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

STINGRAY IP SOLUTIONS, LLC,	§	
	§	
Plaintiff,	§	
	§	
v.	§	**JURY TRIAL DEMANDED**
	§	
SAMSUNG ELECTRONICS CO., LTD., and SAMSUNG ELECTRONICS AMERICA, INC.,	§	**CIVIL ACTION NO. 2:21-cv-25**
	§	
	§	
Defendants.	§	
	§	

PLAINTIFF'S ORIGINAL COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff Stingray IP Solutions, LLC ("Stingray") files this Complaint against Defendants Samsung Electronics Co., Ltd. ("SEC") and Samsung Electronics America, Inc. ("SEA") (collectively, "Samsung" or "Defendants") for infringement of U.S. Patent No. 6,958,986 (the "'986 patent"), U.S. Patent No. 6,961,310 (the "'310 patent"), U.S. Patent No. 6,980,537 (the "'537 patent"), and U.S. Patent No. 7,027,426 (the "'426 patent").

THE PARTIES

1. Stingray IP Solutions, LLC ("Stingray" or "Plaintiff") is a Texas limited liability company, located at 6136 Frisco Sq. Blvd., Suite 400, Frisco, TX 75034.

2. On information and belief, Defendant Samsung Electronics Co., Ltd. ("SEC") is a multi-national corporation organized under the laws of the Republic of Korea, with its principal place of business located at 129 Samsung-Ro, Yeongtong-Gu, Suwon, Gyeonggi-do, South Korea. SEC may be served with process at its principal place of business at 129 Samsung-Ro, Yeongtong-

Gu, Suwon, Gyeonggi-do, South Korea. SEC was established as "Samsung Electronics Industry Co., Ltd." in 1969. SEC changed its name to Samsung Electronics Co., Ltd. in 1984.

3. SEC is a "global electronics firm comprised of the headquarters in Korea and 240 subsidiaries." *See 2019 Business Report*, Samsung Electronics Co., Ltd., at p. 4/261, https://images.samsung.com/is/content/samsung/p5/global/ir/docs/2019_Business_Report.pdf. SEC's business consists of the following four divisions: CE (Consumer Electronics); IM (Information Technology & Mobile Communications); DS (Device Solutions); and Harman (Harman International Industries, Inc., and its subsidiaries). *Id*. The CE division produces "TVs, monitors, refrigerators, washing machines, air conditioners, etc." *Id*. The IM division produces "HHPs, network systems, computers, etc." The DS division produces "DRAM, NAND flash, mobile APs, OLED smartphone panels, LCD TV panels, etc." *Id*. The Harman division produces "[h]ead units, infotainment systems, telematics, speakers, etc." *Id*.

4. On information and belief, SEC purchased the startup company SmartThings, Inc. ("STI") in 2014. At the time, STI was cited as "a poster child for a movement to bring intelligence to all manner of everyday devices." Clark, Don. *Samsung reaches Deal to Buy Startup SmartThings*, THE WALL STREET JOURNAL (14 August 2014) https://www.wsj.com/articles/samsung-reaches-deal-to-buy-startup-smartthings-1408062020. The purchase price for STI was estimated at $200 million. *Id*. SmartThings is "an open platform for smart home devices." *Samsung snaps up SmartThings, embracing Internet of Things*, CNET (14 August 2014) https://www.cnet.com/news/samsung-snaps-up-smartthings-embracing-internet-of-things/. The idea behind the acquisition of STI was to "pair Samsung's resources with SmartThings' platform so that the two can boost innovation in the Internet of Things." *Id*. SEC lists STI as a wholly-owned subsidiary and engages in the "sale of smart home electronics,"

operating in SEC's IM division. *See 2019 Business Report*, at 78/261. STI is located at 665 Clyde Ave, Mountain View, CA 94043, United States, where it operates on behalf of SEC (and SEC's subsidiaries), to provide "website(s), products, services, mobile applications, IoT plug-ins and other software," including the SmartThings application, which is a smartphone app used to integrate SmartThings devices. *See Welcome to SmartThings!*, SMARTTHINGS, https://www.smartthings.com/terms (terms of use page). Other products created by SEC and its subsidiaries, such as smart TVs, smartphones, and other products, are configured to interact with and control SmartThings products via the SmartThings app. *See Smart Home*, SAMSUNG, https://www.samsung.com/us/televisions-home-theater/tvs/smart-tv/smart-home-with-iot-devices/; *Galaxy S20 5G and Smart Washer Bundle*, SAMSUNG, https://www.samsung.com/us/connected-living/washer-mobile-bundle/ ("Syncing is simple with the SmartThings app, which enables your Samsung phone and smart washer to work together, giving you more control of your laundry.").

5. Regarding SEC's IM division, SEC touts that it "will lead growth of the smartphone market and deliver exceptional user experiences by… investing in future growth drivers such as Cloud, IoT, healthcare, AR, and VR." *See 2019 Business Report* at 5/261. To that end, SEC manufactures, imports, distributes, offers for sale, and sells Cloud and IoT wireless communication network devices in the U.S. generally referred to as "SmartThings" devices, which can "[t]urn your home into a smart home." *See SmartThings*, SAMSUNG, https://www.samsung.com/us/smart-home/. SEC's SmartThings are designed to "manage Wi-Fi signal usage [and] monitor and control automated devices." *Id*. One device, the "SmartThings Hub," is "[t]he brain of your smart home" which can "[c]onnect with a wide range of smart devices and make them work together." Some of

these smart devices, i.e., wireless communication network devices, operating in a SmartThings network are illustrated below in relation to the SmartThings Hub:

Id.

6. Moreover, "SmartThings works with 100s of compatible devices," manufactured by third parties, "including lights, cameras, voice assistants, locks, thermostats, and more." *Id*. To connect, communicate, and control wireless communication network devices, the SmartThings network utilizes communication protocols including those based off of the IEEE 802.15.4 standard, such as the ZigBee® protocol. *See, e.g., SmartThings Hub*, SAMSUNG, https://www.samsung.com/us/smart-home/smartthings/hubs/samsung-smartthings-hub--2018--gp-u999sjvlgda/#benefits (listing as "Communication Features" the protocols ZigBee, WiFi, and Z-Wave). Consumers may integrate, use, and control SmartThings devices via the SmartThings app, which available for download at least on iOS and Android operating systems. Upon

information and belief, SEC, STI, and other SEA subsidiaries develop, design, manufacture, import, distribute, advertise, offer for sale, sell, and use SEC's SmartThings products and related services in the U.S. market, including in Texas and this judicial district.

7. In 2017, SEA acquired full ownership of Harman International Industries, Inc. ("Harman"). *See 2019 Business Report*, at 19/261. Harman, along with its subsidiaries operating in the division, focus on connected technologies for automotive, consumer and enterprise markets. In 2018, Harman entered an "engineering partnership with Samsung SmartThings, the industry leader for consumer IoT technology and the easiest way for people to turn a traditional home into a smart home with sensors, smart devices and a native mobile application." *See HARMAN Announces Strategic Association with Samsung SmartThings*, HARMAN: A SAMSUNG COMPANY, https://news.harman.com/releases/releases-20180313. The Harman division of SEC's business "designs and develops connected products and solutions for automakers, consumers, and companies worldwide and is a global leader in the market for connected car systems, audio and visual products, professional solutions, and connected services." *See 2019 Business Report*, at 5/261. Such products include "connected car systems, audio and visual products, enterprise automation solutions; and services supporting the Internet of Things," including Harman Amplify products. *See HARMAN Announces Strategic Association with Samsung SmartThings*, HARMAN: A SAMSUNG COMPANY, https://news.harman.com/releases/releases-20180313. For example, SEC provides the Harman Amplify product and service which "offer[s] a unique convergence of LTE Small Cell, Digital Voice Assistant, and IoT" that "provides integrated personal voice assistant and control of Smart Home Devices using Amazon Alexa eco-system." *See Harman Amplify*, HARMAN: A SAMSUNG COMPANY, https://services.harman.com/products-and-solutions/internet-of-things/harman-

amplify#:~:text=HARMAN%20Amplify%20offer%20a%20unique,using%20Amazon%20Alexa%20eco%2Dsystem.

8. On information and belief, SEC maintains a corporate presence in the United States, including in this judicial district, via at least its wholly-owned U.S.-based subsidiary and Defendant in this action Samsung Electronics America, Inc. ("SEA"). SEA is a corporation organized under the laws of the State of New York. SEC classifies SEA as a "major subsidiary." *See 2019 Business Report* at 7/261. SEA was established in 1978 and its "[m]ajor business" is listed as "[e]lectronics goods sales." *Id*. In 2018, SEA opened its "Flagship North Texas Campus" in this judicial district at 6625 Excellence Way, Plano, Texas 75023, and occupancy began in 2019. *See Samsung Electronics America to Open Flagship North Texas Campus*, SAMSUNG NEWSROOM U.S. (April 6, 2018), https://news.samsung.com/us/samsung-electronics-america-open-flagship-north-texas-campus/. This location consolidated "more than 1,000 regional employees" from prior locations in Richardson and Plano, Texas. Now, this location is "home to Samsung Electronics America's second biggest employee population in the U.S. across multiple divisions." On information and belief, SEA oversees domestic sales and distribution of certain Samsung-branded electronics in the United States, including the Samsung's SmartThings devices accused of infringement in this case. *Id*. Thus, SEA does business in the U.S., the state of Texas, and in the Eastern District of Texas, and may be served with process through its agent, CT Corporation System, 1999 Bryan Street, Suite 900, Dallas, Texas 75201.

9. Through offers to sell, sales, imports, distributions, and other related agreements to transfer ownership of SEC's SmartThings devices with distributors and customers operating in and maintaining a significant business presence in the U.S. and/or its U.S. subsidiaries, including via Defendant SEA and STI, SEC does business in the U.S., the state of Texas, and in the Eastern

District of Texas. SEC may be served with process via its agents in the U.S., including via Defendant SEA and STI, and/or at its principal place of business at 129 Samsung-Ro, Yeongtong-Gu, Suwon, Gyeonggi-do, South Korea.

JURISDICTION AND VENUE

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

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

12. On information and belief, SEC is subject to this Court's specific and general personal jurisdiction pursuant to due process and/or the Texas Long Arm Statute, due at least to its substantial business in this State and judicial district, including: (A) at least part of its infringing activities alleged herein which purposefully avail the Defendant of the privilege of conducting those activities in this state and this judicial district and, thus, submits itself to the jurisdiction of this court; and; and (B) regularly doing or soliciting business, engaging in other persistent conduct targeting residents of Texas and this judicial district, and/or deriving substantial revenue from infringing goods offered for sale, sold, and imported and services provided to and targeting Texas residents and residents of this judicial district vicariously through and/or in concert with its alter egos, intermediaries, agents, distributors, importers, customers, subsidiaries, and/or consumers. For example, SEC owns and/or controls multiple subsidiaries and affiliates that have a significant business presence in the U.S. and in Texas. *See Samsung in America*, SAMSUNG NEWSROOM U.S., https://news.samsung.com/us/in-america/ (scroll down to map titled "Samsung's Footprint in the United States"). Such a presence furthers the development, design, manufacture, importation, distribution, and sale of SEC's infringing electronic devices in Texas, including in this judicial

district. For example, SEC's wholly-owned, U.S-based subsidiary SEA has its "Flagship North Texas Campus" in Plano, Texas which employs more than one thousand employees working "across multiple divisions." Furthermore, SEC's subsidiary Samsung Austin Semiconductor has a production facility in Austin, Texas that employs "thousands." *See History*, SAMSUNG AUSTIN SEMICONDUCTOR, https://www.samsung.com/us/sas/company/history (last visited Jan. 5, 2021). In its Austin location, SEC manufactures computer chips that "power Samsung's mobile phones, tablets and other electronic devices." *Id*. Through direction and control of its subsidiary, SEC has committed acts of direct and/or indirect patent infringement within Texas, and elsewhere in the United States, giving rise to this action and/or has established minimum contacts with Texas such that personal jurisdiction over SEC would not offend traditional notions of fair play and substantial justice.

13. Upon information and belief, SEC controls or otherwise directs and authorizes all activities of its subsidiaries, including, but not limited to Defendant SEA and Samsung Austin Semiconductor, which, significantly, both have substantial business operations in Texas. Directly and via at least these subsidiaries and via intermediaries, such as distributors and customers, SEC has placed and continues to place infringing electronic devices, including SEC's SmartThings devices, into the U.S. stream of commerce. SEC has placed such products into the stream of commerce with the knowledge and understanding that such products are, will be, and continue to be sold, offered for sale, and/or imported into this judicial district and the State of Texas. *See Litecubes, LLC v. Northern Light Products, Inc.*, 523 F.3d 1353, 1369-70 (Fed. Cir. 2008) ("[T]he sale [for purposes of § 271] occurred at the location of the buyer."); *see also Semcon IP Inc. v. Kyocera Corporation*, No. 2:18-cv-00197-JRG, 2019 WL 1979930, at *3 (E.D. Tex. May 3, 2019) (denying accused infringer's motion to dismiss because plaintiff sufficiently plead that purchases

of infringing products outside of the United States for importation into and sales to end users in the U.S. may constitute an offer to sell under § 271(a)).

14. SEC utilizes established distribution channels to distribute, market, offer for sale, sell, service, and warrant infringing products directly to consumers, including offering such products for sale via its own website. *See, e.g., Samsung SmartThings Wifi 1-pack*, SAMSUNG, https://www.samsung.com/us/smart-home/smartthings-wifi/single/samsung-smartthings-wifi-1-pack-et-wv525bwegus/. Moreover, SEC utilizes its subsidiaries and intermediaries, such as Defendant SEA and Samsung Austin Semiconductor, to design, develop, import, distribute, and service infringing products, such as SmartThings Hubs, Smart Bulbs, Electrical Outlets, Smart Buttons. Such SEC products have been sold in retail stores, both brick and mortar and online, within this judicial district and in Texas. *See., e.g., Buy Direct from Samsung*, SAMSUNG, https://www.samsung.com/us/smart-home/smartthings/hubs/samsung-smartthings-hub--2018--gp-u999sjvlgda-buy/ (providing a link to a purchase a SmartThings Hub at BestBuy location at 3333 Preston Rd Frisco, TX 75034, i.e., in this judicial district).

15. Upon information and belief, SEC purposefully places infringing Internet-of-Things ("IoT") and smart home devices in established distribution channels in the stream of commerce by contracting with national retailers who sell SEC's products in the U.S., including in Texas and this judicial district. SEC contracts with these companies with the knowledge and expectation that SEC's SmartThings electronic devices will be imported, distributed, advertised, offered for sale, and sold in the U.S. market. For example, at least BestBuy, Amazon.com, Dell.com offer for sale and sell SEC SmartThings electronic devices, in and specifically for the U.S. market, via their own websites or retail stores located in and selling their products to consumers in Texas and this judicial district. *See, e.g., Samsung SmartThings Wifi ET-WV525 - central controller*, DELL,

https://www.dell.com/en-us/shop/samsung-smartthings-wifi-et-wv525-central-controller/apd/aa288487/networking (offering SEC's SmartThings product for sale and indicating "Product not supported outside U.S."). SEC also provides its application software, the "SmartThings App," for download and use in conjunction with and as a part of the SmartThings electronic devices. The SmartThings App is available via digital distribution platforms by Apple Inc. and Google. *See, e.g.*, *SmartThings*, GOOGLE PLAY, https://play.google.com/store/apps/details?id=com.samsung.android.oneconnect (offering the application for download and indicating that the application is offered by "Samsung Electronics Co., Ltd.").

16. Based on SEC's connections and relationship with its U.S.-based national retailers and digital distribution platforms, SEC knows that Texas is a termination point of the established distribution channel, namely online and brick and mortar stores offering SEC SmartThings products and software to consumers in Texas. SEC, therefore, has purposefully directed its activities at Texas, and should reasonably anticipate being brought in this Court, at least on this basis. *See Icon Health & Fitness, Inc. v. Horizon Fitness, Inc.*, 2009 WL 1025467, at (E.D. Tex. 2009) (finding that "[a]s a result of contracting to manufacture products for sale in" national retailers' stores, the defendant "could have expected that it could be brought into court in the states where [the national retailers] are located").

17. In the alternative, this Court has personal jurisdiction over SEC under Federal Rule of Civil Procedure 4(k)(2), because the claims for patent infringement in this action arise under federal law, SEC is not subject to the jurisdiction of the courts of general jurisdiction of any state and exercising jurisdiction over SEC is consistent with the U.S. Constitution.

18. Venue is proper in this judicial district pursuant to 28 U.S.C. § 1391. Defendant SEC is a foreign entity and may be sued in any judicial district under 28 U.S.C. § 1391(c).

19. On information and belief, SEA is subject to this Court's specific and general personal jurisdiction pursuant to due process and/or the Texas Long Arm Statute, due at least to its substantial business in this State and judicial district, including: (A) at least part of its infringing activities alleged herein which purposefully avail the Defendant of the privilege of conducting those activities in this state and this judicial district and, thus, submits itself to the jurisdiction of this court; and; and (B) regularly doing or soliciting business, engaging in other persistent conduct targeting residents of Texas and this judicial district, and/or deriving substantial revenue from infringing goods offered for sale, sold, and imported and services provided to and targeting Texas residents and residents of this judicial district vicariously through and/or in concert with its alter egos, intermediaries, agents, distributors, importers, customers, subsidiaries, and/or consumers. For example, SEA has its "Flagship North Texas Campus" in Plano, Texas which employs more than one thousand employees working "across multiple divisions." *See Samsung Electronics America to Open Flagship North Texas Campus*, SAMSUNG NEWSROOM U.S., *supra*. SEA is also registered to do business in Texas. SEA, therefore, has committed acts of direct and/or indirect patent infringement within Texas, and elsewhere in the United States, giving rise to this action and/or has established minimum contacts with Texas such that personal jurisdiction over SEA would not offend traditional notions of fair play and substantial justice.

20. Venue is proper in this judicial district pursuant to 28 U.S.C. §§ 1391(c) and 1400(b). Defendant SEA has committed acts of infringement in this district and has a regular and established place of business in this district at least at 6625 Excellence Way, Plano, Texas 75023. Accordingly, SEA may be sued in this district under 28 U.S.C. § 1400(b).

21. On information and belief, SEC and SEA each have significant ties to, and presence in, the State of Texas and the Eastern District of Texas, making venue in this judicial district both proper and convenient for this action.

THE ASSERTED PATENTS AND TECHNOLOGY

22. The Asserted Patents cover various aspects of communication, routing, and organizing network nodes within wireless communications networks. The methods and apparatuses described in each of the Asserted Patents apply to mobile ad hoc networks—dynamic wireless networks without any routing structure, such as the networks created between Defendants' IoT and smart home devices.

23. The '986 patent involves scheduling time slots for communication links between nodes in a wireless communication network in order to mitigate interference and respond to variations. It discusses using those scheduled time slots and data sent between the nodes to determine metrics and priority levels for establishing additional communication links. The methods claimed in the '986 patent allow for optimized communication within a wireless network.

24. The '310 patent provides methods for routing message data between nodes in a wireless communication network. It discusses sending route requests from a source node to determine possible routes to a destination node via different intermediate nodes within the network. By using various metrics that describe the links between the network nodes, the possible routes can then be ranked and the best route from the source node to the destination node can be determined. The '310 patent describes methods and network structures that provide network routes that are more reliable, timelier, and have less traffic loads than previous solutions.

25. The '537 patent describes methods and apparatuses for forming clusters of nodes within a wireless network to improve routing and communication within the network. Wireless

networks, especially mobile ad hoc networks, operate more efficiently when the route for relaying message data minimizes the number of steps from node to node (or "hops") within the network. The '537 patent discusses analyzing the nodes communicating within a network as well as isolated nodes that are not communicating, changing the connectivity between nodes in the network, and adjusting designations among the nodes in order to produce optimal routing for communication between nodes.

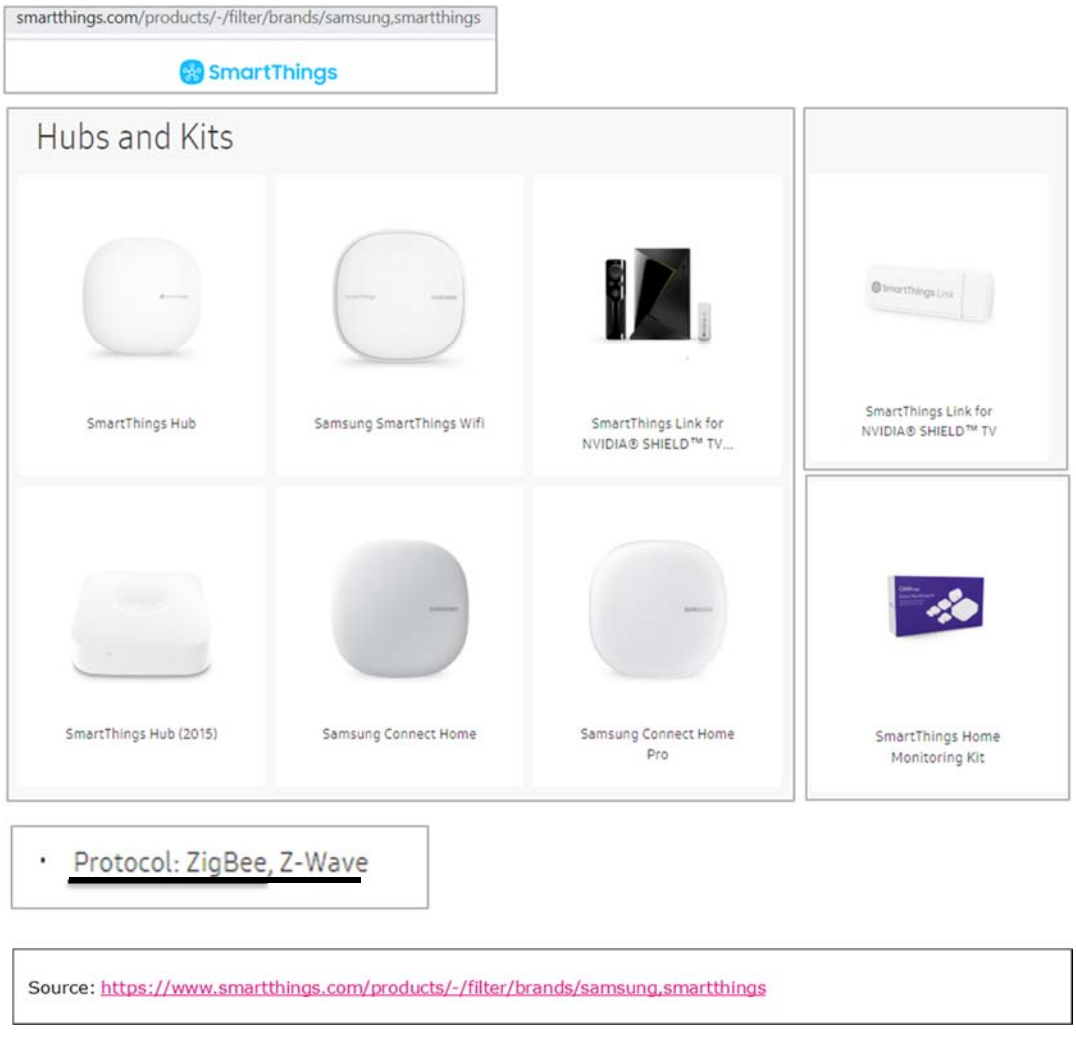
26. The '426 patent describes a wireless communications network with multiple channels as well as methods for utilizing such a network in a way that efficiently makes use of the multiple channels to optimize routing and transmitting data. With multiple channels available, multiple routing requests can be sent and multiple routes can be made available, allowing for an optimal route to be selected.

27. Upon information and belief, a significant portion of the operating revenue of Defendants is derived from the manufacture and sale of IoT and smart home devices. For example, Defendant SEC utilizes its U.S.-based subsidiaries, including Defendant SEA and wholly-owned subsidiary STI, distributors, customers, partners, and retailers to provide IoT and smart home devices to consumers. SEC's worldwide net revenue for the IM division in 2019, from which the Defendants electronic smart devices are developed and sold, was reported at 1,072,662 (KRW 100mil or 107.2662 trillion), which is 46.6% of SEC's total revenue. *See Annual Report*, 41/261. SEA, which operates in the U.S., reported 33,859,423 (in millions of Korean won) in sales. *See Annual Report*, 86/261. SEC states that its sales strategy includes "[e]xpand[ing] market leadership based on premium products such as smart devices." *See Annual Report*, 43/261.

28. Samsung's IoT and smart home devices use ZigBee and Z-Wave protocols to enable communication between Samsung's devices. *See Z-Wave and Zibgee Technologies* (sic),

SAMSUNG, https://www.samsung.com/us/support/troubleshooting/TSG01109869/ (last visited Jan. 7, 2021).

29. The Asserted Patents cover wireless communication methods that are incorporated into ZigBee and Z-Wave protocols and the products that utilize them, such as Samsung's IoT and smart home devices, their components, and processes related to the same (the "Accused Products"). For example, Samsung's SmartThings products and other IoT and smart home products utilize ZigBee and/or Z-Wave protocols. *See, e.g.*, *id*. ("In other words, Z-Wave and Zigbee are the different languages your SmartThings Hub and devices use to talk to one another"). The Accused Products include at least Defendants' SmartThings brand of devices. Examples of SmartThings devices are shown below:



30. ZigBee protocols, which are covered by the Asserted Patents and utilized by certain Accused Products, are based on the IEEE 802.15.4 standard for wireless network communication. Below is an excerpt from the technical specification for ZigBee protocols describing the basic architecture and standards that enable wireless network communication.

1.1 Protocol Description

The ZigBee Alliance has developed a very low-cost, very low-power-consumption, two-way, wireless communications standard. Solutions adopting the ZigBee standard will be embedded in consumer electronics, home and building automation, industrial controls, PC peripherals, medical sensor applications, toys, and games.

1.1.3 Stack Architecture

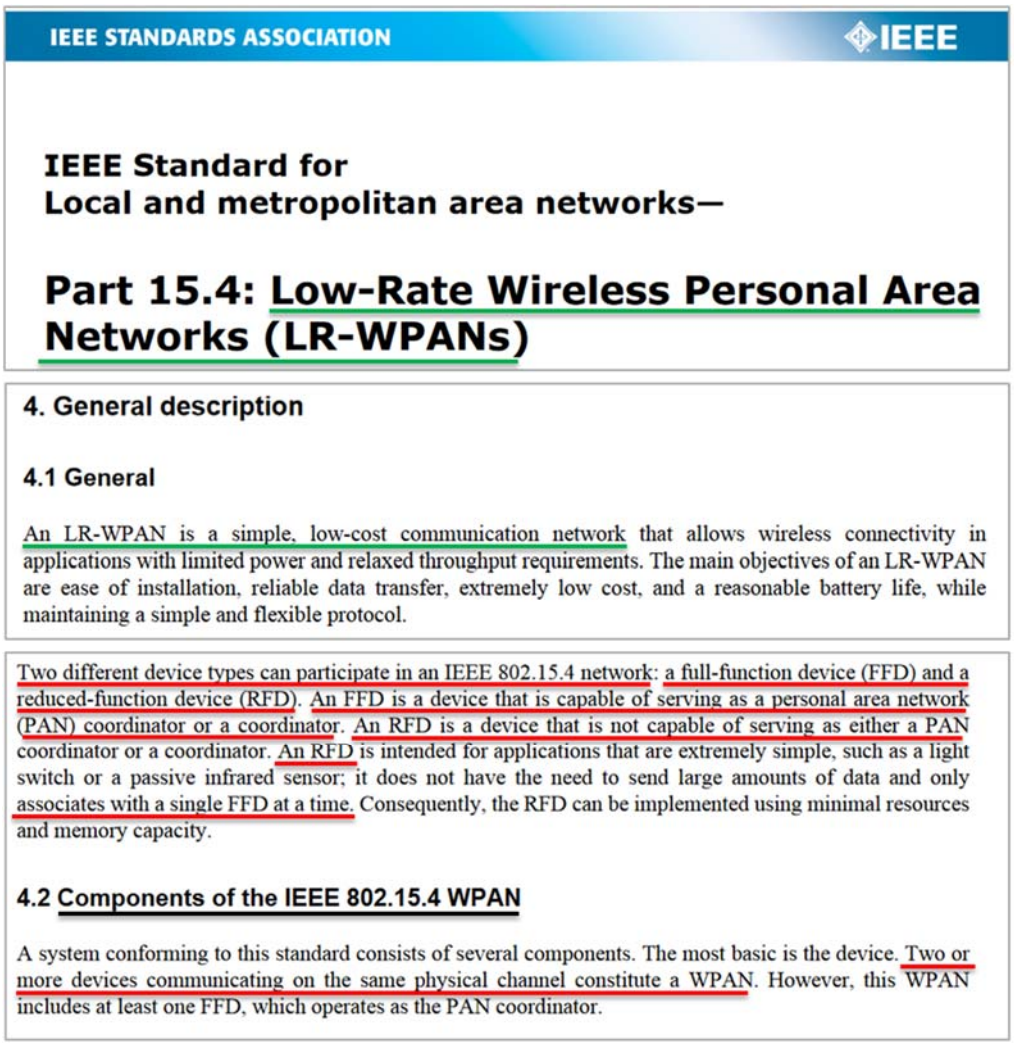
The ZigBee stack architecture is made up of a set of blocks called layers. Each layer performs a specific set of services for the layer above. A data entity provides a data transmission service and a management entity provides all other services. Each service entity exposes an interface to the upper layer through a service access point (SAP), and each SAP supports a number of service primitives to achieve the required functionality.

The IEEE 802.15.4 standard defines the two lower layers: the physical (PHY) layer and the medium access control (MAC) sub-layer. The ZigBee Alliance builds on this foundation by providing the network (NWK) layer and the framework for the application layer. The application layer framework consists of the application support sub-layer (APS) and the ZigBee device objects (ZDO). Manufacturer-defined application objects use the framework and share APS and security services with the ZDO.

The PHY layer operates in two separate frequency ranges: 868/915 MHz and 2.4 GHz. The lower frequency PHY layer covers both the 868 MHz European band and the 915 MHz band, used in countries such as the United States and Australia. The higher frequency PHY layer is used virtually worldwide. A complete description of the PHY layers can be found in [B1].

ZigBee Specification, revision r21 at 1, THE ZIGBEE ALLIANCE, https://zigbeealliance.org/wp-content/uploads/2019/11/docs-05-3474-21-0csg-zigbee-specification.pdf (August 5, 2015).

31. The IEEE 802.15.4 standard based mobile ad-hoc network, utilized by the Accused Products, is a type of Low-Rate Wireless Personal Area Network (LR-WPAN) that allows transmission of data between plurality of network nodes. The types of nodes include an FFD–full-function device (functioning as a network coordinator node) and an RFD–reduced function device (node that associates itself with the FFD).



IEEE STANDARDS ASSOCIATION IEEE

IEEE Standard for
Local and metropolitan area networks—

Part 15.4: Low-Rate Wireless Personal Area Networks (LR-WPANs)

4. General description

4.1 General

An LR-WPAN is a simple, low-cost communication network that allows wireless connectivity in applications with limited power and relaxed throughput requirements. The main objectives of an LR-WPAN are ease of installation, reliable data transfer, extremely low cost, and a reasonable battery life, while maintaining a simple and flexible protocol.

Two different device types can participate in an IEEE 802.15.4 network: a full-function device (FFD) and a reduced-function device (RFD). An FFD is a device that is capable of serving as a personal area network (PAN) coordinator or a coordinator. An RFD is a device that is not capable of serving as either a PAN coordinator or a coordinator. An RFD is intended for applications that are extremely simple, such as a light switch or a passive infrared sensor; it does not have the need to send large amounts of data and only associates with a single FFD at a time. Consequently, the RFD can be implemented using minimal resources and memory capacity.

4.2 Components of the IEEE 802.15.4 WPAN

A system conforming to this standard consists of several components. The most basic is the device. Two or more devices communicating on the same physical channel constitute a WPAN. However, this WPAN includes at least one FFD, which operates as the PAN coordinator.

Page 8, http://ecee.colorado.edu/~liue/teaching/comm_standards/2015S_zigbee/802.15.4-2011.pdf

32. Z-Wave protocol, which is covered by the Asserted Patents and utilized by certain Accused Products, is another wireless network communication protocol. Z-Wave uses source routing to determine communication paths between connected devices in a wireless network. Below is an excerpt from a programming guide describing the network routing principles used in Z-Wave protocol.

> **3.4 Z-Wave Routing Principles**
>
> The Z-Wave protocol use source routing, which is a technique whereby the sender of a frame specifies the exact route the frame must take to reach the destination node. Source routing assumes that the sender knows the topology of the network, and can therefore determine a route having a minimum number of hops. The Z-Wave protocol supports up to four repeaters between sender and destination node. Routing can also be used to reach FLiRS destination nodes. Source routing allows implementation of a leightweight protocol by avoiding distributed topologies in all repeaters. Nodes containing the topology can also assign routes to a topology-less node enabling it to communicate with a number of destination nodes using routes.
>
> In case sender fails to reach destination node using routes an explorer mechanism can be launched on demand to discover a working route to the destination node in question. The explorer mechanism builds

Z-Wave 500 Series Appl. Programmers Guide v.6.81.0x at 5, SILICON LABS, https://www.silabs.com/documents/public/user-guides/INS13954-Instruction-Z-Wave-500-Series-Appl-Programmers-Guide-v6_81_0x.pdf (June 14, 2018).

33. By utilizing ZigBee and/or Z-Wave protocols, the Accused Products perform methods for communication, routing, and organizing network nodes within wireless communications networks that are covered by the Asserted Patents. Each respective Count below describes how the Accused Products infringe on specific claims of the Asserted Patents.

COUNT I

(INFRINGEMENT OF U.S. PATENT NO. 6,958,986)

34. Plaintiff incorporates paragraphs 1 through 33 herein by reference.

35. Plaintiff is the assignee of the ’986 patent, entitled “Wireless Communication System with Enhanced Time Slot Allocation and Interference Avoidance/Mitigation Features and Related Methods,” with ownership of all substantial rights in the ’986 patent, including the right to exclude others and to enforce, sue, and recover damages for past and future infringements.

36. The ’986 patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code. The ’986 patent issued from U.S. Patent Application No. 10/401,004.

37. Samsung has and continues to directly and/or indirectly infringe (by inducing

infringement) one or more claims of the '986 patent in this judicial district and elsewhere in Texas and the United States.

38. Upon information and belief, Samsung designs, develops, manufactures, assembles, and markets IoT and smart home devices configured to utilize ZigBee protocols such as the Accused Products (*see Z-Wave and Zibgee Technologies* (sic), SAMSUNG, *supra*), including via SEC's subsidiaries, such as Defendant SEA and STI, partners, distributors, retails, customers, and consumers.

39. Samsung directly infringes the '986 patent via 35 U.S.C. § 271(a) by making, offering for sale, selling, and/or importing the Accused Products, their components, and/or products containing the same that incorporate the fundamental technologies covered by the '986 patent to, for example, its alter egos, agents, intermediaries, distributors, importers, customers, subsidiaries, and/or consumers. Furthermore, upon information and belief, Samsung sells and makes the Accused Products outside of the United States, delivers those products to its customers, distributors, and/or subsidiaries in the United States, or in the case that it delivers the Accused Products outside of the United States it does so intending and/or knowing that those products are destined for the United States and/or designing those products for sale in the United States, thereby directly infringing the '986 patent. *See, e.g., Lake Cherokee Hard Drive Techs., L.L.C. v. Marvell Semiconductor, Inc.*, 964 F. Supp. 2d 653, 658 (E.D. Tex. 2013) (denying summary judgment and allowing presentation to jury as to "whether accused products manufactured and delivered abroad but imported into the United States market by downstream customers … constitute an infringing sale under § 271(a)").

40. Furthermore, Defendant SEC directly infringes the '986 patent through its direct involvement in the activities of its subsidiaries, including SEA, including by selling and offering

for sale the Accused Products directly to SEA and importing the Accused Products into the United States for SEA. Upon information and belief, SEA conducts activities that constitutes direct infringement of the '986 patent under 35 U.S.C. § 271(a) by making, offering for sale, selling, and/or importing those Accused Products. Samsung is vicariously liable for this infringing conduct of SEA (under both the alter ego and agency theories) because, as an example and on information and belief, SEC and SEA are essentially the same company, and SEC has the right and ability to control SEA's infringing acts and receives a direct financial benefit from SEA's infringement.

41. For example, Samsung infringes claim 25 of the '986 patent via the Accused Products such as SmartThings Hub, SmartThings WiFi, SmartThings Link for NVIDIA SHIELD™, Samsung Connect Home, Samsung Connect Home Pro, SmartThings Home Monitoring Kit, SmartThings Water Leak Sensor, SmartThings Arrival Sensor, SmartThings Motion Sensor, SmartThings Multipurpose Sensor, SmartThings Smart Bulb, SmartThings Outlet, SmartThings Button, Harman Amplify, and Harman AMX Devices, which utilize ZigBee protocols.

42. The Accused Products implement the "communication method for a wireless communication network comprising a plurality of mobile nodes each comprising a data queue" of claim 25. Each of the Accused Products utilizes ZigBee protocols, which are based on the IEEE 802.15.4 standard and involve communication between two or more devices on a wireless channel. *See* THE ZIGBEE ALLIANCE, *supra*. The Accused Products schedule respective semi-permanent time slots to establish communication links between respective pairs of mobile nodes for transmitting data stored in the data queues therebetween. For example, by utilizing ZigBee protocols, each of the Accused Products include contention access period ("CAP") time slots. By

default, network nodes use CAP time slots for data and frame transmission.

43. The Accused Products determine link utilization metrics for each communication link based upon a quantity of data previously sent over the communication link during the semi-permanent time slots and the data queues. For example, by utilizing ZigBee protocols, the Accused Products store queues of pending transactions then transmit the transactions on a first-come-first-served basis to nodes that request them. The transactions are transmitted according to algorithms (i.e., link utilization metrics); the transaction remains in the queue if the algorithm fails.

44. The Accused Products schedule demand assigned time slots for establishing additional communication links between the pairs of mobile nodes for transmitting the data based upon the link utilization metrics. For example, by utilizing ZigBee protocols, each of the Accused Products schedule guaranteed time slots ("GTS," i.e., assigned time slots) for transmission of data. The GTSs are dedicated to nodes or devices that require specific data bandwidth or latency (i.e., link utilization metrics) for transmission.

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

46. At a minimum, Samsung has known of the '986 patent at least as early as the filing date of this complaint. In addition, Samsung has known about the '986 patent since at least April 10, 2018, when Samsung received a letter regarding infringement of the patent portfolio, including the '986 patent, related to wireless communication network products, which specifically referenced the infringing use of IEEE 802 and ZigBee standards, as well as Samsung's SmartThings products. Additionally, on August 28, 2018, as a continuation of the previous correspondence, Samsung received a licensing proposal regarding, *inter alia*, the '986

patent.

47. Upon information and belief, since at least the above-mentioned date when Samsung was on notice of its infringement, Samsung has actively induced, under U.S.C. § 271(b), its distributors, customers, subsidiaries, importers, and/or consumers that import, purchase, or sell the Accused Products that include or are made using all of the limitations of one or more claims of the '986 patent to directly infringe one or more claims of the '986 patent by using, offering for sale, selling, and/or importing the Accused Products. Since at least the notice provided on the above-mentioned date, Samsung does so with knowledge, or with willful blindness of the fact, that the induced acts constitute infringement of the '986 patent. Upon information and belief, Samsung intends to cause, and has taken affirmative steps to induce, infringement by distributors, importers, customers, subsidiaries, and/or consumers by at least, *inter alia*, creating advertisements that promote the infringing use of the Accused Products, creating and/or maintaining established distribution channels for the Accused Products into and within the United States, manufacturing the Accused Products in conformity with U.S. laws and regulations, distributing or making available instructions or manuals for these products to purchasers and prospective buyers, testing ZigBee protocol features in the Accused Products, and/or providing technical support, replacement parts, or services for these products to purchasers in the United States. *See, e.g.*, *SmartThings Enabled Hubs*, SMARTTHINGS, https://support.smartthings.com/hc/en-us/articles/360052390151-SmartThings-Enabled-Hubs (last visited January 14, 2021) (Under subheading "Control your SmartThings Enabled Hub": "These settings will control Zigbee and Z-Wave functions in your hub…To access the Zigbee settings of your SmartThings enabled hub, follow these steps"); *Samsung Connect Home User Manual*, revision 1.1 at 15, SAMSUNG, https://downloadcenter.samsung.com/content/UM/201803/20180302135432816/ET-

WV530_UM_USA_Type_Rev.1.1_180302.pdf (March 2018) ("Register the Internet of Things (IoT) devices that support Z-Wave, zigbee (sic), LAN, or Cloud-to-Cloud to the SmartThings app and control them").

48. Upon information and belief, despite having knowledge of the '986 patent and knowledge that it is directly and/or indirectly infringing one or more claims of the '986 patent, Samsung has nevertheless continued its infringing conduct and disregarded an objectively high likelihood of infringement. Samsung's infringing activities relative to the '986 patent have been, and continue to be, willful, wanton, malicious, in bad-faith, deliberate, consciously wrongful, flagrant, characteristic of a pirate, and an egregious case of misconduct beyond typical infringement such that Plaintiff is entitled under 35 U.S.C. § 284 to enhanced damages up to three times the amount found or assessed.

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

COUNT II

(INFRINGEMENT OF U.S. PATENT NO. 6,961,310)

50. Plaintiff incorporates paragraphs 1 through 49 herein by reference.

51. Plaintiff is the assignee of the '310 patent, entitled "Multiple Path Reactive Routing in a Mobile Ad Hoc Network," with ownership of all substantial rights in the '310 patent, including the right to exclude others and to enforce, sue, and recover damages for past and future infringements.

52. The '310 patent is valid, enforceable, and was duly issued in full compliance with

Title 35 of the United States Code. The '310 patent issued from U.S. Patent Application No. 10/214,997.

53. Samsung has and continues to directly and/or indirectly infringe (by inducing infringement) one or more claims of the '310 patent in this judicial district and elsewhere in Texas and the United States.

54. Upon information and belief, Samsung designs, develops, manufactures, assembles, and markets IoT and smart home devices configured to utilize ZigBee and/or Z-Wave protocols. *See Z-Wave and Zibgee Technologies* (sic), SAMSUNG, https://www.samsung.com/us/support/troubleshooting/TSG01109869/ (last visited Jan. 7, 2021).

55. Samsung directly infringes the '310 patent via 35 U.S.C. § 271(a) by making, offering for sale, selling, and/or importing the Accused Products, their components, and/or products containing the same that incorporate the fundamental technologies covered by the '310 patent to, for example, its alter egos, agents, intermediaries, distributors, importers, customers, subsidiaries, and/or consumers. Furthermore, upon information and belief, Samsung sells and makes the Accused Products outside of the United States, delivers those products to its customers, distributors, and/or subsidiaries in the United States, or in the case that it delivers the Accused Products outside of the United States it does so intending and/or knowing that those products are destined for the United States and/or designing those products for sale in the United States, thereby directly infringing the '310 patent. *See, e.g., Lake Cherokee Hard Drive Techs., L.L.C. v. Marvell Semiconductor, Inc.*, 964 F. Supp. 2d 653, 658 (E.D. Tex. 2013). (denying summary judgment and allowing presentation to jury as to "whether accused products manufactured and delivered abroad but imported into the United States market by downstream customers … constitute an infringing sale under § 271(a)").

56. Furthermore, Defendant SEC directly infringes the '310 patent through its direct involvement in the activities of its subsidiaries, including SEA, including by selling and offering for sale the Accused Products directly to SEA and importing the Accused Products into the United States for SEA. Upon information and belief, SEA conducts activities that constitutes direct infringement of the '310 patent under 35 U.S.C. § 271(a) by making, offering for sale, selling, and/or importing those Accused Products. Samsung is vicariously liable for this infringing conduct of SEA (under both the alter ego and agency theories) because, as an example and on information and belief, SEC and SEA are essentially the same company, and SEC has the right and ability to control SEA's infringing acts and receives a direct financial benefit from SEA's infringement.

57. For example, Samsung infringes claim 13 of the '310 patent via the Accused Products such as SmartThings Hub, SmartThings WiFi, SmartThings Link for NVIDIA SHIELD™, Samsung Connect Home, Samsung Connect Home Pro, SmartThings Home Monitoring Kit, SmartThings Water Leak Sensor, SmartThings Arrival Sensor, SmartThings Motion Sensor, SmartThings Multipurpose Sensor, SmartThings Smart Bulb, SmartThings Outlet, SmartThings Button, Harman Amplify, and Harman AMX Devices, which utilize ZigBee and/or Z-Wave protocols.

58. The Accused Products implement the "method for routing message data from a source node to a destination node in a mobile ad hoc network comprising a plurality of intermediate mobile nodes between the source node and the destination node, and a plurality of wireless communication links connecting the nodes together" of claim 13. Each of the Accused Products utilizes ZigBee and/or Z-Wave protocols. ZigBee protocols are based on the IEEE 802.15.4 standard and involve communication between two or more devices on a wireless

channel. *See* THE ZIGBEE ALLIANCE, *supra*. Z-Wave protocol is a low bandwidth half duplex protocol, the main purpose of which is to communicate short control messages between nodes in a network. *See* SILICON LABS, *supra*.

59. The Accused Products discover, at the source node, routing to the destination node. For example, by utilizing ZigBee protocols, the Accused Products use route request commands, route request identifiers, and route reply commands to discover routing to the destination node. Moreover, by utilizing Z-Wave protocol, the Accused Products use Ad-Hoc On-demand Distance Vector ("AODV") routing, which discovers routes from source to destination nodes.

60. The Accused Products rank, at the source node, discovered routes according to at least one metric. For example, by utilizing ZigBee protocols, the Accused Products use a path cost metric for route comparison (i.e., ranking discovered routes). Moreover, by utilizing Z-Wave protocol, the Accused Products rank routes discovered by AODV based on at least one metric (e.g., from shortest to longest path) based on link-state information of nodes in the network.

61. The Accused Products simultaneously distribute, at the source node, message data to the destination node along a plurality of the discovered routes based upon the ranking. For example, by utilizing ZigBee protocols, the Accused Products distribute message data (e.g., relay messages or deliver packets) to destination nodes. Moreover, by utilizing Z-Wave protocol, the Accused Products distribute message data by making a selection among multiple alternative routes (i.e., a plurality of the discovered routes).

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

63. At a minimum, Samsung has known of the '310 patent at least as early as the filing date of this complaint. In addition, Samsung has known about the '310 patent since at least April

10, 2018, when Samsung received a letter regarding infringement of the patent portfolio, including the '310 patent, related to wireless communication network products, which specifically referenced the infringing use of IEEE 802 and ZigBee standards, as well as Samsung's SmartThings products. Additionally, in August 28, 2018, as a continuation of the previous correspondence, Samsung received a licensing proposal regarding, *inter alia*, the '310 patent.

64. Upon information and belief, since at least the above-mentioned date when Samsung was on notice of its infringement, Samsung has actively induced, under U.S.C. § 271(b), its distributors, customers, subsidiaries, importers, and/or consumers that import, purchase, or sell the Accused Products that include or are made using all of the limitations of one or more claims of the '310 patent to directly infringe one or more claims of the '310 patent by using, offering for sale, selling, and/or importing the Accused Products. Since at least the notice provided on the above-mentioned date, Samsung does so with knowledge, or with willful blindness of the fact, that the induced acts constitute infringement of the '310 patent. Upon information and belief, Samsung intends to cause, and has taken affirmative steps to induce, infringement by distributors, importers, customers, subsidiaries, and/or consumers by at least, *inter alia*, creating advertisements that promote the infringing use of the Accused Products, creating and/or maintaining established distribution channels for the Accused Products into and within the United States, manufacturing the Accused Products in conformity with U.S. laws and regulations, distributing or making available instructions or manuals for these products to purchasers and prospective buyers, testing ZigBee and/or Z-Wave protocol features in the Accused Products, and/or providing technical support, replacement parts, or services for these products to purchasers in the United States. *See, e.g.*, *SmartThings Enabled Hubs*, SMARTTHINGS, https://support.smartthings.com/hc/en-

us/articles/360052390151-SmartThings-Enabled-Hubs (last visited January 14, 2021) (Under subheading "Control your SmartThings Enabled Hub": "These settings will control Zigbee and Z-Wave functions in your hub…To access the Zigbee settings of your SmartThings enabled hub, follow these steps"); *Samsung Connect Home User Manual*, revision 1.1 at 15, SAMSUNG, https://downloadcenter.samsung.com/content/UM/201803/20180302135432816/ET-WV530_UM_USA_Type_Rev.1.1_180302.pdf (March 2018) ("Register the Internet of Things (IoT) devices that support Z-Wave, zigbee (sic), LAN, or Cloud-to-Cloud to the SmartThings app and control them").

65. Upon information and belief, despite having knowledge of the '310 patent and knowledge that it is directly and/or indirectly infringing one or more claims of the '310 patent, Samsung has nevertheless continued its infringing conduct and disregarded an objectively high likelihood of infringement. Samsung's infringing activities relative to the '310 patent have been, and continue to be, willful, wanton, malicious, in bad-faith, deliberate, consciously wrongful, flagrant, characteristic of a pirate, and an egregious case of misconduct beyond typical infringement such that Plaintiff is entitled under 35 U.S.C. § 284 to enhanced damages up to three times the amount found or assessed.

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

COUNT III

(INFRINGEMENT OF U.S. PATENT NO. 6,980,537)

67. Plaintiff incorporates paragraphs 1 through 66 herein by reference.

68. Plaintiff is the assignee of the '537 patent, entitled "Method and Apparatus for Communication Network Cluster Formation and Transmission of Node Link Status Messages with Reduced Protocol Overhead Traffic," with ownership of all substantial rights in the '537 patent, including the right to exclude others and to enforce, sue, and recover damages for past and future infringements.

69. The '537 patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code. The '537 patent issued from U.S. Patent Application No. 09/709,502.

70. Samsung has and continues to directly and/or indirectly infringe (by inducing infringement) one or more claims of the '537 patent in this judicial district and elsewhere in Texas and the United States.

71. Upon information and belief, Samsung designs, develops, manufactures, assembles, and markets IoT and smart home devices configured to utilize Z-Wave protocols. *See Z-Wave and Zibgee Technologies* (sic), SAMSUNG, https://www.samsung.com/us/support/troubleshooting/TSG01109869/ (last visited Jan. 7, 2021).

72. Samsung directly infringes the '537 patent via 35 U.S.C. § 271(a) by making, offering for sale, selling, and/or importing the Accused Products, their components, and/or products containing the same that incorporate the fundamental technologies covered by the '537 patent to, for example, its alter egos, agents, intermediaries, distributors, importers, customers, subsidiaries, and/or consumers. Furthermore, upon information and belief, Samsung sells and makes the Accused Products outside of the United States, delivers those products to its customers, distributors, and/or subsidiaries in the United States, or in the case that it delivers the Accused Products outside of the United States it does so intending and/or knowing that those products are

destined for the United States and/or designing those products for sale in the United States, thereby directly infringing the '537 patent. *See, e.g., Lake Cherokee Hard Drive Techs., L.L.C. v. Marvell Semiconductor, Inc.*, 964 F. Supp. 2d 653, 658 (E.D. Tex. 2013). (denying summary judgment and allowing presentation to jury as to "whether accused products manufactured and delivered abroad but imported into the United States market by downstream customers … constitute an infringing sale under § 271(a)").

73. Furthermore, Defendant SEC directly infringes the '537 patent through its direct involvement in the activities of its subsidiaries, including SEA, including by selling and offering for sale the Accused Products directly to SEA and importing the Accused Products into the United States for SEA. Upon information and belief, SEA conducts activities that constitutes direct infringement of the '537 patent under 35 U.S.C. § 271(a) by making, offering for sale, selling, and/or importing those Accused Products. Samsung is vicariously liable for this infringing conduct of SEA (under both the alter ego and agency theories) because, as an example and on information and belief, SEC and SEA are essentially the same company, and SEC has the right and ability to control SEA's infringing acts and receives a direct financial benefit from SEA's infringement.

74. For example, Samsung infringes claim 16 of the '537 patent via the Accused Products such as SmartThings Hub, SmartThings WiFi, SmartThings Link for NVIDIA SHIELD™, Samsung Connect Home, Samsung Connect Home Pro, and SmartThings Home Monitoring Kit, which utilize Z-Wave protocol.

75. The Accused Products implement the "method of configuring a network communication unit to transmit and receive messages" within "a communications network including a plurality of communication units, wherein at least one of those units is designated as

a member unit for transmitting and receiving messages and at least one of those units is designated as a routing unit for routing said messages from said member units" of claim 16. Each of the Accused Products utilizes Z-Wave protocol. Z-Wave protocol is a low bandwidth half duplex protocol, the main purpose of which is to communicate short control messages between nodes in a network. *See* SILICON LABS, *supra*.

76. The Accused Products examine network connectivity information relating to said communication unit and corresponding neighboring units stored in a storage unit of said communication unit and identifying neighboring units that are isolated from communications with remaining neighboring units of said communication unit. For example, by utilizing Z-Wave protocol, the Accused Products get information about the state of each node in a network (i.e., examine network connectivity information) including the number of neighboring units a node has registered. Further, Z-Wave protocol isolates a new node from joining a network of neighboring nodes until a primary controller is designated.

77. The Accused Products designate said communication unit as said routing unit in response to determining that said communication unit communicates with at least one neighboring unit that is isolated from communications with remaining neighboring units of said communication unit, wherein said communication unit designation as said routing unit is fixed for routing subsequent network messages. For example, by utilizing Z-Wave protocol, the Accused Products can set themselves to a SUC ID server, enabling them to include or exclude other nodes (i.e., communicated with neighboring isolated units). Further, Z-Wave protocol allows controllers such as the Accused Products to pass on routes to other units in order to enable them to transmit routed signals (i.e., fix routing unit for routing subsequent network messages).

78. The Accused Products re-evaluate said communication unit designation in response

to connectivity changes in said network. For example, by utilizing Z-Wave protocol, the Accused Products can add controllers (i.e., a connectivity change) to the network and then give a new controller the primary controller role (i.e., re-evaluate unit designation).

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

80. At a minimum, Samsung has known of the '537 patent at least as early as the filing date of this complaint. In addition, Samsung has known about the '537 patent since at least April 10, 2018, when Samsung received a letter regarding infringement of the patent portfolio, including the '537 patent, related to wireless communication network products, which specifically referenced the infringing use of Samsung's SmartThings products. Additionally, in August 28, 2018, as a continuation of the previous correspondence, Samsung received a licensing proposal regarding, *inter alia*, the '537 patent.

81. Upon information and belief, since at least the above-mentioned date when Samsung was on notice of its infringement, Samsung has actively induced, under U.S.C. § 271(b), its distributors, customers, subsidiaries, importers, and/or consumers that import, purchase, or sell the Accused Products that include or are made using all of the limitations of one or more claims of the '537 patent to directly infringe one or more claims of the '537 patent by using, offering for sale, selling, and/or importing the Accused Products. Since at least the notice provided on the above-mentioned date, Samsung does so with knowledge, or with willful blindness of the fact, that the induced acts constitute infringement of the '537 patent. Upon information and belief, Samsung intends to cause, and has taken affirmative steps to induce, infringement by distributors, importers, customers, subsidiaries, and/or consumers by at least, *inter alia*, creating advertisements that promote the infringing use of the Accused Products, creating and/or maintaining established

distribution channels for the Accused Products into and within the United States, manufacturing the Accused Products in conformity with U.S. laws and regulations, distributing or making available instructions or manuals for these products to purchasers and prospective buyers, testing Z-Wave protocol features in the Accused Products, and/or providing technical support, replacement parts, or services for these products to purchasers in the United States. *See, e.g.*, *SmartThings Enabled Hubs*, SMARTTHINGS, https://support.smartthings.com/hc/en-us/articles/360052390151-SmartThings-Enabled-Hubs (last visited January 14, 2021) (Under subheading "Control your SmartThings Enabled Hub": "These settings will control Zigbee and Z-Wave functions in your hub…To access Z-Wave settings of your SmartThings enabled hub, follow these steps"); *Samsung Connect Home User Manual*, revision 1.1 at 15, SAMSUNG, https://downloadcenter.samsung.com/content/UM/201803/20180302135432816/ET-WV530_UM_USA_Type_Rev.1.1_180302.pdf (March 2018) ("Register the Internet of Things (IoT) devices that support Z-Wave, zigbee (sic), LAN, or Cloud-to-Cloud to the SmartThings app and control them").

82. Upon information and belief, despite having knowledge of the '537 patent and knowledge that it is directly and/or indirectly infringing one or more claims of the '537 patent, Samsung has nevertheless continued its infringing conduct and disregarded an objectively high likelihood of infringement. Samsung's infringing activities relative to the '537 patent have been, and continue to be, willful, wanton, malicious, in bad-faith, deliberate, consciously wrongful, flagrant, characteristic of a pirate, and an egregious case of misconduct beyond typical infringement such that Plaintiff is entitled under 35 U.S.C. § 284 to enhanced damages up to three times the amount found or assessed.

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

COUNT IV

(INFRINGEMENT OF U.S. PATENT NO. 7,027,426)

84. Plaintiff incorporates paragraphs 1 through 83 herein by reference.

85. Plaintiff is the assignee of the '426 patent, entitled "Multi-channel Mobile Ad Hoc Network," with ownership of all substantial rights in the '426 patent, including the right to exclude others and to enforce, sue, and recover damages for past and future infringements.

86. The '426 patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code. The '426 patent issued from U.S. Patent Application No. 10/212,594.

87. Samsung has and continues to directly and/or indirectly infringe (by inducing infringement) one or more claims of the '426 patent in this judicial district and elsewhere in Texas and the United States.

88. Upon information and belief, Samsung designs, develops, manufactures, assembles, and markets IoT and smart home devices configured to utilize ZigBee and/or Z-Wave protocols. *See Z-Wave and Zibgee Technologies* (sic), SAMSUNG, https://www.samsung.com/us/support/troubleshooting/TSG01109869/ (last visited Jan. 7, 2021).

89. Samsung directly infringes the '426 patent via 35 U.S.C. § 271(a) by making, offering for sale, selling, and/or importing the Accused Products, their components, and/or products containing the same that incorporate the fundamental technologies covered by the '426

patent to, for example, its alter egos, agents, intermediaries, distributors, importers, customers, subsidiaries, and/or consumers. Furthermore, upon information and belief, Samsung sells and makes the Accused Products outside of the United States, delivers those products to its customers, distributors, and/or subsidiaries in the United States, or in the case that it delivers the Accused Products outside of the United States it does so intending and/or knowing that those products are destined for the United States and/or designing those products for sale in the United States, thereby directly infringing the '426 patent. *See, e.g., Lake Cherokee Hard Drive Techs., L.L.C. v. Marvell Semiconductor, Inc.*, 964 F. Supp. 2d 653, 658 (E.D. Tex. 2013). (denying summary judgment and allowing presentation to jury as to "whether accused products manufactured and delivered abroad but imported into the United States market by downstream customers … constitute an infringing sale under § 271(a)").

90. Furthermore, Defendant SEC directly infringes the '426 patent through its direct involvement in the activities of its subsidiaries, including SEA, including by selling and offering for sale the Accused Products directly to SEA and importing the Accused Products into the United States for SEA. Upon information and belief, SEA conducts activities that constitutes direct infringement of the '426 patent under 35 U.S.C. § 271(a) by making, offering for sale, selling, and/or importing those Accused Products. SEC is vicariously liable for this infringing conduct of SEA (under both the alter ego and agency theories) because, as an example and on information and belief, SEC and SEA are essentially the same company, and SEC has the right and ability to control SEA's infringing acts and receives a direct financial benefit from SEA's infringement.

91. For example, Samsung infringes claim 8 of the '426 patent via the Accused Products such SmartThings Hub, SmartThings WiFi, SmartThings Link for NVIDIA SHIELD™, Samsung Connect Home, Samsung Connect Home Pro, SmartThings Home Monitoring Kit,

SmartThings Water Leak Sensor, SmartThings Arrival Sensor, SmartThings Motion Sensor, SmartThings Multipurpose Sensor, SmartThings Smart Bulb, SmartThings Outlet, a SmartThings Button, Harman Amplify, and Harman AMX Devices, which utilize ZigBee and/or Z-Wave protocols.

92. The Accused Products implement the "method for operating a mobile ad hoc network comprising a plurality of wireless mobile nodes and a plurality of wireless communication links connecting the plurality of nodes together over a plurality of electrically separate wireless channels" of claim 8. Each of the Accused Products utilizes ZigBee and/or Z-Wave protocols. ZigBee protocols are based on the IEEE 802.15.4 standard and involve communication between two or more devices on a wireless channel. *See* THE ZIGBEE ALLIANCE, *supra*. Z-Wave protocol is a low bandwidth half duplex protocol, the main purpose of which is to communicate short control messages between nodes in a network. *See* SILICON LABS, *supra*.

93. The Accused Products, at a source node, send a route request over each of the plurality of electrically separate channels to discover routing to a destination node. For example, by utilizing ZigBee protocols, the Accused Products use route request commands, route request identifiers, and route reply commands to discover routing to the destination node. Moreover, by utilizing Z-Wave protocol, the Accused Products use Ad-Hoc On-demand Distance Vector ("AODV") routing, which discovers routes from source to destination nodes.

94. The Accused Products, at the source node, select a route to the destination node on at least one of the plurality of electrically separate channels. For example, by utilizing ZigBee protocols, the Accused Products select a route for relayed messages to a destination device by choosing a route with the lowest path cost among multiple routes (i.e., a plurality of electrically separate channels) Moreover, by utilizing Z-Wave protocol, the Accused Products choose a route

between a sender and destination node based on a Last Working Route list, which contains a plurality of routes (i.e., electrically separate channels) between nodes.

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

96. At a minimum, Samsung has known of the '426 patent at least as early as the filing date of this complaint. In addition, Samsung has known about the '426 patent since at least April 10, 2018, when Samsung received a letter regarding infringement of the patent portfolio, including the '426 patent, related to wireless communication network products, which specifically referenced the infringing use of IEEE 802 and ZigBee standards, as well as Samsung's SmartThings products. Additionally, in August 28, 2018, as a continuation of the previous correspondence, Samsung received a licensing proposal regarding, *inter alia*, the '426 patent.

97. Upon information and belief, since at least the above-mentioned date when Samsung was on notice of its infringement, Samsung has actively induced, under U.S.C. § 271(b), its distributors, customers, subsidiaries, importers, and/or consumers that import, purchase, or sell the Accused Products that include or are made using all of the limitations of one or more claims of the '426 patent to directly infringe one or more claims of the '426 patent by using, offering for sale, selling, and/or importing the Accused Products. Since at least the notice provided on the above-mentioned date, Samsung does so with knowledge, or with willful blindness of the fact, that the induced acts constitute infringement of the '426 patent. Upon information and belief, Samsung intends to cause, and has taken affirmative steps to induce, infringement by distributors, importers, customers, subsidiaries, and/or consumers by at least, *inter alia*, creating advertisements that promote the infringing use of the Accused Products, creating and/or maintaining established

distribution channels for the Accused Products into and within the United States, manufacturing the Accused Products in conformity with U.S. laws and regulations, distributing or making available instructions or manuals for these products to purchasers and prospective buyers, testing ZigBee and/or Z-Wave protocol features in the Accused Products, and/or providing technical support, replacement parts, or services for these products to purchasers in the United States. *See, e.g.*, *SmartThings Enabled Hubs*, SMARTTHINGS, https://support.smartthings.com/hc/en-us/articles/360052390151-SmartThings-Enabled-Hubs (last visited January 14, 2021) (Under subheading "Control your SmartThings Enabled Hub": "These settings will control Zigbee and Z-Wave functions in your hub…To access the Zigbee settings of your SmartThings enabled hub, follow these steps"); *Samsung Connect Home User Manual*, revision 1.1 at 15, SAMSUNG, https://downloadcenter.samsung.com/content/UM/201803/20180302135432816/ET-WV530_UM_USA_Type_Rev.1.1_180302.pdf (March 2018) ("Register the Internet of Things (IoT) devices that support Z-Wave, zigbee (sic), LAN, or Cloud-to-Cloud to the SmartThings app and control them").

98. Upon information and belief, despite having knowledge of the '426 patent and knowledge that it is directly and/or indirectly infringing one or more claims of the '426 patent, Samsung has nevertheless continued its infringing conduct and disregarded an objectively high likelihood of infringement. Samsung's infringing activities relative to the '426 patent have been, and continue to be, willful, wanton, malicious, in bad-faith, deliberate, consciously wrongful, flagrant, characteristic of a pirate, and an egregious case of misconduct beyond typical infringement such that Plaintiff is entitled under 35 U.S.C. § 284 to enhanced damages up to three times the amount found or assessed.

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

CONCLUSION

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

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

JURY DEMAND

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

PRAYER FOR RELIEF

103. Plaintiff requests that the Court find in its favor and against Defendants, and that the Court grant Plaintiff the following relief:

1. A judgment that Defendants have infringed the Asserted Patents as alleged herein, directly and/or indirectly by way of inducing infringement of such patents;
2. A judgment for an accounting of damages sustained by Plaintiff as a result of the acts of infringement by Defendants;
3. A judgment and order requiring Defendants to pay Plaintiff damages under 35 U.S.C.

§ 284, including up to treble damages as provided by 35 U.S.C. § 284, and any royalties determined to be appropriate;

4. A judgment and order requiring Defendants to pay Plaintiff pre-judgment and post-judgment interest on the damages awarded;

5. A judgment and order finding this to be an exceptional case and requiring Defendants to pay the costs of this action (including all disbursements) and attorneys' fees as provided by 35 U.S.C. § 285; and

6. Such other and further relief as the Court deems just and equitable.

Dated: January 29, 2021

Respectfully submitted,

/s/ Jeffrey R. Bragalone by permission Wesley Hill

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