Galaxy Products.

203. For example, Defendants operate an online "Official Samsung Support" with manuals, drivers, and software covering the use of the Accused Galaxy Products in an infringing manner (as described above). Exhibit 38 at 1.

204. Defendants support customers' use and configuration of the Accused Galaxy Products through a dedicated support center. "Product Support" offers search functionality in its knowledge base to cover, for example, in-depth the installation and configuration of the Accused Galaxy Products, Q&A, and exchange of ideas regarding the Accused Galaxy Products for individual product models. Exhibit 26 at 1. Moreover, Defendants' "Get Support" site provides interactive guides for the diagnosis of a specific product model to avoid product service interruptions. Exhibit 39 at 1.

205. Defendants also published numerous video tutorials on the Samsung Care YouTube Channel that offer setup tips, product feature highlights, and troubleshooting for operating and configuring the Accused Galaxy Products in the infringing manner described above. *See*, *e.g.*, Exhibit 40 at 1.

206. Similarly, Defendants publish online simulators for the Accused Galaxy Products to walk through the hardware and software features step by step in the infringing matter described above. Exhibit 41 at 1.

207. Defendants are also liable for contributory infringement of the Accused Galaxy Products pursuant to 35 U.S.C. § 271(c) by knowing or being willfully blind to the fact that they are contributing to infringement of at least exemplary Claim 1 by offering to sell and selling the Accused Galaxy Products in the United States. To the extent Claim 1 of the Accused Galaxy Products requires an end-user device as an element of the system to connect to the controller

device that Defendants provide, the controller device is, at a minimum, a material component of the system that infringes Claim 1 of the '281 Patent.

208. The Accused Galaxy Products are not staple articles or commodities of commerce suitable for substantial noninfringing use. The function of the Accused Galaxy Products is to provide the controller device to transmit content streams to the end-user device, which infringes when it operates, and it has no purpose without transmitting content to the end-user device. In particular, at least by their receipt of Vasu's notice letter, Defendants know that their Galaxy products are particularly suited to be used in a manner that infringes the '281 Patent, as discussed above. Defendants, therefore, know or are willfully blind to the fact that they are contributing to the infringement of one or more claims of the '281 Patent, including Claim 1.

209. Defendants' indirect infringement of the '281 Patent has injured and continues to injure Vasu in an amount to be proven at trial, but not less than a reasonable royalty.

210. Pursuant to 35 U.S.C. §§ 283, 284, and 285, Vasu is entitled to injunctive relief, damages, and attorney's fees and costs.

COUNT XI
(Direct Infringement of the '996 Patent)

211. Vasu repeats, realleges, and incorporates by reference, as if fully set forth herein, the allegations of the preceding paragraphs, as set forth above.

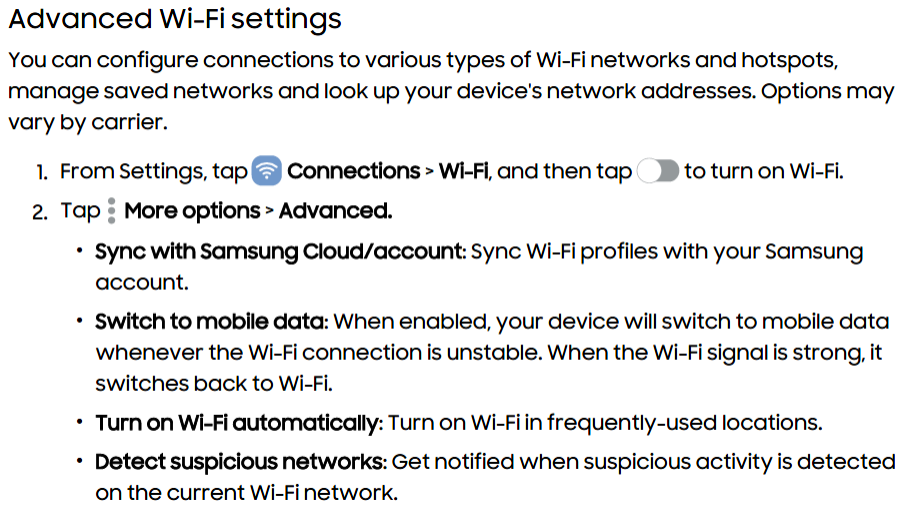
212. Defendants have infringed and continue to infringe the '996 Patent, including at least exemplary Claim 1, in violation of 35 U.S.C. § 271(a) by, among other things, making, using, importing, selling, and offering for sale in the United States infringing products including each of the Accused Galaxy Products.

213. Defendants' infringement is based upon literal infringement or infringement under the doctrine of equivalents, or both.

214. Defendants' acts of making, using, importing, selling, and/or offering for sale infringing products and services have been without the permission, consent, authorization, or license of Vasu.

215. Claim 1 of the '996 Patent recites a device that includes a switching system to automatically switch operation between a first communication module and the second communication module if the second communication module relating to a known or new network has more preferable context. The switching system causes the second communication module to change state from sleep mode to standby mode upon activation of a timer and further changes the second communication mode from standby mode to active mode before switching the communication to the second communication module.

216. The Accused Galaxy Products are communication devices that have Intelligent Wi-Fi or Switch to Mobile features for seamless roaming between mobile and Wi-Fi or Wi-Fi and Wi-Fi networks.

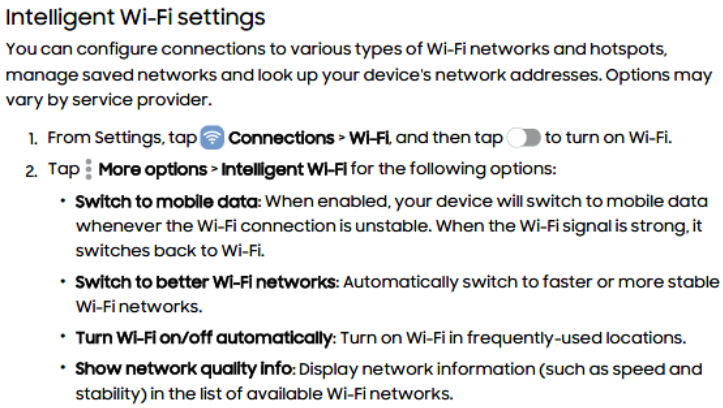


Advanced Wi-Fi settings

You can configure connections to various types of Wi-Fi networks and hotspots, manage saved networks and look up your device's network addresses. Options may vary by carrier.

1. From Settings, tap **Connections** > **Wi-Fi**, and then tap to turn on Wi-Fi.
2. Tap **More options** > **Advanced.**
   - **Sync with Samsung Cloud/account**: Sync Wi-Fi profiles with your Samsung account.
   - **Switch to mobile data**: When enabled, your device will switch to mobile data whenever the Wi-Fi connection is unstable. When the Wi-Fi signal is strong, it switches back to Wi-Fi.
   - **Turn on Wi-Fi automatically**: Turn on Wi-Fi in frequently-used locations.
   - **Detect suspicious networks**: Get notified when suspicious activity is detected on the current Wi-Fi network.

Exhibit 27 (A13 User Manual) at 92.



Intelligent Wi-Fi settings

You can configure connections to various types of Wi-Fi networks and hotspots, manage saved networks and look up your device's network addresses. Options may vary by service provider.

1. From Settings, tap **Connections** > **Wi-Fi**, and then tap to turn on Wi-Fi.
2. Tap **More options** > **Intelligent Wi-Fi** for the following options:
   - **Switch to mobile data**: When enabled, your device will switch to mobile data whenever the Wi-Fi connection is unstable. When the Wi-Fi signal is strong, it switches back to Wi-Fi.
   - **Switch to better Wi-Fi networks**: Automatically switch to faster or more stable Wi-Fi networks.
   - **Turn Wi-Fi on/off automatically**: Turn on Wi-Fi in frequently-used locations.
   - **Show network quality info**: Display network information (such as speed and stability) in the list of available Wi-Fi networks.

Exhibit 16 (S20 FE 5G User Manual) at 104.

217. The Accused Galaxy Products include a switching system between Wi-Fi service (first communication module) and connectivity service (second communication module) via intelligent/adaptive Wi-Fi and "Switch to Mobile Data." The Intelligent/Adaptive Wi-Fi detects a Wi-Fi network and automatically turns Wi-Fi capabilities on without having to adjust the Wi-Fi settings. Intelligent Wi-Fi is the new brand name of Adaptive Wi-Fi. Exhibit 29 at 2. The Automatic network switching feature, "Switch to Mobile Data," quickly switches from Wi-Fi to a mobile data network when a gray area is countered. *Id*. at 2. These gray areas are detected through "sensors and artificial intelligence" in elevators when a sudden loss of connection occurs or Wi-Fi is not stable on moving vehicles. *Id*.

218. Moreover, Smart Network Switch will connect the Accused Galaxy Products automatically to the mobile network if the Wi-Fi network connection is unstable.

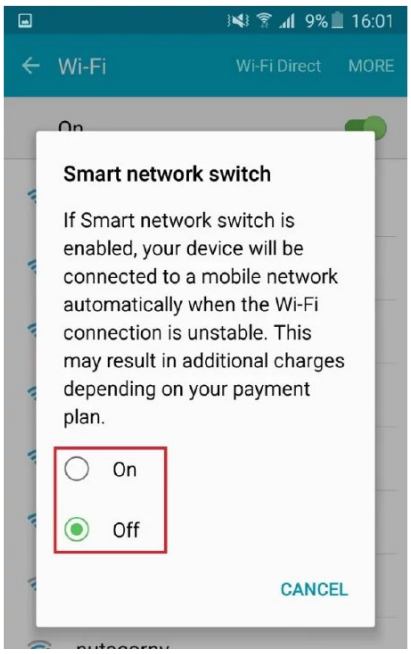
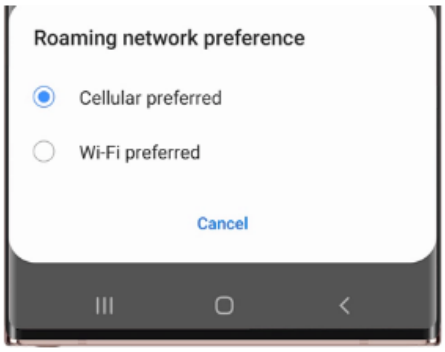


Exhibit 42 at 7.

219. The Accused Galaxy Products monitor its Wi-Fi link condition for roaming. With the support of Basic Service Set Translon Management, an access point can request the Galaxy devices to roam to another access point with better network conditions. Exhibit 34 at 8. The switch is based on network quality, user preference and network usage patterns. Exhibit 29 at 3.

Id.

220. Wi-Fi calling enables communications between the mobile communication device and an end destination device when there are no cellular signals. The Wi-Fi calling feature allows users to prefer either mobile or Wi-Fi networks for the call when roaming. Exhibit 32 at 3.

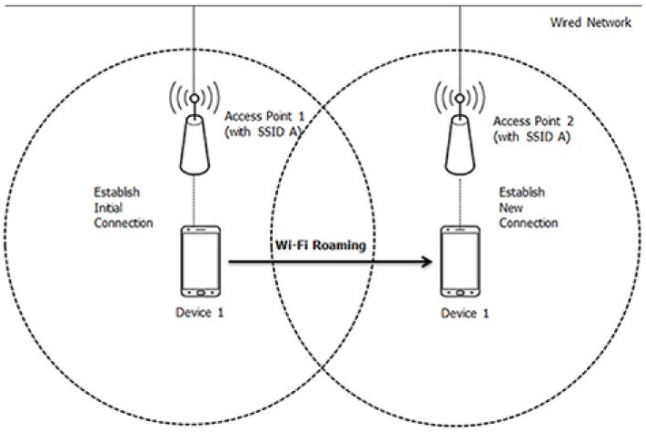


Id. at 3. If mobile is preferred, Wi-Fi will only be used when cellular is unavailable. *Id*.

221. The Accused Galaxy Products select preferred networks from existing Wi-Fi configurations or create new configurations for candidate networks, but will remove the networks if RSSI is below a certain threshold. Exhibit 33 at 3.

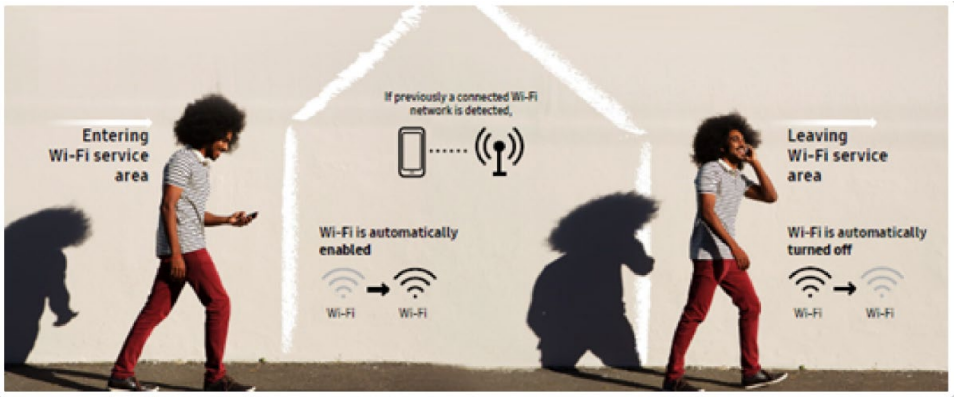
222. Once connected, the Wi-Fi service calculates "a connected score" based on the RSSI and determines whether to connect to a Wi-Fi network or another network type, such as a mobile network. *Id*. at 3-4. When the device is connected, a connected score periodically monitors Wi-Fi quality by looking at signals, such as RSSI and the number of packets transferred. *Id*. at 6. If the connected Wi-Fi network's signal is not sufficient, the Accused Galaxy Products scan for additional networks by calling network nominators. *Id*. at 2. The scan results are filtered to remove discovered networks by BSSIs that have an RSSI below an entry threshold. *Id*. at 3. The discovered networks are also filtered for connection failure or frequent disconnects. *Id*. If the communication device is rapidly moving, the discovered network might be filtered if its RSSI varies rapidly. *Id*.

223. Roaming is triggered when the Accused Galaxy Products receive a weak signal (RSSI value is below a first threshold), a packet is considered lost after a set time window, or multiple devices are connected to the same access point. Exhibit 34 at 2.



Id. If a device is rapidly moving, the Wi-Fi network scan results are "filtered to remove BSSIDs whose RSSI varies rapidly," indicating they are not moving with the devices. Exhibit 33 at 3. A winning candidate network is decided based on user connect choice and the candidate scorer. *Id*. at 3. The device is associated with the winning candidate if it does not match the current network. *Id*. at 3-4.

224. The Accused Galaxy Products also include a geofencing feature to enable location-based service to turn on or off Wi-Fi (sleep to active mode). Exhibit 36 at 4. When a favorite network is not available after leaving the area, the Wi-Fi is turned off.



Id.

225. The Wi-Fi service (first communication module) polls RSSI and link-layer stats every 3 seconds (the timer). Exhibit 33 at 4. But this polling interval changes dynamically "based on the device mobility state and RSSI" with different predefined time windows. *Id*. at 4.

- The polling interval is extended to 6 seconds (configured by the `config_wifiPollRssiLongIntervalMilliseconds` overlay) when the device is stationary **and** RSSI is above -68 dBm (configured by the `config_wifiClientRssiMonitorThresholdDbm` and `config_wifiClientRssiMonitorHysteresisDb` overlays).
- The polling interval is reduced back to 3 seconds (configured by the `config_wifiPollRssiIntervalMilliseconds` overlay) when the device is non-stationary **or** RSSI is below -73 dBm (configured by the `config_wifiClientRssiMonitorThresholdDbm` overlay).

Id. The Wi-Fi service calculates a connected score based on the RSSI and link-layer stats. *Id*. at 4. The Wi-Fi service passes the score to the connectivity service (second communication module) to determine whether to switch the network by changing the connectivity service to standby mode based on the timer or active mode depending on the predefined stats threshold. *Id*. at 4-5.

226. Pursuant to 35 U.S.C. §§ 283, 284, and 285, Vasu is entitled to injunctive relief, damages, and attorney's fees and costs.

227. Defendants were aware of their direct infringement of the '996 Patent no later than January 12, 2024, when Vasu sent Defendants a letter notifying them of their infringement of the '996 Patent, and any continued infringement was done willfully, knowingly or being willfully blind to its infringement. Exhibit 8.

COUNT XII
(Indirect Infringement of the '996 Patent)

228. Vasu repeats, realleges, and incorporates by reference, as if fully set forth herein, the allegations of the preceding paragraphs.

229. As set forth with respect to Count XI, Defendants' customers directly infringe the '996 Patent when they use or assemble the Accused Galaxy Products. In addition to directly infringing the '996 Patent, as discussed above, Defendants have induced and contributed to their customers' direct infringement of the '996 Patent under 35 U.S.C. § 271(b) by instructing, encouraging, directing, and requiring third parties to make, install, and use the Accused Galaxy Products as systems infringing at least exemplary Claim 1.

230. Defendants know about the '996 Patent and that the Accused Galaxy Products infringe the '996 Patent, at least from their receipt of Vasu's notice letter.

231. Defendants knowingly and actively aided and abetted the direct infringement of the '996 Patent. As discussed above, the Accused Galaxy Products infringe the '996 Patent through the provision of Intelligent/Adaptive Wi-Fi, Smart Network Switch, Auto Network Switch, or "Switch to Mobile Data." Defendants instruct and encourage their customers on how to use each of these core features of the Accused Galaxy Products, including through direct communication, training materials, reference materials, user guides, promotional materials, support contracts, release notes, webinars, guidelines, video, manuals, and white papers, which are all intended to enable and encourage the infringing use and installation of the Accused Galaxy Products.

232. For example, Defendants operate an online "Official Samsung Support" with manuals, drivers, and software covering the use of the Accused Galaxy Products in an infringing manner (as described above). Exhibit 38 at 1.

233. Defendants support customers' use and configuration of the Accused Galaxy Products through a dedicated support center. "Product Support" offers search functionality in its knowledge base to cover, for example, in-depth the installation and configuration of the Accused

Galaxy Products, Q&A, and exchange of ideas regarding the Accused Galaxy Products for individual product models. Exhibit 26 at 1. Moreover, Defendants' "Get Support" site provides interactive guides for the diagnosis of a specific product model to avoid product service interruptions. Exhibit 39 at 1.

234. Defendants also published numerous video tutorials on the Samsung Care YouTube Channel that offer setup tips, product feature highlights, and troubleshooting for operating and configuring the Accused Galaxy Products in the infringing manner described above. *See*, *e.g.*, Exhibit 40 at 1.

235. Similarly, Defendants publish online simulators for the Accused Galaxy Products to walk through the hardware and software features step by step in the infringing matter described above. Exhibit 41 at 1.

236. Defendants are also liable for contributory infringement of the Accused Galaxy Products pursuant to 35 U.S.C. § 271(c) by knowing or being willfully blind to the fact that they are contributing to infringement of at least exemplary Claim 1 by offering to sell and selling the Accused Galaxy Products in the United States. To the extent Claim 1 of the Accused Galaxy Products requires an end-user device as an element of the system to connect to the controller device that Defendants provide, the controller device is, at a minimum, a material component of the system that infringes Claim 1 of the '996 Patent.

237. The Accused Galaxy Products are not staple articles or commodities of commerce suitable for substantial noninfringing use. The function of the Accused Galaxy Products is to provide the controller device to transmit content streams to the end-user device, which infringes when it operates, and it has no purpose without transmitting content to the end-user device. In particular, at least by their receipt of Vasu's notice letter, Defendants know that their Galaxy

products are particularly suited to be used in a manner that infringes the '996 Patent, as discussed above. Defendants, therefore, know or are willfully blind to the fact that they are contributing to the infringement of one or more claims of the '996 Patent, including Claim 1.

238. Defendants' indirect infringement of the '996 Patent has injured and continues to injure Vasu in an amount to be proven at trial, but not less than a reasonable royalty.

239. Pursuant to 35 U.S.C. §§ 283, 284, and 285, Vasu is entitled to injunctive relief, damages, and attorney's fees and costs.

PRAYER FOR RELIEF

WHEREFORE, Vasu prays for judgment and relief as follows:

A. An entry of judgment holding that Defendants have infringed and are infringing the '605, '181, '434, '154, '281, and '996 Patents; and have induced infringement and are inducing infringement of the '605, '181, '434, '154, '281, and '996 Patents; and/or has contributorily infringed and continues to contribute to infringement of the '605, '181, '434, '154, '281, and '996 Patents;

B. An award to Vasu of such damages as it shall prove at trial against Defendants that is adequate to fully compensate Vasu for Defendants' infringement of the '605, '181, '434, '154, '281, and '996 Patents, said damages to be no less than a reasonable royalty;

C. A finding that this case is "exceptional" and an award to Vasu of its costs and reasonable attorneys' fees, as provided by 35 U.S.C. § 285;

D. An accounting of all infringing sales and revenues, together with post-judgment interest and prejudgment interest from the first date of infringement of the '605, '181, '434, '154, '281, and '996 Patents; and

E. Such further and other relief as the Court may deem proper and just.

Respectfully submitted,

Dated: January 22, 2024

*/s/ Elizabeth L. DeRieux*___
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