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

FRACTUS, S.A.	§	
	§	
Plaintiff,	§	
	§	
	§	
v.	§	**Civil Action No. 2:22-cv-412**
	§	
ADT LLC d/b/a ADT Security Services,	§	**JURY TRIAL DEMANDED**
	§	
	§	
	§	
Defendant.	§	
	§	
	§	
	§	

COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff Fractus, S.A. ("Fractus" or "Plaintiff") hereby submits this Complaint for patent infringement against Defendant ADT LLC ("ADT" or "Defendant").

THE PARTIES

1. Fractus, S.A. is a foreign corporation duly organized and existing under the laws of Spain with its principal place of business in Barcelona, Spain.

2. Fractus is the owner by assignment of all right, title, and interest in U.S. Patent No. 7,471,246, No. 7,907,092, No. 8,456,365, No. 8,674,887, No. 8,738,103, and No. 11,349,200 (collectively, the "Patents-in-Suit").

3. On information and belief, Defendant ADT LLC is a corporation organized under the laws of Delaware with its principal place of business located at 1501 Yamato Road, Boca Raton, Florida 33431. Defendant has a registered agent for service of process in Texas at CT Corporation System, 1999 Bryan Street, Suite 900, Dallas, Texas 75201-3136.

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JURISDICTION AND VENUE

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

5. This Court has personal jurisdiction over Defendant. Fractus is informed and believes, and on that basis alleges, that Defendant conducts business and has committed acts of patent infringement and/or has induced acts of patent infringement by others in the State of Texas and within this judicial district. Defendant regularly transacts business in the State of Texas and within this District. Defendant has purposefully directed infringing activities at residents of the State of Texas, and this litigation results from those infringing activities. Defendant regularly sells (either directly or indirectly), its products within this district. For example, Defendant has placed and continue to place infringing products into the stream of commerce via an established distribution channel with the knowledge or understanding that such products are being and will continue to be sold in this Judicial District and the State of Texas. Defendant is subject to this Court's specific and/or general personal jurisdiction pursuant to due process and/or the Texas Long Arm Statute, Tex. Civ. Prac. & Rem. Code § 17.042, due at least to their substantial and pervasive business in this State and judicial district, including at least part of their infringing activities alleged herein and deriving substantial revenue from goods sold to Texas residents.

6. Venue is proper for Defendant in this federal district pursuant to 28 U.S.C. §§ 1391(b), (c), and 1400(b). Defendant offers products and services and conducts business in the Eastern District of Texas. *See Wireless Communications Mobile, LLC v. ADT LLC*, No: 6:19-cv-00133-JCB Dkt. 13 at ¶ 10–11 (August 2, 2022 E.D. Tex.) ("ADT admits that it has a place of business at 4706 DC Drive, Tyler, Texas 75701 . . . ADT admits that it offers products and services and conducts business in Texas."). Defendant's website describes areas within this District, for

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example, Tyler, Texas, as within its "Service Area." *See* "Home Security Tyler" https://www.adt.com/local/tx/tyler [https://perma.cc/32CU-FWFT] (last accessed: 10/10/2022). For example, Defendant's website states that its "Tyler [Texas] team offers professional home security installation and a variety of security and automation products and solutions." *See id.*

7. To conduct its business in the District, Defendant employs a number of individuals within this District. Upon information and belief, ADT's "business specifically depend[s] on employees being physically present at places in the district, and it [is] undisputable that [ADT] affirmatively acted to make permanent operations within [this] district to service its customers." *In re Cray Inc.*, 871 F.3d 1355, 1365–66 (Fed. Cir. 2017) (citing *In re Cordis Corp.*, 769 F.2d 733, 736 (Fed. Cir. 1985)). At least through these employees, ADT "does its business in [this] district through a permanent and continuous presence." *In re Cordis Corp.*, 769 F.2d 733, 737 (Fed. Cir. 1985). As noted above, Defendant's website notes that its "Tyler team offers" installation services for its products. *See* "Home Security Tyler," https://www.adt.com/local/tx/tyler [https://perma.cc/32CU-FWFT] (last accessed: 10/10/2022). Defendant's "Careers" website also lists jobs available in this district, including "Residential Sales Representative – Solutions Advisor (Job ID 2214140)" and "Business Sales Representative – Solutions Advisor (Job ID 3000403)" in Tyler, Texas. *See* https://jobs.adt.com/job/16583967/residential-sales-representative-solutions-advisor-tyler-tx/ [https://perma.cc/PM6F-DMTU] (last accessed: 10/10/2022); https://jobs.adt.com/job/16694270/business-sales-representative-solutions-advisor-tyler-tx/ [https://perma.cc/UG2V-HLS7] (last accessed: 10/10/2022).

8. On information and belief, Defendant has at least two regular and established places of business in this District, including at 4706 DC Drive, Tyler, Texas 75701 and 215 Winchester Drive, Suite 107, Tyler, Texas 75701.

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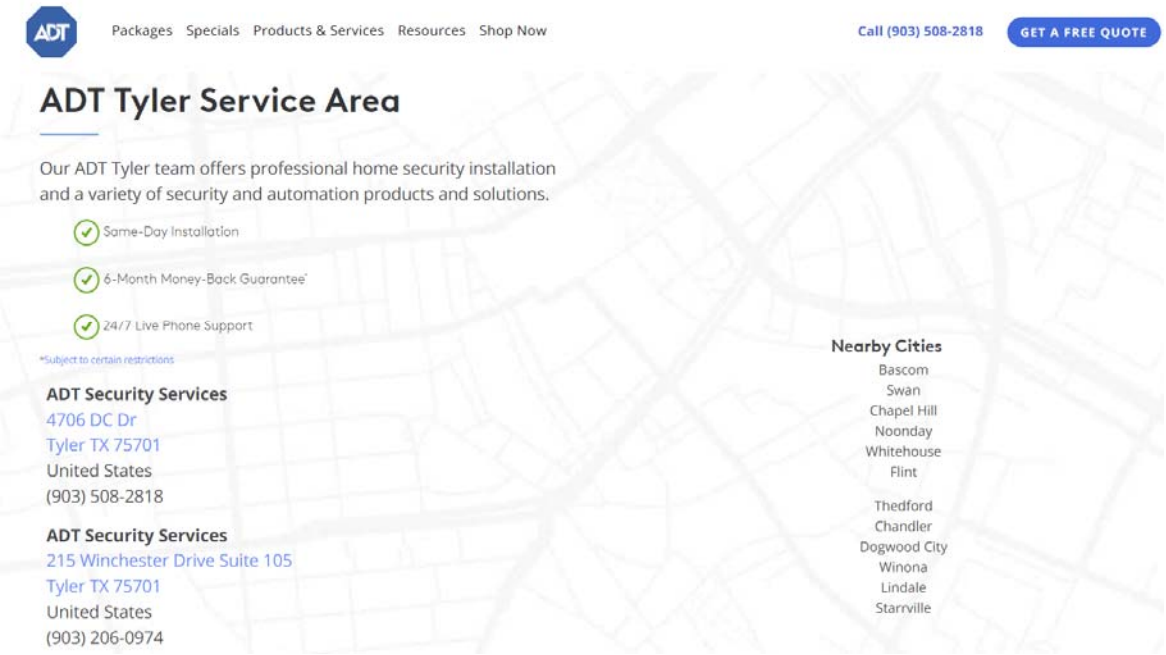

Fig. 1 (source: https://www.adt.com/local/tx/tyler [https://perma.cc/32CU-FWFT] (last accessed: 10/10/2022)).

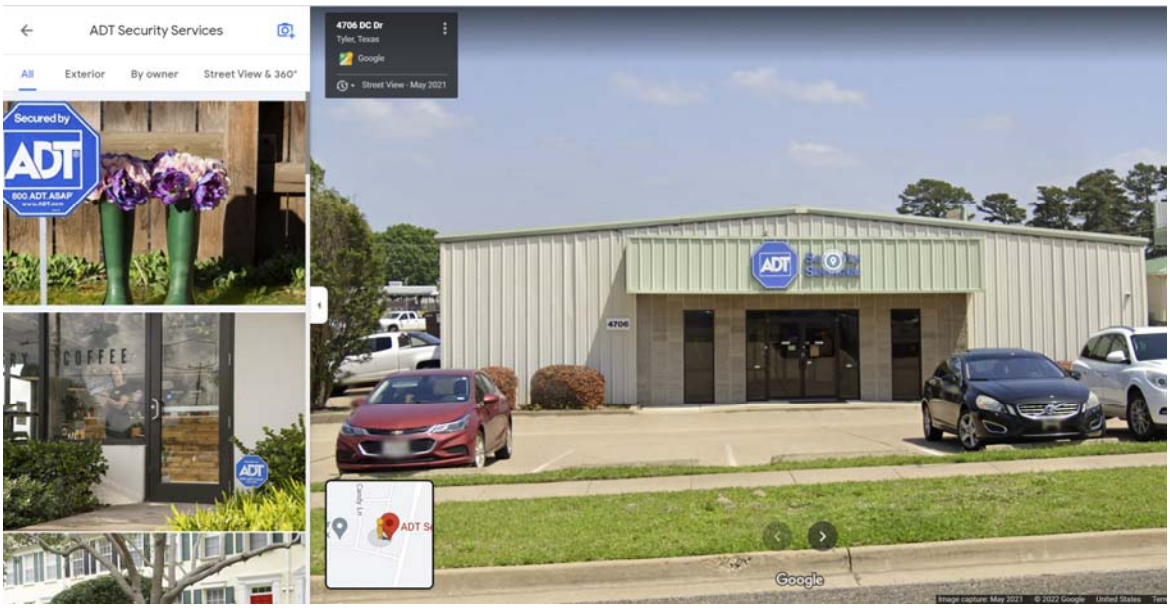

Fig. 2 (source: https://www.google.com/maps/place/ADT+Security+Services/@32.2976738,-95.3258514,3a,75y,113.11h,92.57t/data=!3m6!1e1!3m4!1sFKRcbNdV5pHrQZpYCYxRbw!2e0!7i16384!8i8192!4m13!1m7!3m6!1s0x8649cb9bce07d5f1:0xc264a12fc1891387!2s4706+DC+Dr,+Tyler,+TX+75701!3b1!8m2!3d32.2974818!4d-95.3252413!3m4!1s0x8649cb9bce039427:0x77822b7974a91e8!8m2!3d32.2975277!4d-95.3252691 [https://perma.cc/Z5QY-7ARM?type=image] (last accessed: 10/10/2022))

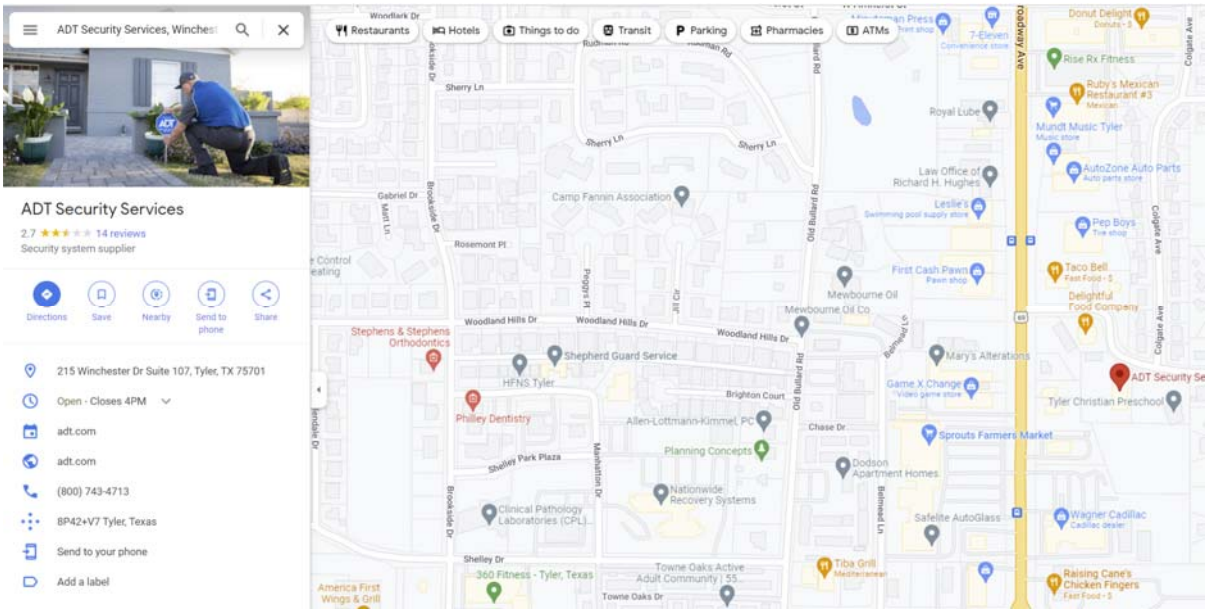

Fig. 3 (source: https://www.google.com/maps/place/ADT+Security+Services/@32.3071576,-95.3037541,17z/data=!3m1!4b1!4m5!3m4!1s0x8649cc6e066f8a89:0xa230e17d8461e9cf!8m2!3d32.3071577!4d-95.2992694 [https://perma.cc/9FEK-GCUG] (last accessed: 10/10/2022))

9. According to Smith County property tax records, Defendant owns 4706 DC Drive, Tyler, TX 75701 and pays property taxes for this location. *See In re Cray Inc.*, 871 F.3d 1355, 1360 (Fed. Cir. 2017).

GARY B. BARBER
SMITH COUNTY
P.O. BOX 2011
TYLER, TX 75710-2011
903-590-2920

Duplicate Receipt

Property Account Number:
40100151332000

Statement Date: 01/27/2022
Owner: ADT LLC
Mailing Address: INTAX INC
P.O. BOX 54767
LEXINGTON KY 40555

Property Location: 0004706 D C DR
Acres: 0
Legal:

Receipt #: 11601693
Deposit #: 202201279436-2021/csowells

YEAR	TAXING ENTITIES	TAXABLE VALUE	TAX RATE PER $100	DATE PAID	BASE TAX PAID	PENALTY & INTEREST PAID
2021	CITY OF TYLER	$259,230.00	0.269900	01/27/2022	$699.66	$0.00
2021	SMITH COUNTY	$259,230.00	0.335000	01/27/2022	$868.42	$0.00
2021	TYLER I.S.D.	$259,230.00	1.289100	01/27/2022	$3,341.73	$0.00
2021	TYLER JR COLLEGE	$259,230.00	0.199926	01/27/2022	$518.27	$0.00

BASE TAX $5,428.08
TOTAL PAID $5,428.08

Remitted By: INTAX INC
DEPT ADT001
P.O. BOX 54767
LEXINGTON KY 40555

Payment Type: CHECK
Check #: 30291

Fig. 4 (source: https://publictax.smith-county.com/Receipt/40100151332000/8356407 [https://perma.cc/VM2Q-ATEM] (last accessed: 10/10/2022))

10. On information and belief, from and within this District, Defendant has also committed at least a portion of the infringements at issue in this case.

FACTUAL ALLEGATIONS

Fractus Technology

11. Fractus is a company specializing in advanced antenna technologies based in Barcelona, Spain. Fractus was founded by two college friends, Ruben Bonet and Carles Puente. Dr. Puente, a Professor at the Universitat Politècnica de Catalunya, is the lead inventor on the Patents-in-Suit. Dr. Puente's early research work focused on fractal antennas and evolved over time into the widely applicable and flexible antenna designs that appear in and are covered by the Patents-in-Suit.

12. The Patents-in-Suit were filed as a result of novel research by Fractus into antenna design for wireless devices. Designers of wireless devices often face a number of challenges related to internal antennas capable of enabling efficient multiband operation. As with all antennas, these components both radiate and respond to electromagnetic waves. In the cramped confines of wireless devices, electromagnetic waves given off or absorbed by neighboring components in close proximity to an antenna can significantly impair the antenna's performance and efficiency. Without careful design, these problems may degrade an antenna's electromagnetic performance to the point that the device ceases to function in its intended manner or may require the designer to compromise on other desirable device attributes, such as size. The Patents-in-Suit solve these problems through a variety of novel solutions enabling multiband operation and small size without the efficiency impairments normally faced by these antennas.

13. Fractus has designed antennas for and/or has licensed the right to use its technology to leading companies across a variety of industries, including HTC, LG, RIM, Motorola, Samsung, Asus, ZTE, and CommScope. Since its incorporation Fractus has cumulatively sold more than 40

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million antennas to customers. Among the numerous awards and honors the company has received for its innovative work, Fractus won the 2004 Frost & Sullivan Award for technological innovation, was named a 2005 Davos World Economic Forum Technology Pioneer and one of Red Herring's top innovative companies for 2006. Fractus inventors were finalist for the EPO European Inventor Award in 2014 and in April 2017 Fractus received the "European Inspiring Company Award" by the London Stock Exchange and the Elite Group. In October 2017, Fractus was selected by the European Patent Office (EPO) as an example of IP strategist for small and medium-sized enterprises. In 2021, Fractus endowed a chair at Pompeu Fabra University in Spain, to enhance technology transfer and research into 6G wireless communications. And most recently, in September 2022, Fractus and the Polytechnic University of Catalonia partnered in the creation of a research and technology hub to develop "deep tech" solutions for global challenges.

ADT's Infringing Products

14. ADT makes, uses, sells, offers for sale and / or imports Infringing Products in the United States, including but not limited to, the following exemplary products shown in Table 1. The exemplary Infringing Products from Table 1 infringe alone or in combination with at least one of the cellular communication modules shown in Table 2:[1]

[1] Where listed in the following charts, "Honeywell" also includes the entities "Ademco" (purchased by Honeywell in 2000) and/or "Resideo" (which was spun off from Honeywell and retains the rights to use the Honeywell brand). *See* "What is the Difference Between ADEMCO and Resideo?" Alarm Grid, https://www.alarmgrid.com/faq/what-is-the-difference-between-ademco-and-resideo [https://perma.cc/4QZZ-4MU9] (last accessed 10/10/2022); "Honeywell Completes Spin-Off of Resideo Technologies," Forbes, November 2, 2018, https://www.forbes.com/sites/joecornell/2018/11/02/honeywell-completes-spin-off-of-resideo-technologies/?sh=4864a64a195b [https://perma.cc/7Z4Y-YQZC] (last accessed 10/10/2022); "Honeywell to License Its Brand to Homes Spin, Reveals Post-Spin Company Name Will be Resideo," Resideo, July 25, 2018, https://s27.q4cdn.com/999644081/files/doc_news/archive/7da01067-4b0a-4edc-a38d-1a611d9005a4.pdf [https://perma.cc/U7XG-QGZV] (last accessed 10/10/2022).

Table 1: Exemplary Infringing Products			
Company	**Product**	**Company**	**Product**
Blue by ADT	Cellular Backup Bridge	Honeywell	VISTA-128BP/BPE/BPT/BPTSIA
Blue by ADT	Smart Home Hub	Honeywell	VISTA-250BP/BPE/BPT
Qolsys	IQ Panel 2	Honeywell	BHS-4000B
Qolsys	IQ Panel 2+	Honeywell	LCP500-L
Qolsys	IQ Panel 4	Honeywell	LCP300-L
Qolsys	IQ Hub	Honeywell	LYNX Touch L5000
2GIG	2GIG-EDG-NA-A	Honeywell	LYNX Touch L5100
2GIG	2GIG-EDG-NA-V	Honeywell	LYNX Touch L5200
DSC	Touch	Honeywell	LYNX Touch L5210
ADT	Safewatch Pro 3000	Honeywell	LYNX Touch L7000
Honeywell	VISTA-10P	Honeywell	LYNX Plus L3000
Honeywell	VISTA-15P/PSIA	Honeywell	ADT5AIO (Command 5")
Honeywell	VISTA-20P/PSIA	Honeywell	ADT7AIO (Command 7")
Honeywell	VISTA-21iP	Honeywell	ADT2X16AIO (Command LCD)
Honeywell	PROA7	Honeywell	ADTHYBWL (Hybrid Hardwired)
Honeywell	PROA7PLUS	2GIG	GC3
DSC	IMPASSA SCW9055	2GIG	GC3e
DSC	IMPASSA SCW9057	First Alert	FA148CP
DSC	Iotega WS900 Series	First Alert	FA166OCT
First Alert	FA148CPSIA	First Alert	FA168CPSSIA
First Alert	FA168CPS	Alarm.com	ADC-FLEX-100-VZ
Alarm.com	ADC-FLEX-100-AT		

Table 2: Exemplary cellular communication modules			
Company	**Cellular module**	**Company**	**Cellular module**
Honeywell	3GVLP-ADT	Honeywell	ADTLTE-A
Honeywell	GSMVLP4G	Honeywell	ADTLTE-V
Honeywell	4GVLP-ADT	Honeywell	LTEM-XA
Honeywell	iGSMHS4G	Honeywell	LTEM-XV
Honeywell	GSMV4G	Honeywell	LTE-L3A
Honeywell	iGSMV4G	Honeywell	LTE-L3V
Honeywell	GSMX4G	Honeywell	LTE-L57A
Honeywell	BHS-4G	Honeywell	LTE-L57V
Honeywell	GSMVLP5-4G	Honeywell	LTEL5A-ADT
Honeywell	LYRICLTE-A	Honeywell	LTEL5V-ADT
Honeywell	LYRICLTE-V	Honeywell	LTE-XA
Honeywell	PROLTE-A	Honeywell	LTE-XV
Honeywell	PROLTE-V	Honeywell	LTE-IA
DSC	LT7090	Honeywell	LTE-IV
DSC	LT7090E	2GIG	2GIG-LTEA-A-GC3
DSC	LE2077	2GIG	2GIG-LTEV1-A-GC3

Alula	BAT-CONNECT-A	Alula	BAT-CONNECT-V

15. The above list is not exhaustive. Fractus's investigation of ADT's Infringing Products is ongoing, and the above list will expand as warranted to include additional Infringing Products with similarly designed antennas.

16. The Patents-in-Suit generally relate to the design and construction of antennas capable of receiving and transmitting in the multiple frequencies necessary for communication across cellular and wireless networks. The Patents-in-Suit solve a variety of novel and difficult problems related to the design of such antennas, including those related to the antennas' optimal operating frequencies, optimal radiation / reception patterns, the minimization of undesired radiation from neighboring elements, efficient operation, and satisfaction of size constraints. The Patents-in-Suit achieve these solutions through creative application of advanced antenna principles developed by Fractus

Notice and Willfulness

17. Fractus first noticed ADT via two letters in June of 2021. The letters informed ADT that Fractus believed ADT was infringing Fractus's patents. The letters provided a full list of Fractus's patent portfolio, and specifically identified certain Fractus patents—including several of the Patents-in-Suit—which ADT's products infringed upon. One letter was sent to Mr. David Smail, Executive Vice President, Chief Legal Officer & Secretary of ADT LLC, and the other letter was addressed to Mr. Smail and sent "c/o" to ADT's agent CT Corporation System. Though Fractus received delivery confirmation that ADT and its agent had received these letters, ADT made no attempt to contact Fractus to discuss infringement or licensing.

18. Fractus further noticed ADT via two more letters in February of 2022, both also remaining unanswered at the time of this complaint: the first letter was sent again to Mr. David

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Smail, and the second letter was addressed to Mr. Snail and sent again "c/o" to ADT's agent CT Corporation System. Those second letters were a follow-up of the first letters sent in June of 2021, and indicated that Fractus had identified additional infringing products and additional patents and claims owned by Fractus that ADT was infringing, and offered ADT the opportunity to engage in discussions. Though Fractus also received delivery confirmation that ADT and its agent had received these letters, ADT made no attempt to contact Fractus to discuss infringement or licensing.

19. Upon information and belief, prior to this lawsuit ADT never disputed the validity of the Patents-in-Suit. In particular, ADT has never communicated any allegedly invalidating prior art to Fractus or attempted to bring any post-grant action at the United States Patent and Trademark Office.

20. ADT's conduct has demonstrated a pattern of bad-faith actions in continuing to infringe upon the Patents-in-Suit despite being on notice that it was infringing Fractus's patents. Instead of duly obtaining authorization or a license to practice the Patents-in-Suit and as shown below, ADT has continued making, using, selling, offering for sale, and / or importing into the United States products that infringed the Patents-in-Suit.

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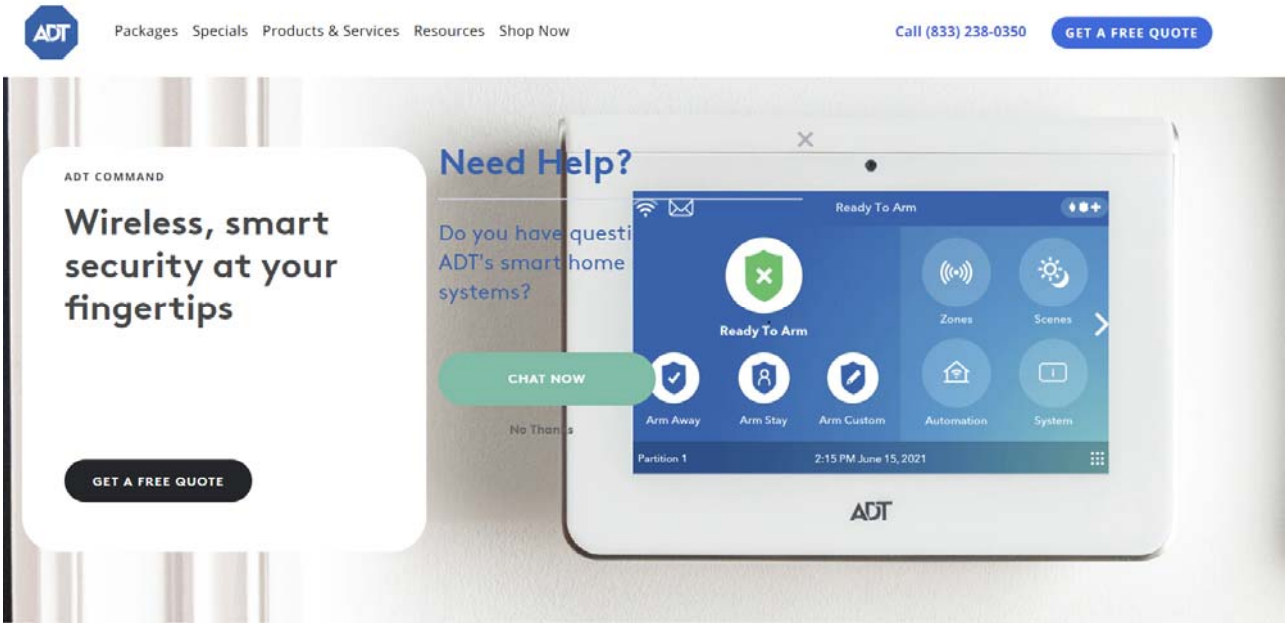

Fig. 4 (source: https://www.adt.com/command [https://perma.cc/4ZSC-LYD6], last accessed 10/10/2022)

21. ADT's repeated failure to respond to any notice letter and continued sale of the infringing product(s) identified in these letters evinces a deliberate lack of intention to solve the matter amicably. ADT has either reviewed Fractus's letters regarding infringement, concluded ADT needed a license, and yet proceeded to sell infringing products regardless of that determination or, in spite of the repeated notice letters, has failed to make a good faith effort to evaluate the Patents-in-Suit or even discuss the matter with Fractus and thus willfully blinding itself to the need to obtain a license to practice the Patents-in-Suit.

INFRINGEMENT OF U.S. PATENT NO. 7,471,246

22. On December 30, 2008, United States Patent No. 7,471,246 (the " '246 Patent") was duly and legally issued for an invention entitled "Antenna With One or More Holes." A true and correct copy of the '246 Patent is attached as Exhibit 1.

23. The '246 Patent is valid, enforceable, and was duly issued in full compliance with

Title 35 of the United States Code. The '246 Patent expired on July 15, 2022.

24. The '246 Patent describes antennas in which a conductive radiating element includes one or more holes that permit the antenna to transmit and receive signals at multiple frequencies—also described as "multiband behavior." In particular, the addition of holes in the radiating element enables the antenna to feature multiband behavior in an antenna with a reduced size.

25. As one example, claim 1 of the '246 Patent recites:

a. A monopole antenna comprising:

i. A radiating element defining an external perimeter;

ii. Wherein the radiating element comprises at least one hole;

iii. Wherein the at least one hole has an area of at least 20% of an area included inside the external perimeter;

iv. Wherein the external perimeter of the radiating element is shaped as a polygonal element comprising at least four sides;

v. Wherein a perimeter of the at least one hole is shaped as a polygon comprising three or more sides;

vi. Wherein the radiating element is shorter than a quarter of a longest operating wavelength of the monopole antenna;

vii. Wherein the monopole antenna features a multiband behavior;

viii. Wherein the external perimeter of the radiating element and the perimeter of at least one of the at least one hole are not both circles; and

ix. Wherein the external perimeter of the radiating element and the perimeter of at least one of the at least one hole are not both ellipses.

26. Defendant has directly infringed at least claim 1 of the '246 Patent in violation of

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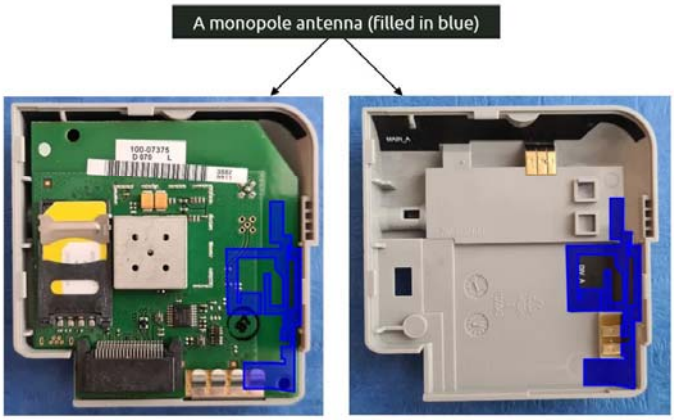
35 U.S.C. § 271(a) by its manufacture, use, sale, importation, and/or offer for sale of Infringing Products, including but not limited to certain alarm systems and alarm system components with internal antennas. As depicted by example below, the Infringing Products meet every element of the relevant claims of the '246 Patent literally or under the doctrine of equivalents.[2]

27. For example, the Honeywell ADT7AIO with the ADTLTE-A satisfies all claim limitations of at least claim 1 of the '246 Patent.

a. The antenna is in a monopole configuration:

Claim 1

A monopole antenna comprising:

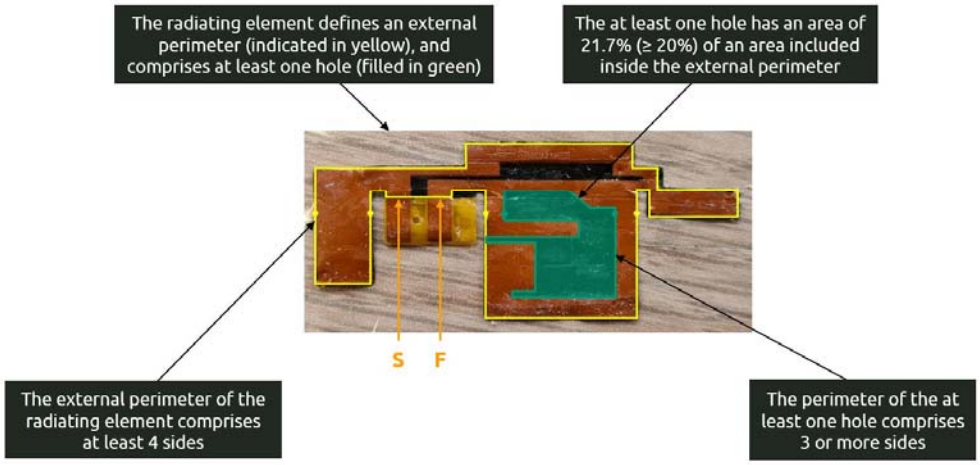


b. The radiating element of this antenna defines an external perimeter with at least four sides with at least one hole having at least three sides and an area of at least 20% of the area included inside the antenna's external perimeter.

[2] This description is illustrative and is not intended to be an exhaustive or limiting explanation of every manner in which each Infringing Product infringes the '246 Patent.

Claim 1

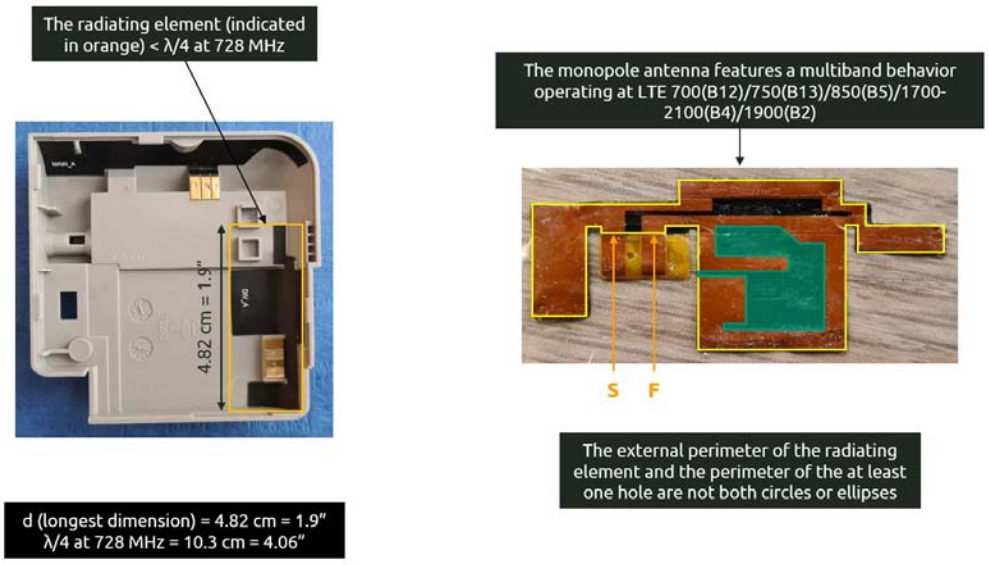
a radiating element defining an external perimeter; wherein the radiating element comprises at least one hole; wherein the at least one hole has an area of at least 20% of an area included inside the external perimeter; wherein the external perimeter of the radiating element is shaped as a polygonal element comprising at least four sides; wherein a perimeter of the at least one hole is shaped as a polygon comprising three or more sides;



c. The radiating element is shorter than a quarter of the antenna's longest operating wavelength and possesses multiband behavior. Additionally, the perimeter of the antenna and the hole do not both form circles or ellipses.

Claim 1

wherein the radiating element is shorter than a quarter of a longest operating wavelength of the monopole antenna; wherein the monopole antenna features a multiband behavior; wherein the external perimeter of the radiating element and the perimeter of at least one of the at least one hole are not both circles; and wherein the external perimeter of the radiating element and the perimeter of at least one of the at least one hole are not both ellipses.



28. Defendant has knowledge of the '246 Patent and has also indirectly infringed at least

claim 1 of '246 Patent by active inducement under 35 U.S.C. § 271(b). Defendant has induced, caused, urged, encouraged, aided and abetted their direct and indirect customers to make, use, sell, offer for sale and/or import Infringing Products. Defendant has done so by acts including but not limited to selling Infringing Products to their customer; marketing Infringing Products; and providing instructions, technical support, and direct links to vendor websites (available via, e.g., https://www.adt.com/shop [https://perma.cc/JCD2-Y3U7] (last accessed: 10/10/2022)) for the use of Infringing Products. Such conduct by Defendant was intended to and actually resulted in direct infringement, including the making, using, selling, offering for sale, and/or importation of Infringing Products in the United States.

29. The acts of infringement by Defendant have caused damage to Fractus, and Fractus is entitled to recover from Defendant the damages sustained by Fractus as a result of Defendant's wrongful acts in an amount subject to proof at trial.

INFRINGEMENT OF U.S. PATENT NO. 7,907,092

30. On March 15, 2011, United States Patent No. 7,907,092 (the " '092 Patent") was duly and legally issued for an invention entitled "Antenna With One or More Holes." A true and correct copy of the '092 Patent is attached as Exhibit 2.

31. The '092 Patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code. The '092 Patent expired on July 15, 2022.

32. Like the '246 Patent, the '092 Patent describes antennas in which a conductive radiating element includes one or more holes that permit the antenna to exhibit multiband behavior. The features described in the '092 Patent, in particular the addition of holes in the radiating element, enable the antenna to feature multiband behavior in a reduced size.

33. As one example, claim 1 of the '092 Patent provides for:

a. A wireless device comprising:

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i. A radiating element, the radiating element comprising:

1. A conducting body including a hole;

2. An input terminal;

ii. A ground plane, the ground plane operating in cooperation with the radiating element;

iii. A dielectric support, wherein the radiating element is arranged on the dielectric support;

iv. A feeding means, the feeding means being coupled to the input terminal;

v. Wherein the radiating element defines an external perimeter;

vi. Wherein the hole has an area of at least 20% of an area included inside the external perimeter;

vii. Wherein the external perimeter of the radiating element is shaped as a first polygonal shape comprising at least four sides;

viii. Wherein a perimeter of the hole is shaped as a second polygonal shape comprising a plurality of sides;

ix. Wherein the first polygonal shape and the second polygonal shape are not similar;

x. Wherein the radiating element is shorter than a quarter of a longest operating wavelength of the wireless device; and

xi. Wherein the wireless device is operative at multiple frequency bands.

34. Defendant has directly infringed at least claim 1 of the '092 Patent in violation of 35 U.S.C. § 271(a) by its manufacture, use, sale, importation, and/or offer for sale of Infringing Products, including but not limited to certain alarm systems and alarm system components with

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internal antennas. As detailed below, the Infringing Products meet every element of the relevant claims of the '092 Patent literally or under the doctrine of equivalents.[3]

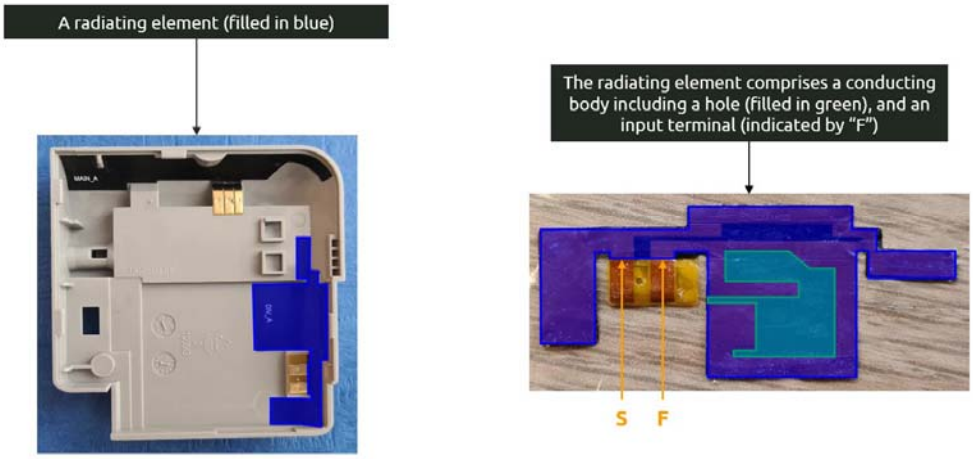
35. As an example, the Honeywell ADT7AIO with the ADTLTE-A satisfies all claim limitations of at least claim 1 of the '092 Patent.

a. The device is a wireless device which possesses a radiating element comprising a conducting body including a hole and an input terminal, as well as a feeding means coupled to the input terminal and a ground plane which operates in cooperation with the radiating element which, in turn, is arranged on the dielectric support.

[3] This description is illustrative and is not intended to be an exhaustive or limiting explanation of every manner in which each Infringing Product infringes the '092 Patent.

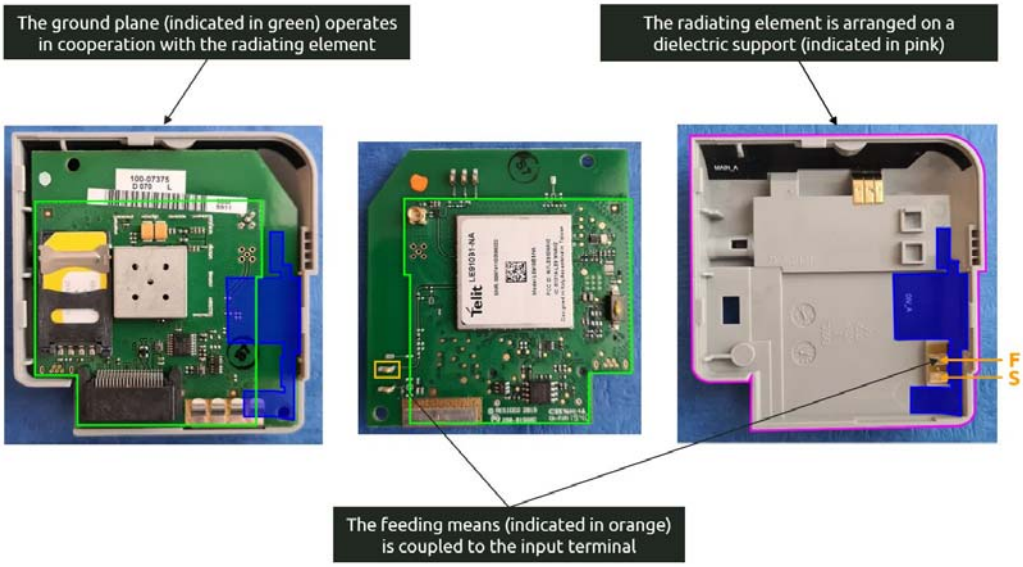
Claim 1

a radiating element, the radiating element comprising: a conducting body including a hole; an input terminal;



Claim 1

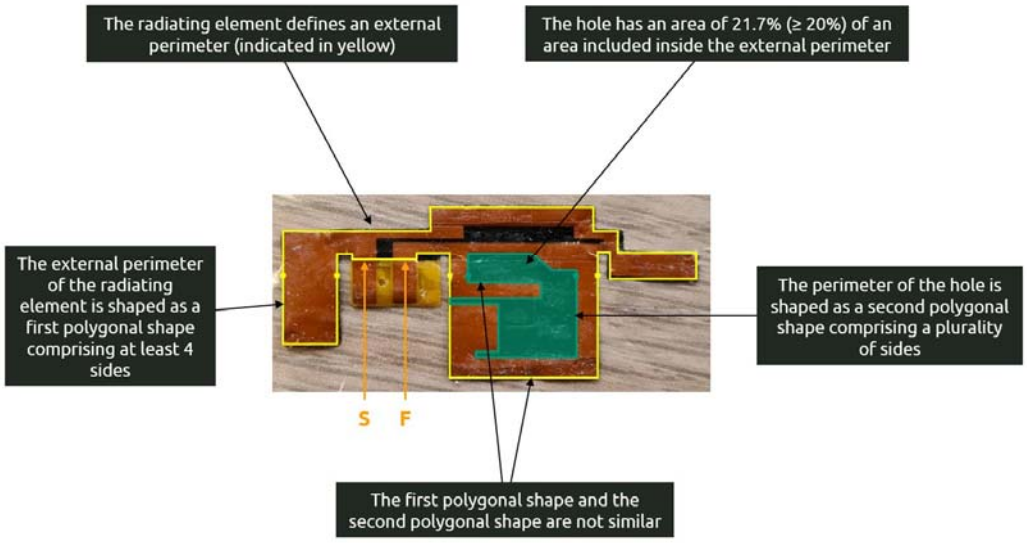
a ground plane, the ground plane operating in cooperation with the radiating element; a dielectric support, wherein the radiating element is arranged on the dielectric support; a feeding means, the feeding means being coupled to the input terminal;



b. The radiating element of this antenna defines an external perimeter with at least four sides with at least one hole which is not the same polygonal shape as that defined by the external perimeter, which has a plurality of sides, and which has an area of at least 20% of the area included inside the antenna's external perimeter.

Claim 1

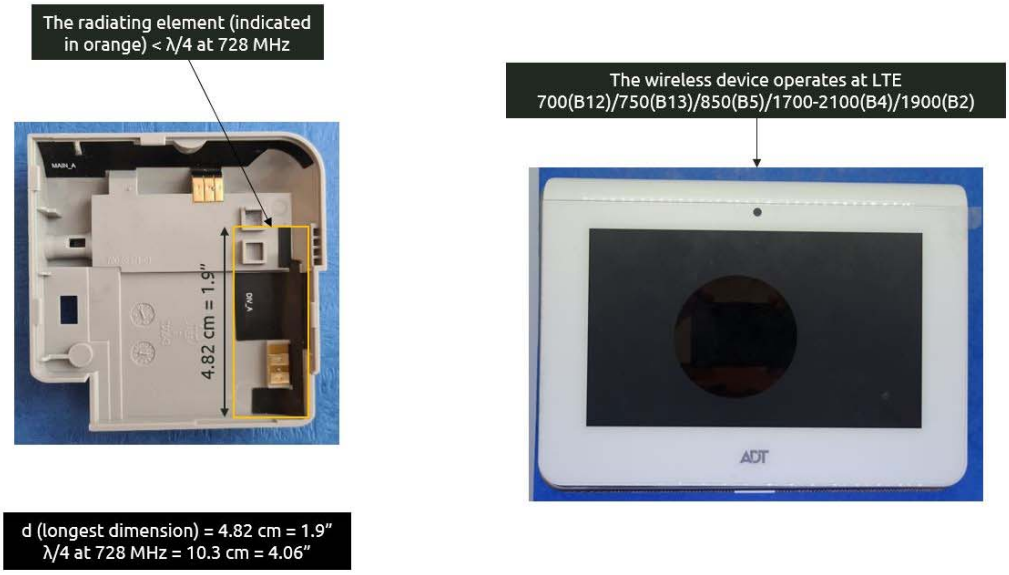
wherein the radiating element defines an external perimeter; wherein the hole has an area of at least 20% of an area included inside the external perimeter; wherein the external perimeter of the radiating element is shaped as a first polygonal shape comprising at least four sides; wherein a perimeter of the hole is shaped as a second polygonal shape comprising a plurality of sides; wherein the first polygonal shape and the second polygonal shape are not similar;



c. The radiating element is shorter than a quarter of a longest operating wavelength of the wireless device and enables operation at multiple frequency bands.

Claim 1

wherein the radiating element is shorter than a quarter of a longest operating wavelength of the wireless device; and wherein the wireless device is operative at multiple frequency bands.



36. Defendant has knowledge of the '092 Patent and has also indirectly infringed at least claim 1 of the '092 Patent by active inducement under 35 U.S.C. § 271(b). Defendant has induced,

caused, urged, encouraged, aided and abetted their direct and indirect customers to make, use, sell, offer for sale and/or import Infringing Products. Defendant has done so by acts including but not limited to selling Infringing Products to their customer; marketing Infringing Products; and providing instructions, technical support, and direct links to vendor websites (available via, e.g., https://www.adt.com/shop [https://perma.cc/JCD2-Y3U7] (last accessed: 10/10/2022)) for the use of Infringing Products. Such conduct by Defendant was intended to and actually resulted in direct infringement, including the making, using, selling, offering for sale, and/or importation of Infringing Products in the United States.

37. The acts of infringement by Defendant have caused damage to Fractus, and Fractus is entitled to recover from Defendant the damages sustained by Fractus as a result of Defendant's wrongful acts in an amount subject to proof at trial.

INFRINGEMENT OF U.S. PATENT NO. 8,674,887

38. On March 18, 2014, United States Patent No. 8,674,887 (the " '887 Patent") was duly and legally issued for an invention entitled "Multi-Band Monopole Antenna for a Mobile Communications Device." A true and correct copy of the '887 Patent is attached as Exhibit 3.

39. The '887 Patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code.

40. The '887 Patent describes the design of multiband antennas with two radiating arms mounted into devices with a circuit board and communications circuitry. These radiating arms are coupled to a common conductor and laterally offset from the edge of a conducting surface connected to an electrical ground—also called the ground plane. In order to reduce the overall size of the antenna, at least a part of the first radiating arm is formed into a geometric shape known as a space-filling curve. This curve is characterized by at least ten segments set in such a way that no pair of adjacent segments defines a larger straight segment and where these segments are shorter

than 1/10th of the operating wavelength of the antenna. These and other characteristics permit the design and deployment of antennas which exhibit superior multiband performance while taking up a minimal footprint in the devices in question.

41. As an example, claim 1 of the '887 Patent provides for:

a. A mobile communication device comprising:

i. Communications circuitry;

ii. A circuit board comprising a ground plane and a feeding point, the feeding point being coupled to the communications circuitry;

iii. A mounting structure positioned within the mobile communication device, a section of the mounting structure extending over the circuit board; and

iv. A multi-band antenna secured to the mounting structure and laterally offset from an edge of the ground plane, the multi-band antenna comprising;

1. A common conductor coupled to the feeding point;

2. First and second radiating arms coupled to and extending from the common conductor; and

3. A space-filling curve constituting at least a part of the first radiating arm,

a. Wherein the space-filling curve comprises at least ten segments that are shorter than a tenth of a free-space operating wavelength of the multi-band antenna, each of the segments being connected to its neighboring segments at an angle such that no pair of adjacent segments defines a longer straight segment,

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b. Wherein any periodicity of the space-filling curve along a fixed straight direction of space involves a periodic structure having a period defined by a non-periodic curve comprising at least ten connected segments in which no pair of adjacent ones of the connected segments defines a longer straight segment.

42. Defendant has directly infringed and continues to infringe at least claim 1 of the '887 Patent in violation of 35 U.S.C. § 271(a) by its manufacture, use, sale, importation, and/or offer for sale of Infringing Products, including but not limited to certain alarm systems and alarm system components with internal antennas. As detailed below, the Infringing Products meet every element of the relevant claims of the '887 Patent literally or under the doctrine of equivalents.[4]

43. As an example, the Honeywell ADT7AIO with the ADTLTE-V satisfies all claim limitations of at least claim 1 of the '887 Patent.

a. The device is a mobile communication device which possesses communications circuitry, a circuit board with a ground plane and a feeding point which is coupled to the communications circuitry, and a mounting structure within the device which extends over the circuit board.

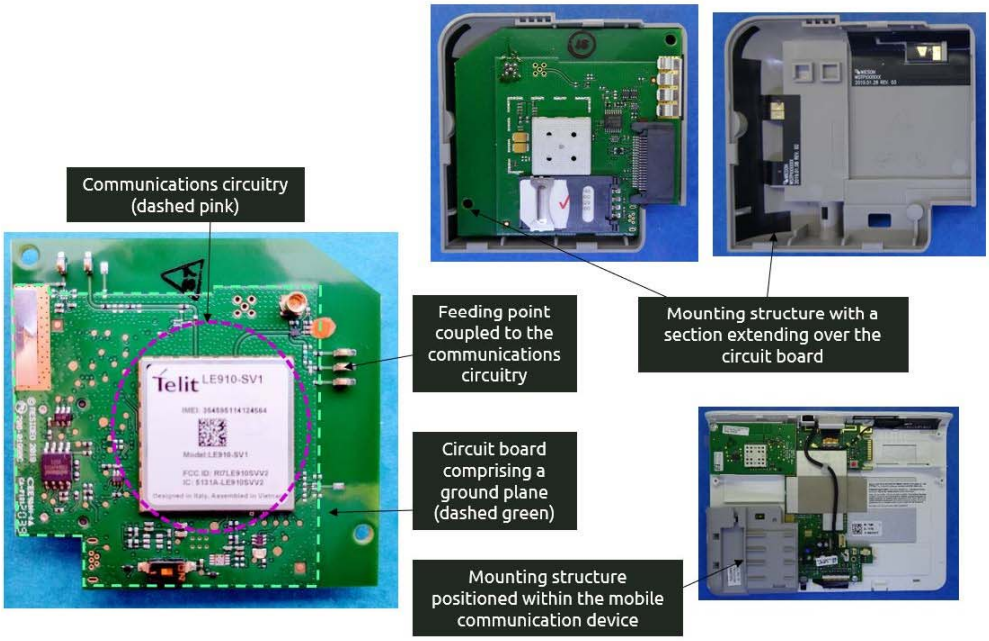
[4] This description is illustrative and is not intended to be an exhaustive or limiting explanation of every manner in which each Infringing Product infringes the '887 Patent.

Claim 1

A mobile communication device comprising:

Claim 1

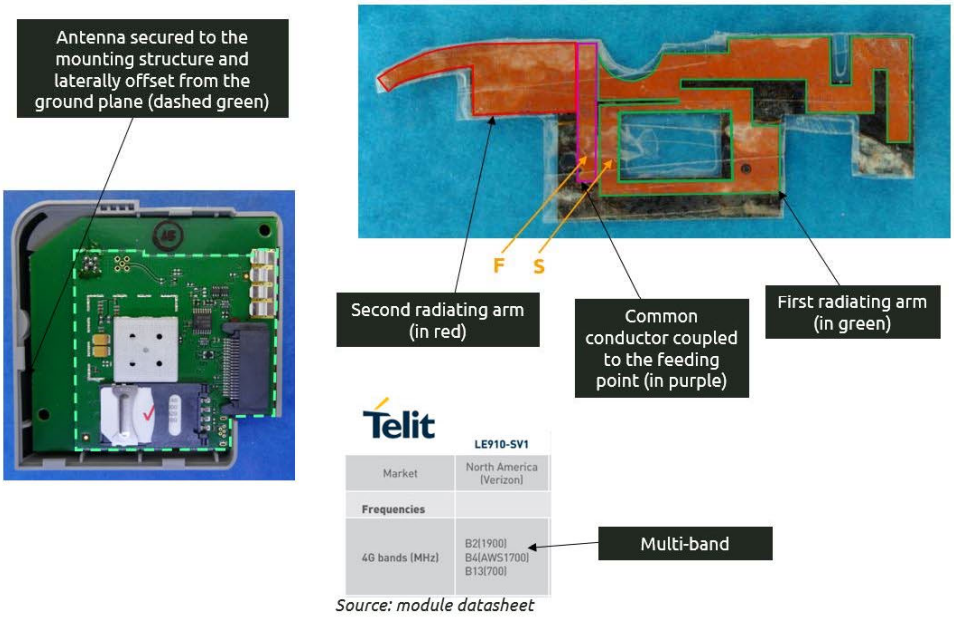
communications circuitry; a circuit board comprising a ground plane and a feeding point, the feeding point being coupled to the communications circuitry; a mounting structure positioned within the mobile communication device, a section of the mounting structure extending over the circuit board; and



b. The multi-band antenna is secured to the mounting structure and is laterally offset from an edge of the ground plane. The multi-band antenna is comprised of a common conductor coupled to the feeding point and the two radiating arms are coupled to and extend from the common conductor.

Claim 1

a multi-band antenna secured to the mounting structure and laterally offset from an edge of the ground plane, the multi-band antenna comprising: a common conductor coupled to the feeding point; first and second radiating arms coupled to and extending from the common conductor; and

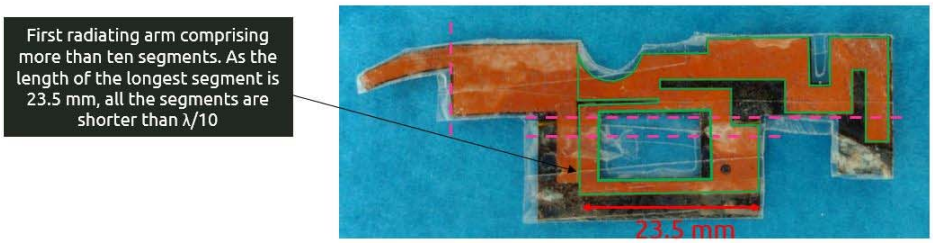


Source: module datasheet

c. The first radiating arm possesses at least ten segments which are shorter than a tenth of a free-space operating wavelength of the multi-band antenna and do not form a longer straight segment.

Claim 1

a space-filling curve constituting at least a part of the first radiating arm, wherein the space-filling curve comprises at least ten segments that are shorter than a tenth of a free-space operating wavelength of the multiband antenna, each of the segments being connected to its neighboring segments at an angle such that no pair of adjacent segments defines a longer straight segment, wherein any periodicity of the space-filling curve along a fixed straight direction of space involves a periodic structure having a period defined by a non-periodic curve comprising at least ten connected segments in which no pair of adjacent ones of the connected segments defines a longer straight segment.



Telit

LE910-SV1	
Market	North America (Verizon)
Frequencies	
4G bands (MHz)	B2(1900) B4(AWS1700) B13(700)

Source: module datasheet

Band 13: f=746 MHz, λ=402 mm, λ/10=40.2 mm;

λ/10= 40.2 mm

Dashed magenta lines represent where the antenna is folded in different planes

44. Defendant has knowledge of the '887 Patent and has also indirectly infringed at least

claim 1 of the '887 Patent by active inducement under 35 U.S.C. § 271(b). Defendant has induced, caused, urged, encouraged, aided and abetted their direct and indirect customers to make, use, sell, offer for sale and/or import Infringing Products. Defendant has done so by acts including but not limited to selling Infringing Products to their customer; marketing Infringing Products; and providing instructions, technical support, and direct links to vendor websites (available via, e.g., https://www.adt.com/shop [https://perma.cc/JCD2-Y3U7] (last accessed: 10/10/2022)) for the use of Infringing Products. Such conduct by Defendant was intended to and actually resulted in direct infringement, including the making, using, selling, offering for sale, and/or importation of Infringing Products in the United States.

45. The acts of infringement by Defendant have caused damage to Fractus, and Fractus is entitled to recover from Defendant the damages sustained by Fractus as a result of Defendant's wrongful acts in an amount subject to proof at trial. The infringement of Fractus's exclusive rights under the '887 Patent by Defendant has damaged and will continue to damage Fractus, causing irreparable harm, for which there is no adequate remedy at law, unless enjoined by this Court.

INFRINGEMENT OF U.S. PATENT NO. 8,456,365

46. On June 4, 2013, United States Patent No. 8,456,365 (the " '365 Patent") was duly and legally issued for an invention entitled "Multi-Band Monopole Antennas for Mobile Communications Devices." A true and correct copy of the '365 Patent is attached as Exhibit 4.

47. The '365 Patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code.

48. The '365 Patent describes multiband antennas placed within communication devices where the antenna includes at least one radiating arm partially or wholly shaped according to a grid-dimension curve and where portions of the radiating arms of the antenna are arranged on different planes. These and other features permit the antenna to exhibit multiband behavior in a small size.

49. For example, claim 31 of the '365 Patent recites:

a. A mobile communication device, comprising;

i. A device housing;

ii. A printed circuit board, the printed circuit board comprising:

1. a ground plane layer;

2. A feeding point;

iii. A communication circuitry, the communication circuitry being mounted on the printed circuit board;

iv. Wherein the communication circuitry is coupled to the feeding point and to the ground plane layer;

v. A multi-band antenna capable of operating at multiple frequency bands, the multiband antenna including;

1. A dielectric mounting structure having a plurality of surfaces;

2. An antenna element, the antenna element being coupled to the feeding point and operating in cooperation with the ground plane layer;

3. Wherein the antenna element comprises a first radiating arm arranged on two or more surfaces of the plurality of surfaces of the dielectric mounting structure;

4. The first radiating arm comprising:

a. A first section shaped according to a grid-dimension curve;

b. A second section connected to the grid-dimension

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section, the second section having a width different from a width of the first section; and

vi. Wherein the printed circuit board, the communication circuitry, and the multi-band antenna are arranged inside the device housing.

50. Defendant has directly infringed and continues to infringe at least claim 31 of the '365 Patent in violation of 35 U.S.C. § 271(a) by its manufacture, use, sale, importation, and/or offer for sale of Infringing Products, including but not limited to certain alarm systems and alarm system components with internal antennas. As detailed below, the Infringing Products meet every element of the relevant claims of the '365 Patent literally or under the doctrine of equivalents.[5]

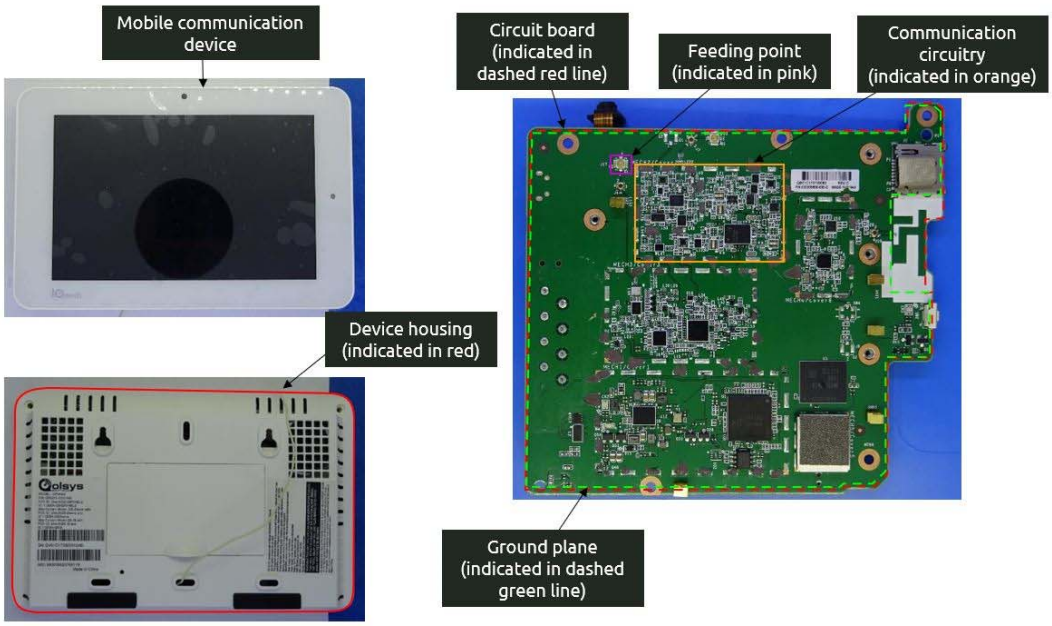
51. As an example, the Qolsys IQ Panel 2 satisfies all claim limitations of at least claim 31 of the '365 Patent:

a. A mobile communication device with a device housing and a printed circuit board. The printed circuit board has a ground plane layer, a feeding point, and a communication circuitry on the printed circuit board and coupled to the feeding point and the ground plane layer.

[5] This description is illustrative and is not intended to be an exhaustive or limiting explanation of every manner in which each Infringing Product infringes the '365 Patent.

Claim 31

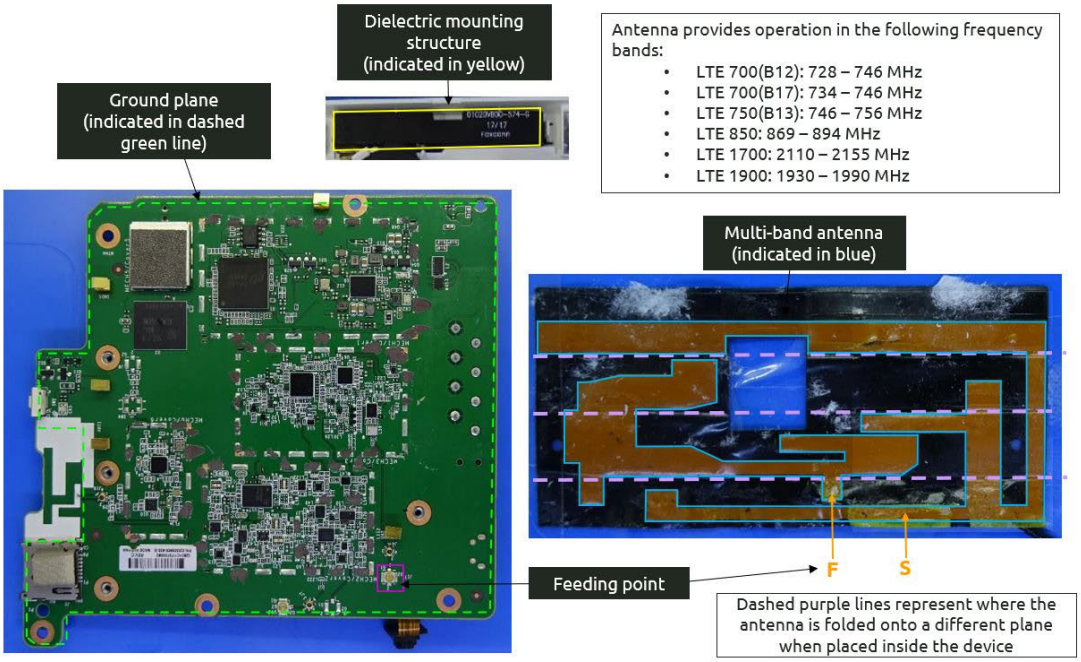
A mobile communication device, comprising: a device housing; a printed circuit board, the printed circuit board comprising: a ground plane layer; a feeding point; a communication circuitry, the communication circuitry being mounted on the printed circuit board; wherein the communication circuitry is coupled to the feeding point and to the ground plane layer;



b. The device comprises a multi-band antenna, which includes a multi-surface dielectric mounting structure, and an antenna element coupled to the feeding point and operating in cooperation with the ground plane layer.

Claim 31

a multi-band antenna capable of operating at multiple frequency bands, the multi-band antenna including: a dielectric mounting structure having a plurality of surfaces; an antenna element, the antenna element being coupled to the feeding point and operating in cooperation with the ground plane layer;

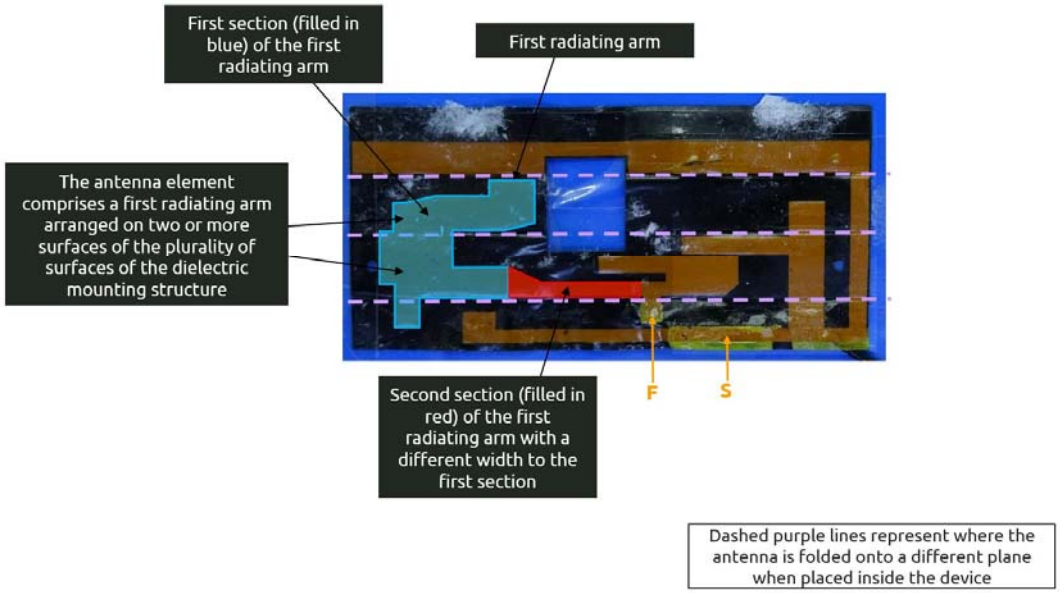


c. The antenna element comprises a first radiating arm arranged on the dielectric

mounting structure, and comprises two sections, one section complying with the grid-dimension curve requirements.

Claim 31

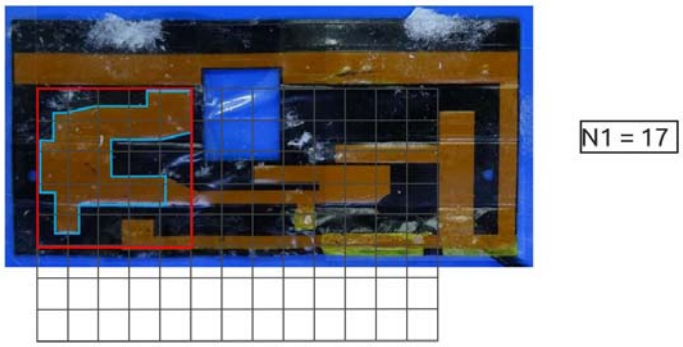
wherein the antenna element comprises a first radiating arm arranged on two or more surfaces of the plurality of surfaces of the dielectric mounting structure; the first radiating arm comprising: a first section shaped according to a grid-dimension curve; a second section connected to the grid-dimension section, the second section having a width different from a width of the first section;



Grid-dimension calculation

[from US 8,456,365, col. 6, line 60] A first grid having square cells of length L1 is positioned over the geometry of the curve, such that the grid completely covers the curve. The number of cells (N1) in the first grid that enclose at least a portion of the curve are counted. Next, a second grid having square cells of length L2 is similarly positioned to completely cover the geometry of the curve, and the number of cells (N2) in the second grid that enclose at least a portion of the curve are counted. In addition, the first and second grids should be positioned within a minimum rectangular area enclosing the curve such that no entire row or column on the perimeter of one of the grids fails to enclose at least a portion of the curve. The first grid should include at least twenty-five cells, and the second grid should include four times the number of cells as the first grid. Thus, the length (L2) of each square cell in the second grid should be one-half the length (L1) of each square cell in the first grid. The grid dimension (Dg) may then be calculated with the following equation:

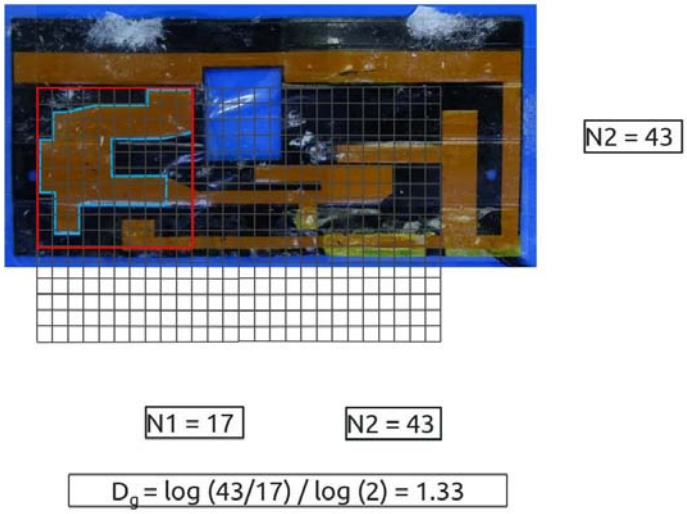
$$D_g = \frac{\log(N2/N1)}{\log(2)}$$



Grid-dimension calculation

[from US 8,456,365, col. 6, line 60] A first grid having square cells of length L1 is positioned over the geometry of the curve, such that the grid completely covers the curve. The number of cells (N1) in the first grid that enclose at least a portion of the curve are counted. Next, a second grid having square cells of length L2 is similarly positioned to completely cover the geometry of the curve, and the number of cells (N2) in the second grid that enclose at least a portion of the curve are counted. In addition, the first and second grids should be positioned within a minimum rectangular area enclosing the curve such that no entire row or column on the perimeter of one of the grids fails to enclose at least a portion of the curve. The first grid should include at least twenty-five cells, and the second grid should include four times the number of cells as the first grid. Thus, the length (L2) of each square cell in the second grid should be one-half the length (L1) of each square cell in the first grid. The grid dimension (Dg) may then be calculated with the following equation:

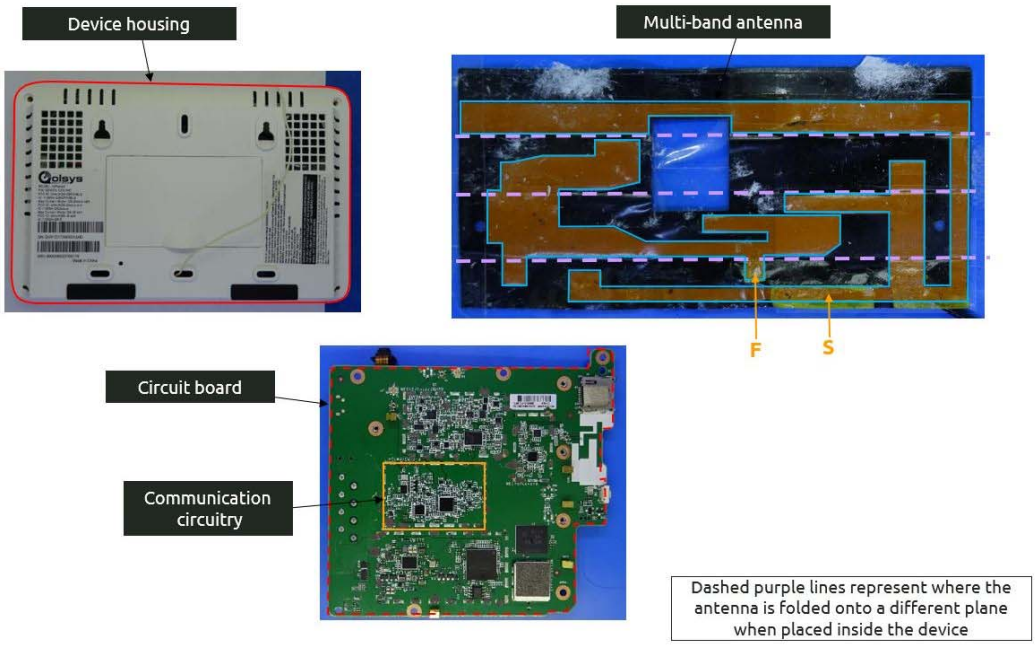
$$D_g = \frac{\log(N2/N1)}{\log(2)}$$



d. The printed circuit board, the communication circuitry and the multi-band antenna are arranged inside the device housing.

Claim 31

and wherein the printed circuit board, the communication circuitry, and the multi-band antenna are arranged inside the device housing.



52. Defendant has knowledge of the '365 Patent and has also indirectly infringed at least claim 31 of the '365 Patent by active inducement under 35 U.S.C. § 271(b). Defendant has induced,

caused, urged, encouraged, aided and abetted their direct and indirect customers to make, use, sell, offer for sale and/or import Infringing Products. Defendant has done so by acts including but not limited to selling Infringing Products to their customer; marketing Infringing Products; and providing instructions, technical support, and direct links to vendor websites (available via, e.g., https://www.adt.com/shop [https://perma.cc/JCD2-Y3U7] (last accessed: 10/10/2022)) for the use of Infringing Products. Such conduct by Defendant was intended to and actually resulted in direct infringement, including the making, using, selling, offering for sale, and/or importation of Infringing Products in the United States.

53. The acts of infringement by Defendant have caused damage to Fractus, and Fractus is entitled to recover from Defendant the damages sustained by Fractus as a result of Defendant's wrongful acts in an amount subject to proof at trial. The infringement of Fractus's exclusive rights under the '365 Patent by Defendant has damaged and will continue to damage Fractus, causing irreparable harm, for which there is no adequate remedy at law, unless enjoined by this Court.

INFRINGEMENT OF U.S. PATENT NO. 8,738,103

54. On May 27, 2014, United States Patent No. 8,738,103 (the " '103 Patent") was duly and legally issued for an invention entitled "Multiple-Body-Configuration Multimedia and Smartphone Multifunction Wireless Devices." A true and correct copy of the '103 Patent is attached as Exhibit 5.

55. The '103 Patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code.

56. The '103 Patent generally describes the design of internal antennas for multifunction wireless devices. The antennas described by the '103 Patent resolve a number of problems related to design of efficient antennas for operation in these size-constrained devices including, among other issues, problems related to antenna-device integration arising from the presence of additional

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electronic subsystems and/or antennas.

57. For example, claim 12 of the '103 Patent requires:

a. A handheld multifunction wireless device having at least one of multimedia functionality and smartphone functionality, the handheld multifunction wireless device comprising:

i. A touch screen;

ii. A processing module;

iii. A memory module;

iv. A communication module;

v. A power management module;

vi. An antenna system within the handheld multifunction wireless device and comprising:

1. A ground plane layer;

2. A first antenna element configured to simultaneously support radiation modes for first, second, and third frequency bands, the first frequency band being contained within a first frequency region of an electromagnetic spectrum, the second frequency band being contained within a second frequency region of the electromagnetic spectrum that is higher in frequency than the first frequency region, the third frequency band of operation being used by a 4G communication standard, wherein:

a. A perimeter of the first antenna element defines a first antenna contour comprising at least thirty-five segments,

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b. The first antenna element defining an antenna box, an orthogonal projection of the antenna box along a normal to a face with a largest area of the antenna box defining an antenna rectangle, wherein a length of the first antenna contour is greater than four times a diagonal of the antenna rectangle; and

3. A second antenna element configured to operate in at least one frequency band used by a 4G communication standard, wherein

a. A perimeter of the second antenna element defines a second antenna contour comprising at least twenty segments.

58. Defendant has directly infringed and continues to infringe at least claim 12 of the '103 Patent in violation of 35 U.S.C. § 271(a) by its manufacture, use, sale, importation, and/or offer for sale of Infringing Products, including but not limited to certain alarm systems and alarm system components with internal antennas. As detailed below, the Infringing Products meet every element of the relevant claims of the '103 Patent literally or under the doctrine of equivalents.[6]

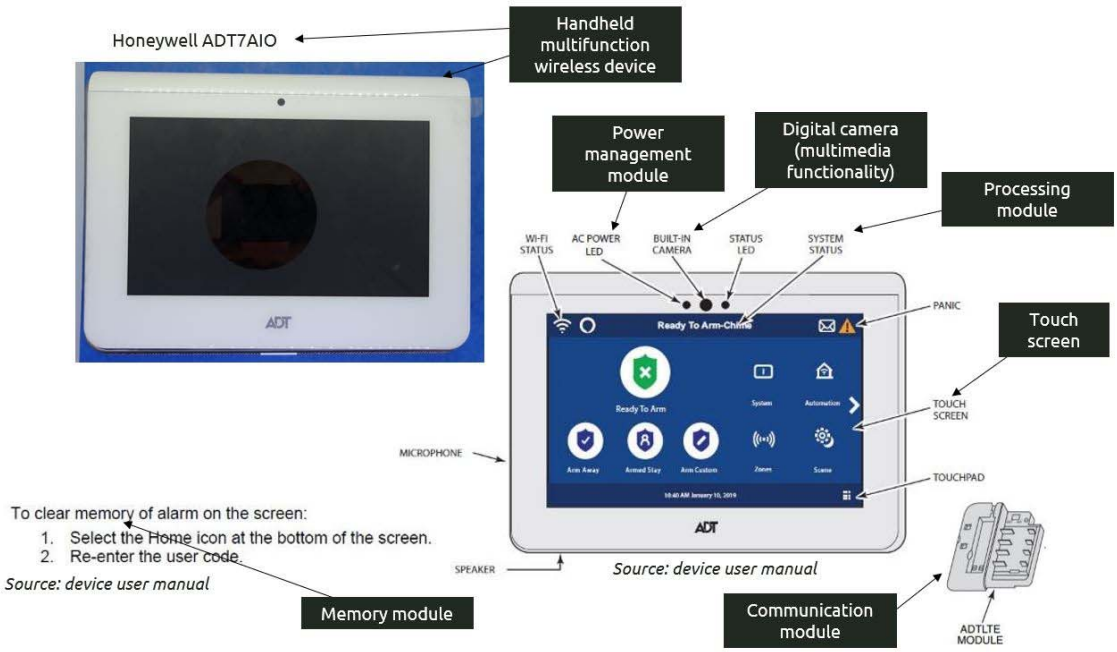
59. As an example, the Honeywell ADT7AIO with the ADTLTE-V satisfies all claim limitations of at least claim 12 of the '103 Patent:

a. The device possesses a touchscreen, a processing module, a memory module, a communication module, a power management module, and the relevant functionalities.

[6] This description is illustrative and is not intended to be an exhaustive or limiting explanation of every manner in which each Infringing Product infringes the '103 Patent.

Claim 12

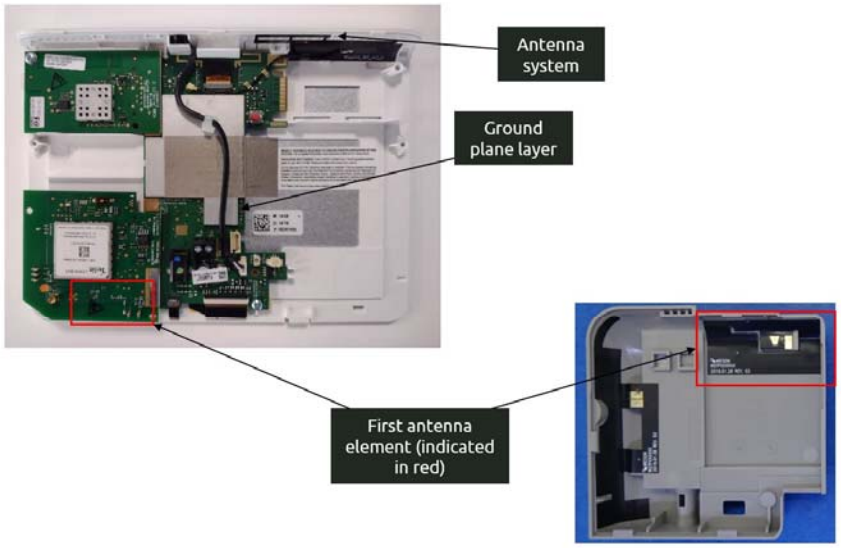
A handheld multifunction wireless device having at least one of multimedia functionality and smartphone functionality, the handheld multifunction wireless device comprising: a touch screen; a processing module; a memory module; a communication module; a power management module;



b. The antenna system includes a ground plane layer and a first antenna element with the requisite frequency bands.

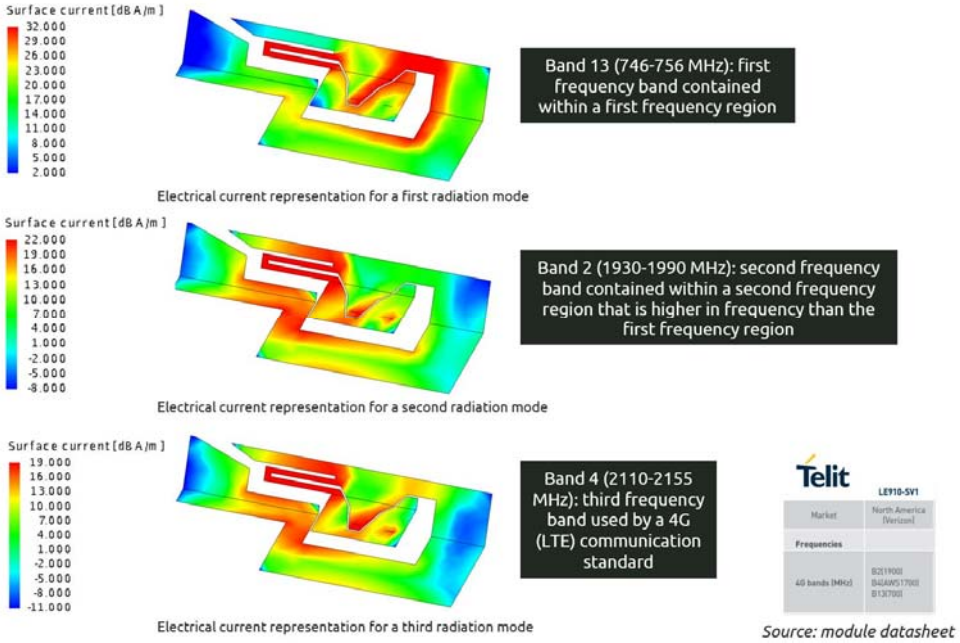
Claim 12

an antenna system within the handheld multifunction wireless device and comprising: a ground plane layer; a first antenna element



Claim 12

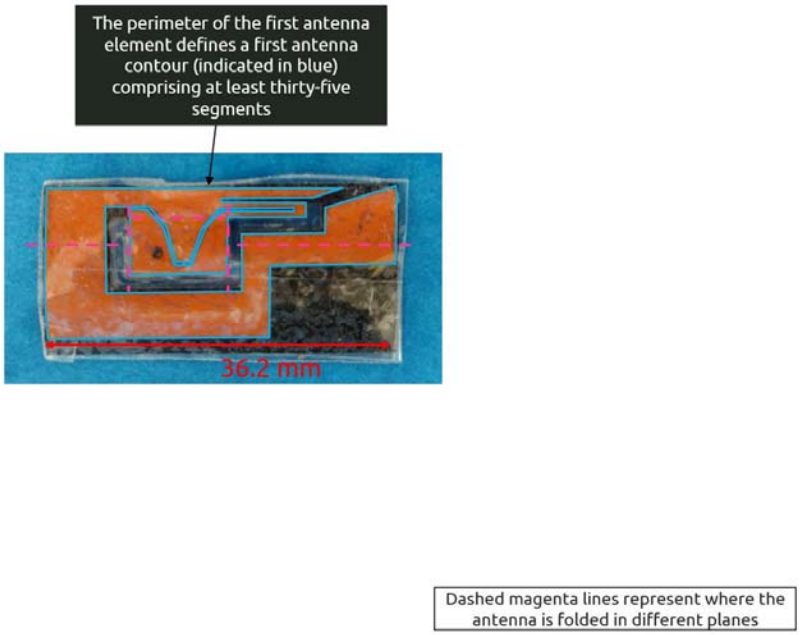
configured to simultaneously support radiation modes for first, second, and third frequency bands, the first frequency band being contained within a first frequency region of an electromagnetic spectrum, the second frequency band being contained within a second frequency region of the electromagnetic spectrum that is higher in frequency than the first frequency region, the third frequency band of operation being used by a 4G communication standard,



c. The first antenna element defines a contour comprising at least thirty-five segments and defines an antenna box with the relevant properties.

Claim 12

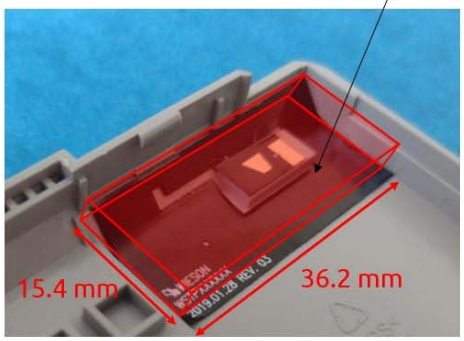
wherein a perimeter of the first antenna element defines a first antenna contour comprising at least thirty-five segments,



Claim 12

the first antenna element defining an antenna box,

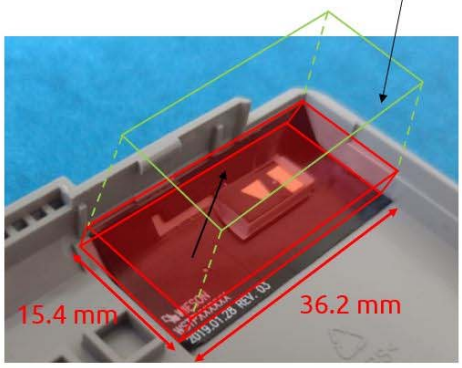
The first antenna element defining an antenna box (indicated in red), a minimum-sized parallelepiped of rectangular faces that completely encloses a volume of the first antenna element



Claim 12

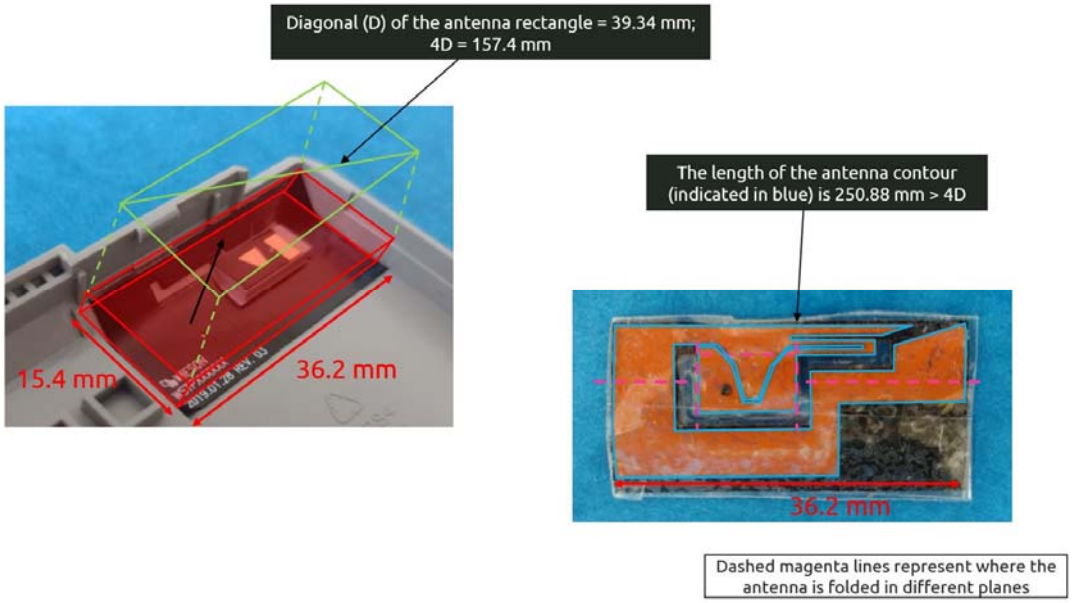
an orthogonal projection of the antenna box along a normal to a face with a largest area of the antenna box defining an antenna rectangle,

An orthogonal projection of the antenna box along a normal to a face with a largest area of the antenna box of the first antenna element defining an antenna rectangle (indicated in green)



Claim 12

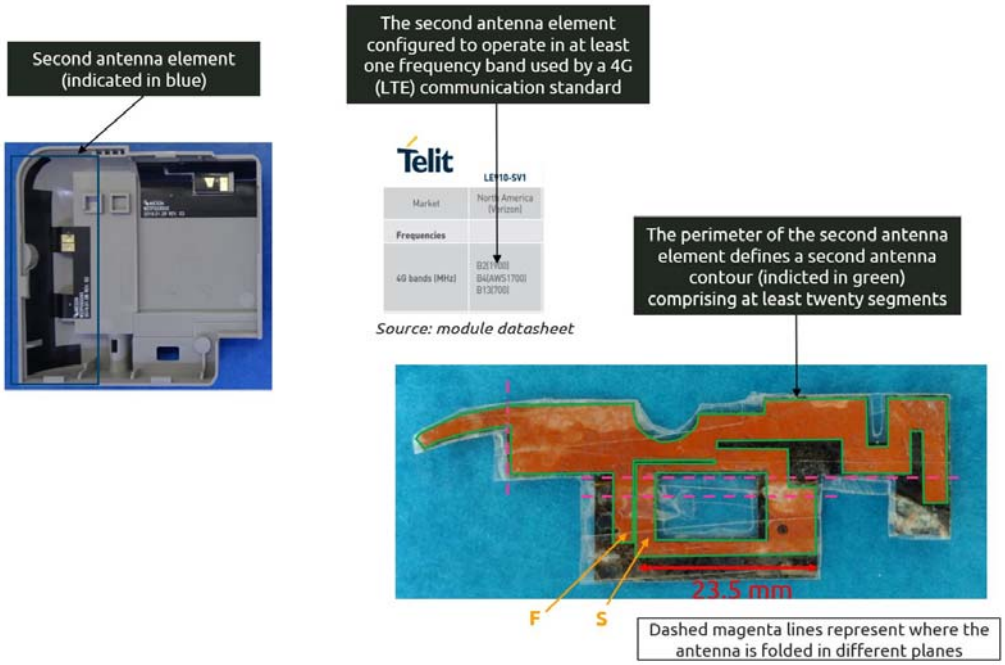
wherein a length of the first antenna contour is greater than four times a diagonal of the antenna rectangle; and



d. And the second antenna element possesses the relevant frequency properties and defines a contour comprising at least twenty segments.

Claim 12

a second antenna element configured to operate in at least one frequency band used by a 4G communication standard, wherein a perimeter of the second antenna element defines a second antenna contour comprising at least twenty segments.



60. Defendant has knowledge of the '103 Patent and has also indirectly infringed at least

claim 12 of the '103 Patent by active inducement under 35 U.S.C. § 271(b). Defendant has induced, caused, urged, encouraged, aided and abetted their direct and indirect customers to make, use, sell, offer for sale and/or import Infringing Products. Defendant has done so by acts including but not limited to selling Infringing Products to their customer; marketing Infringing Products; and providing instructions, technical support, and direct links to vendor websites (available via, e.g., https://www.adt.com/shop [https://perma.cc/JCD2-Y3U7] (last accessed: 10/10/2022)) for the use of Infringing Products. Such conduct by Defendant was intended to and actually resulted in direct infringement, including the making, using, selling, offering for sale, and/or importation of Infringing Products in the United States.

61. The acts of infringement by Defendant have caused damage to Fractus, and Fractus is entitled to recover from Defendant the damages sustained by Fractus as a result of Defendant's wrongful acts in an amount subject to proof at trial. The infringement of Fractus's exclusive rights under the '103 Patent by Defendant has damaged and will continue to damage Fractus, causing irreparable harm, for which there is no adequate remedy at law, unless enjoined by this Court.

INFRINGEMENT OF U.S. PATENT NO. 11,349,200

62. On May 31, 2022, United States Patent No. 11,349,200 (the " '200 Patent") was duly and legally issued for an invention entitled "Multiple-Body-Configuration Multimedia and Smartphone Multifunction Wireless Devices." A true and correct copy of the '200 Patent is attached as Exhibit 6.

63. The '200 Patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code.

64. The '200 Patent describes multiband antennas for multifunction wireless devices which combine mobile data and voice services within a single unit to enable smaller and thinner devices. The antennas are described in part through a "complexity factor" reflecting the complexity

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and degree of convolution of features the antenna demonstrates when viewed in detail.

65. For example, claim 11 of the '200 Patent recites:

a. A wireless device comprising:

i. An antenna system comprising a ground plane and at least two antennas within the wireless device, the antenna system comprising:

1. A first antenna configured to provide operation in at least three frequency bands being used by 4G communication standards,

a. The first antenna defining an antenna contour comprising an entire perimeter of the first antenna, the antenna contour comprising at least twenty segments, wherein the antenna contour has a level of complexity defined by complexity factor F_{21} having a value of at least 1.20 and complexity factor F_{32} having a value of at least 1.35, and

b. Wherein the first antenna defines an antenna box that is a minimum-sized parallelepiped that completely encloses a volume of the first antenna and wherein each face of the minimum-sized parallelepiped is tangent to at least one point of the volume of the first antenna,

c. An orthogonal projection of the antenna box along a normal to a face with a largest area of the first antenna defining an antenna rectangle,

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d. An aspect ratio of the antenna rectangle being defined as a ratio between a width and a height of the antenna rectangle, wherein the aspect ratio has a value of at least 2; and

2. A second antenna configured to provide operation in a first wireless service, the second antenna being proximate to a side of a ground plane rectangle enclosing the ground plane.

66. Defendant has directly infringed and continues to infringe at least claim 11 of the '200 Patent by its manufacture, use, sale, importation, and/or offer for sale of Infringing Products, including but not limited to certain alarm systems and alarm system components with internal antennas. As detailed below, the Infringing Products meet every element of the relevant claims of the '200 Patent literally or under the doctrine of equivalents.[7]

67. As an example, the Qolsys IQ Panel 2 satisfies all of the claim limitations of at least claim 11 of the '200 Patent.

a. It is a wireless device with an antenna system including a ground plane and at least 2 antennas within the device.

[7] This description is illustrative and is not intended to be an exhaustive or limiting explanation of every manner in which each Infringing Product infringes the '200 Patent.

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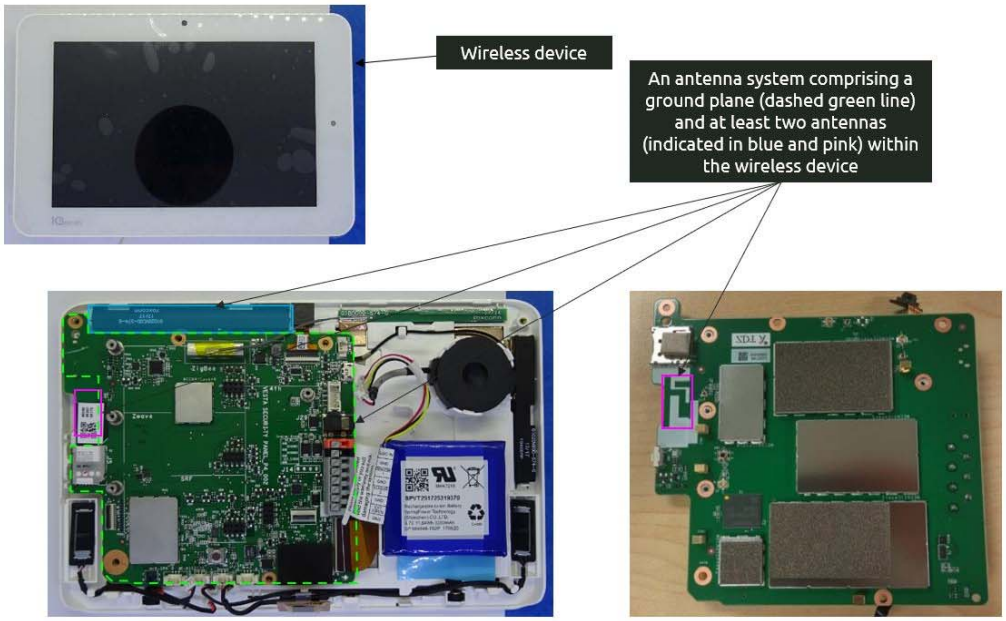
Claim 11

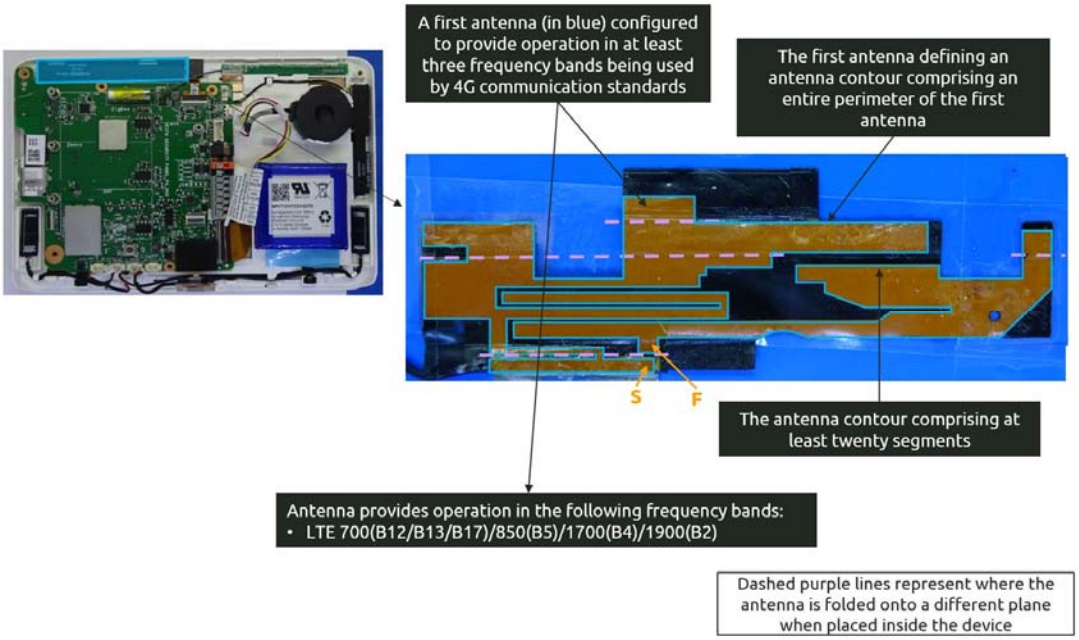
A wireless device comprising: an antenna system comprising a ground plane and at least two antennas within the wireless device, the antenna system comprising:



b. The antenna system comprises a first antenna that provides operation in at least three frequency bands used by 4G communication standards, and said first antenna defines an antenna contour satisfying a minimum number of segments and the complexity factor requirements.

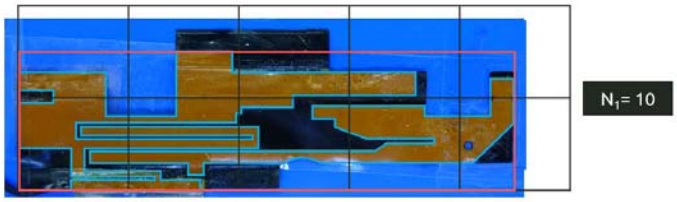
Claim 11

a first antenna configured to provide operation in at least three frequency bands being used by 4G communication standards, the first antenna defining an antenna contour comprising an entire perimeter of the first antenna, the antenna contour comprising at least twenty segments,

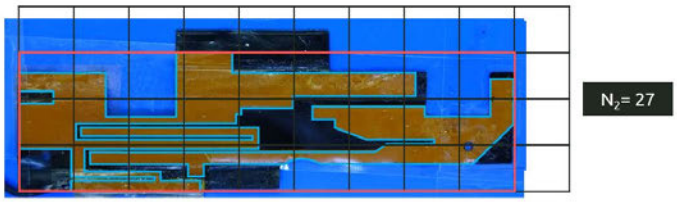


Claim 11

wherein the antenna contour has a level of complexity defined by complexity factor F_{21} having a value of at least 1.20 and



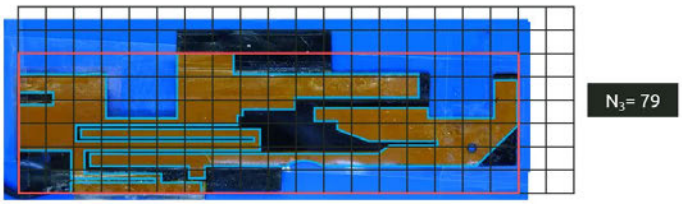
$$F_{21} = -\frac{\log(N_2) - \log(N_1)}{\log\left(\frac{1}{2}\right)} = -\frac{\log(27) - \log(10)}{\log\left(\frac{1}{2}\right)} = 1.43 \geq 1.20$$



Claim 11

complexity factor F_{32} having a value of at least 1.35,

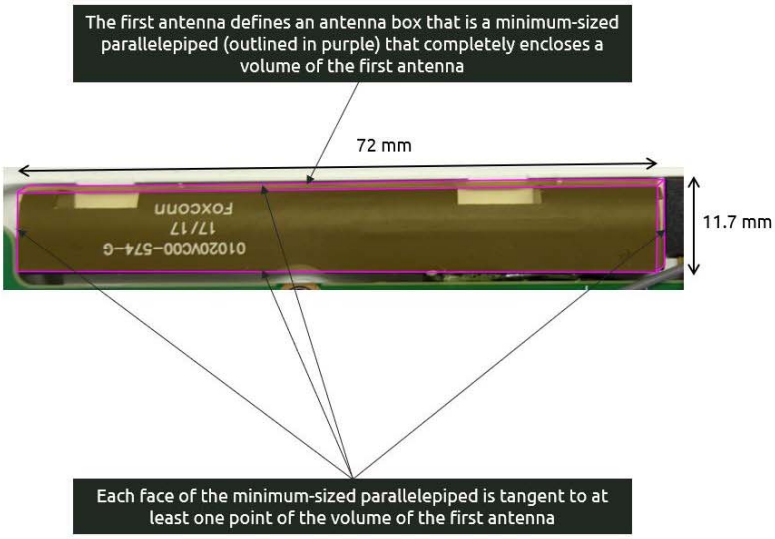
$$F_{32} = -\frac{\log(N_3) - \log(N_2)}{\log\left(\frac{1}{2}\right)} = -\frac{\log(79) - \log(27)}{\log\left(\frac{1}{2}\right)} = 1.55 \geq 1.35$$



c. The first antenna complies with the relevant aspect ratio and footprint requirements.

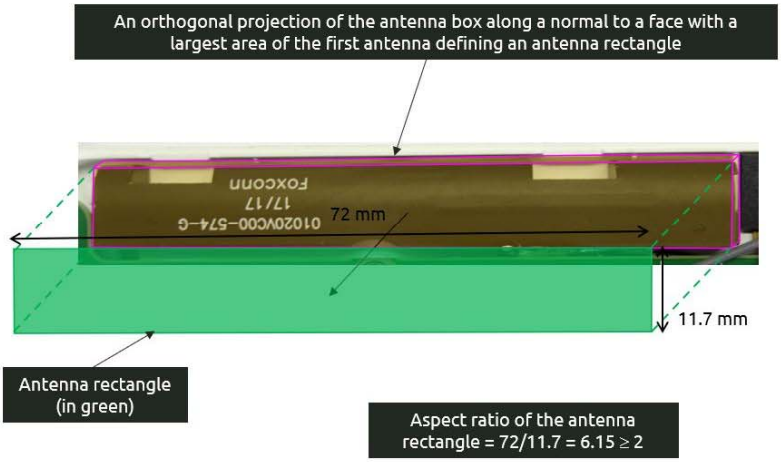
Claim 11

and wherein the first antenna defines an antenna box that is a minimum-sized parallelepiped that completely encloses a volume of the first antenna and wherein each face of the minimum-sized parallelepiped is tangent to at least one point of the volume of the first antenna,



Claim 11

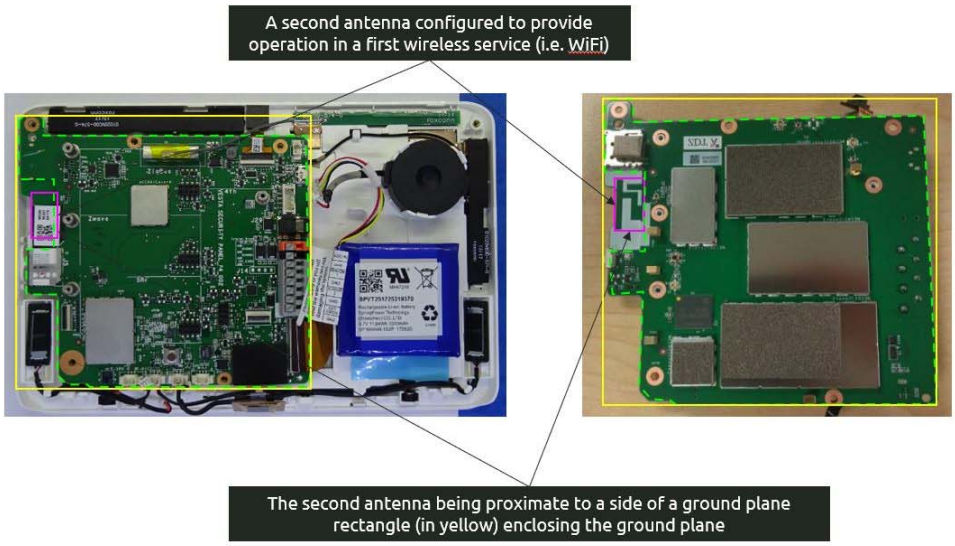
an orthogonal projection of the antenna box along a normal to a face with a largest area of the first antenna defining an antenna rectangle, an aspect ratio of the antenna rectangle being defined as a ratio between a width and a height of the antenna rectangle, wherein the aspect ratio has a value of at least 2; and



d. The antenna system also comprises a second antenna providing operation in a wireless service and being proximate to a side of the rectangle describing the ground plane.

Claim 11

a second antenna configured to provide operation in a first wireless service, the second antenna being proximate to a side of a ground plane rectangle enclosing the ground plane.



68. Defendant has knowledge of the '200 Patent and has also indirectly infringed at least claim 11 of the '200 Patent by active inducement under 35 U.S.C. § 271(b). Defendant has induced, caused, urged, encouraged, aided and abetted their direct and indirect customers to make, use, sell, offer for sale and/or import Infringing Products. Defendant has done so by acts including but not limited to selling Infringing Products to their customer; marketing Infringing Products; and providing instructions, technical support, and direct links to vendor websites (available via, e.g., https://www.adt.com/shop [https://perma.cc/JCD2-Y3U7] (last accessed: 10/10/2022)) for the use of Infringing Products. Such conduct by Defendant was intended to and actually resulted in direct infringement, including the making, using, selling, offering for sale, and/or importation of Infringing Products in the United States.

69. The acts of infringement by Defendant have caused damage to Fractus, and Fractus is entitled to recover from Defendant the damages sustained by Fractus as a result of Defendant's wrongful acts in an amount subject to proof at trial. The infringement of Fractus's exclusive rights under the '200 Patent by Defendant has damaged and will continue to damage Fractus, causing

irreparable harm, for which there is no adequate remedy at law, unless enjoined by this Court.

PRAYER FOR RELIEF

WHEREFORE, Fractus prays for judgment against ADT as follows:

70. A judgment in favor of Fractus that ADT has infringed and are infringing either literally and/or under the doctrine of equivalents, the Patents-in-Suit;

71. An Order permanently enjoining ADT, their respective officers, agents, employees, and those acting in privity with them, from further direct and/or indirect infringement of the unexpired Patents-in-Suit;

72. An award of damages to Fractus arising out of (1) ADT's past infringement of the Patents-in-Suit, (2) ADT's on-going infringement of the unexpired Patents-in-Suit, and (3) enhanced damages pursuant to 35 U.S.C. § 284, together with prejudgment and post-judgment interest, in an amount according to proof;

73. An award of attorneys' fees pursuant to 35 U.S.C. § 285 or as otherwise permitted by law; and

74. Granting Fractus its costs and further relief as the Court may deem just and proper.

DEMAND FOR JURY TRIAL

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

Dated: October 21, 2022

Respectfully submitted,

By: *<u>/s/ Max L. Tribble by permission Claire Henry</u>*

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