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

FRACTUS, S.A.,

Plaintiff,

v.

SPRINT COMMUNICATIONS COMPANY, L.P., SPRINT SPECTRUM, L.P., SPRINT SOLUTIONS, INC. and NEXTEL OPERATIONS, INC.

Defendants,

and

COMMSCOPE TECHNOLOGIES LLC, and CELLMAX TECHNOLOGIES AB,

Intervenor-Defendants.

Civil Action No. 2:18-CV-0135-JRG

JURY TRIAL DEMANDED

SECOND AMENDED COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff Fractus, S.A. ("Fractus" or "Plaintiff") submits this amended complaint for patent infringement against Defendants Sprint Communications Company, L.P., Sprint Spectrum, L.P., Sprint Solutions, Inc. and Nextel Operations, Inc. (collectively "Sprint") and Intervenor-Defendants CommScope Technologies LLC ("CommScope") and CellMax Technologies AB ("CellMax") (collectively "Intervenor-Defendants"). Plaintiff alleges the following:

PARTIES

1. Fractus is a corporation organized and existing under the laws of Spain, with its principal place of business in Sant Cugat del Valles, Barcelona, Spain. Fractus is a world-

renowned innovator in the field of antenna technology, and the inventor of high-performance antennas that allow cellular companies like Sprint and smartphone makers like Samsung to deliver high-speed internet access to their customers. Fractus is asserting U.S. Patent Nos. 6,937,191 (the "'191 patent"), 7,250,918 (the "'918 patent"), 7,557,768 (the "'768 patent"), 7,932,870 (the "'870 patent"), 8,228,256 (the "'256 patent"), 8,896,493 (the "'493 patent"), 9,905,940 (the "'940 patent"), 8,497,814 (the "'814 patent"), 8,754,824 (the "'824 patent"), and 9,450,305 (the "'305 patent") (collectively, the "Patents"). The individual inventors on those Patents were Fractus's founders, scientists and electrical engineers, who have transferred all of their rights, title and interest in the Patents to Fractus.

2. On information and belief, Defendant Sprint Communications Company, L.P. is a Delaware limited partnership with its principal place of business in Overland Park, Kansas.

3. On information and belief, Defendant Sprint Spectrum, L.P. is a Delaware limited partnership with its principal place of business in Overland Park, Kansas.

4. On information and belief, Sprint Solutions, Inc. is a Delaware corporation with its principal place of business in Overland Park, Kansas.

5. On information and belief, Nextel Operations, Inc. is a Delaware corporation with its principal place of business in Overland Park, Kansas..

6. On information and belief, Intervenor-Defendant CommScope Technologies LLC, formerly known as Andrew LLC, is a Delaware limited liability company headquartered in Hickory, North Carolina, with regional places of business at 2601 Telecom Pkwy, Richardson, Texas 75082 and 1300 E. Lookout Dr., #350, Richardson, Texas 75082.

7. On information and belief, Intervenor-Defendant CellMax Technologies AB is a Swedish public limited company (publikt aktiebolag) headquartered in Kista, Stockholm, with

regional places of business at Gullfossgatan 3A, 164 40 Kista, Sweden, 102 Dupont Drive, Lake Charles, LA 70606 and #50-01, 8 Shenton Way, AXA Tower, Singapore 068811.

JURISDICTION AND VENUE

8. This action arises under the patent laws of the United States, 35 U.S.C. § 1 *et seq.*, including but not limited to §§ 271, 281, 282(a), 283, 284, and 285. This Court has subject matter jurisdiction over this patent infringement action pursuant to 28 U.S.C. §§ 1331 and 1338(a).

9. This Court has personal jurisdiction over Sprint. Sprint has regularly conducted and continue to conduct business in the State of Texas and in the Eastern District of Texas. On information and belief, Sprint has committed acts of infringement in the United States, in Texas, and in this federal judicial district including by making, using, offering for sale, selling or importing products or services that infringe the Patents, or by inducing others to infringe the Patents.

10. Venue is proper in this federal judicial district pursuant to 28 U.S.C. § 1400(b). Upon information and belief, Sprint has committed infringing acts in this judicial district by making, using, offering for sale, selling, or importing products or services that infringe the Patents, or by inducing others to infringe the Patents. On information and belief, Sprint maintains a "regular and established" place of business in this federal judicial district, including by (a) maintaining or controlling retail stores in this federal judicial district, (b) maintaining and operating infringing base station antennas in this federal judicial district, including on cellular towers and other installation sites owned or leased by Sprint, and (c) maintaining and operating other places of business, including those where research and development and sales are conducted, where customer service is provided, or where repairs are made.

11. Upon information and belief, Sprint has a regular and established physical presence in the District, including but not limited to, ownership of or control over property, inventory, or infrastructure. For example, Sprint's website (https://storelocator.sprint.com) displays information for Sprint retail stores located at 7925 S. Broadway Ave Suite 1030, Tyler, Texas; 1400 W. Sw. Loop 323 Suite 70, Tyler, Texas; and 1745 Troup Hwy, Tyler, Texas, all of which lie within this federal judicial district.

12. In other recent actions, Sprint has either admitted or not contested that this federal judicial district is a proper venue for patent infringement actions against it. *See, e.g.*, Answer ¶¶ 7, 8, *Traxcell Techs., LLC v. Sprint Commc'ns Co., L.P. et al*, No. 2:17-cv-00719, (E.D. Tex. Jan. 22, 2018), ECF No. 13; Answer ¶¶ 8, 9, *Preferential Networks IP, LLC v. Sprint Spectrum L.P. et al.*, No. 2:17-cv-00197, (E.D. Tex. Sept. 21, 2017), ECF No. 42; Answer ¶¶ 4, 5, *Location Based Srvs., LLC v. Sprint Spectrum L.P.*, No. 2:17-cv-00567, (E.D. Tex. Oct 9, 2017), ECF No. 13. Sprint has also admitted or failed to contest that it has transacted business in this district. *See Traxcell Techs*. at Answer ¶ 7; *Preferential Networks* at Answer ¶¶ 8, 9; *Location Based Srvs.* at Answer ¶ 4.

13. Sprint derives benefits from its presence in this federal judicial district, including, but not limited to, sales revenue. For example, Sprint receives revenue from its corporate stores in this district, by selling network access, phones/products, and services and by receiving payment for its network access, phones/products, and services.

14. Similarly, this Court has personal jurisdiction over Intervenor-Defendants and venue is proper in this federal judicial district as a consequence of its intervention in this case. *See Team Worldwide Corp. v. Wal-Mart Stores, Inc.*, 287 F. Supp. 3d 651, 659 (E.D. Tex. 2018) ("Th[e] choice to intervene (or consent to proceed in a particular jurisdiction and venue) has real

and far-reaching consequences. For example, and unsurprisingly, courts have held that any objection to personal jurisdiction is waived when an absentee party intervenes and through intervention consents to jurisdiction. . . . Directly in line with this rationale, . . . the Supreme Court has held that intervenors cannot question venue, where a defendant has not exercised that privilege." (citations omitted)).

FACTUAL ALLEGATIONS

Fractus Antennas Have Revolutionized the Cellular Telecommunications Industry

15. Cellular telephones communicate with the cellular network using radio waves. The earliest cellular systems used only a single frequency band. Phones were designed to transmit and receive only on that particular frequency band, and cellular companies like Sprint built nationwide networks using antennas that connected with those phones on that frequency band. (Cellular network antennas are sometimes referred to as "base station antennas" and are familiar sights on cell towers commonly seen along highways, or mounted high on buildings.)

16. But with the exploding popularity of cell phones, and especially with the introduction of phones capable of data communications, it soon became clear that the single, narrow frequency bands would be insufficient to meet consumer demand. Newer generations of cellular systems were developed that made use of multiple frequency bands, significantly increasing their capacity and allowing them to communicate at much higher speeds. It is the use of multiple frequency bands—or "multiband" communications—that added the capacity that now allows users to send email, access the internet, stream movies and play online games on their smartphones.

17. Faced with massive new demand from hundreds of millions of new, data-hungry customers, Sprint and other cellular companies (or "carriers") acquired rights to use new

frequency bands. Those rights came at great expense, with Sprint and its competitors paying tens of billions of dollars for access to new frequency bands.

18. Building out their networks to use the new spectrum added tremendous additional cost for the carriers. The cellular networks were originally built using antennas that were capable of transmission and reception in only one frequency band. When another frequency band was added, Sprint and other carriers needed to purchase a second antenna for each cell tower or other installation site, driving up costs. Such a purchase came with other associated costs, including: installing the antenna, buying or leasing additional space for the antenna, and maintaining and servicing the antenna. With the adoption of newer cellular standards using a third or even a fourth frequency band, the need for additional antennas multiplied, and so did the associated expenses.

19. Often, especially in critical locations like cities, deployment of so many antennas was simply impossible. Installation sites were too crowded, or regulations restricted the number or size of antennas that could be installed. In some locations, the weight or "wind load"—the force of wind on the structure—precluded addition of more antennas. As a result, carriers could not take advantage of multiple frequencies in those locations, reducing capacity and performance greatly.

20. Fractus envisioned a radically different solution to these problems. Rather than using a separate antenna for each frequency band, Fractus invented an antenna that could be used in multiple frequency bands. This multiband antenna meant that cellular companies like Sprint could cover multiple frequency bands using just one antenna, doing a job that previously required separate antennas for each frequency band. The Fractus antennas occupied less space, meaning that additional rental or real estate costs were eliminated and that Sprint and other

carriers were able to lower the cost of installation and maintenance. In addition, the multiband antennas could be deployed in locations that could not accommodate multiple antennas, allowing the carriers to improve cellular coverage.

21. The Fractus inventions revolutionized the cellular telecommunications industry, and is the foundation for the designs used by virtually all modern cellular base station antennas, including those deployed by Sprint throughout the United States.

The Origins of the Fractus Inventions

22. The roots of Fractus's inventions lie in academic research conducted in the 1990s by the company's founder and lead inventor, Dr. Carles Puente. The research began while Dr. Puente was a graduate student at the University of Illinois, well known for being the birthplace of internet-based innovations such as Netscape, the first graphical browser for the internet. His research continued after he became professor at the Polytechnic University of Catalonia in Spain, known locally as "Barcelona Tech," and one of Europe's leading technical universities.

23. In the late 1990s, Dr. Puente and his team began experimentation on antennas that could operate at multiple frequency bands at the same time. Their original concept focused on the use of repeating patterns known as fractals (the origin of the name "Fractus"). Building from that original concept, Dr. Puente's team focused on developing multiband antennas for both sides of the cellular telecommunications system—small antennas for use in phones, and base station antennas for use in the cellular network.

24. Base station antennas are made up of multiple smaller antennas (sometimes referred to as "antenna elements") arranged in an array that work together to send and receive radio signals from multiple cellular phones in the base station's service area. But as with individual antennas, the typical arrays in use at the time of Fractus's inventions were capable of

operating in just a single frequency band. The structural characteristics of a particular array, including its size and the spacing of the antenna elements determined the frequency band on which it would operate. If carriers like Sprint wanted to use more than one frequency band, it would need to install separate antennas specifically configured for each of the different band.

25. Fractus's groundbreaking arrays grew out of the concept of using individual antenna elements that are each themselves capable of transmitting and receiving in multiple frequency bands, arranged in an interlaced pattern using spacing that optimizes the overall performance of the resulting antenna. Compared to previous attempts to design "multiband" arrays, the Fractus antenna enabled the high quality performance that is essential for cellular networks, can be used for a wide variety of frequency bands, and—perhaps most importantly—does so within a small, compact design that does not require additional space on cell towers or installation sites.

26. In 1999, Dr. Puente and his team founded Fractus as a private company to work on the commercial development of multiband antennas for the cellular telecommunications industry, and applied for patents on their groundbreaking innovation. The United States Patent and Trademark Office (the "PTO") has awarded Fractus seven patents in that original patent family, titled "Interlaced Multiband Antenna Arrays," referred to herein as the '191, '918, '768, '870, '256, '493 and '940 patents, or together as the "Fractus Multiband Array Patents."

Praise for the Fractus Inventions

27. The inventions were quickly recognized as game-changing. Telefonica, the leading Spanish carrier, snapped up Fractus's first multiband base station antennas. Shortly thereafter, global electronics giant Siemens approached Fractus and proposed using Fractus's innovation as the core of all of Siemens's multiband base station antennas. In 2003, Fractus and

Siemens entered into a commercial partnership and began industrial production in Europe. Ideas developed by the Fractus team during its partnership with Siemens further enhanced the capability of the multiband designs, resulting in the invention of a compact base station antenna capable of operation in three (or more) frequency bands and incorporating additional features that further enhanced performance. Those innovations are reflected in three additional patents awarded by the PTO: the '814, '824, and '305 patents, titled "Slim Triple Band Antenna Array for Cellular Base Stations," and referred to herein as the "Fractus Slim Triple Band Patents."

28. Dr. Puente and the other Fractus inventors have received widespread acclaim for their innovations. In 2014, they were named finalists for the European Inventor Award by the European Patent Office—the preeminent award for inventions in Europe. Fractus was also designated as a Technology Pioneer by the World Economic Forum in 2005, won the Elektra European Electronics Industry R&D Award in 2007, and was named a Pioneer in antenna technology development by Spanish Royal Academy of Engineering in 2015.

29. Fractus's cellular phone antenna designs have been licensed by all of the world's largest smartphone manufacturers, including Samsung, LG, Blackberry and Motorola and others. Together, phone manufacturers have paid Fractus more than $100 million in licensing fees for the right to use its smartphone antenna designs.

THE INFRINGING ANTENNAS

30. While Sprint has saved hundreds of millions of dollars by deploying base station antennas across the United States using Fractus's patented technology, it has never paid any royalties for the right to do so. Fractus is entitled to compensation for Sprint's use of its inventions. It brings this lawsuit to recover that fair share.

31. The success of Sprint is built on the quality of its nationwide network, and the ability to provide high-speed connections to hundreds of millions of users across the entire country, proudly telling customers: "You're covered."

32. To deliver that capacity, Sprint and the other major U.S. carriers have invested billions of dollars in successive generations of cellular standards that utilize increasing numbers of frequency bands. They source the highest-performance antennas from manufacturers like Amphenol, Kathrein, CommScope, RFS, and CellMax that are capable of multiband communications. Virtually every one of those antennas infringes Fractus's patent rights.

33. Representative examples of these antennas (the "Infringing Antennas"), and a short summary of some of the ways they infringe are set forth below. Fractus will establish at trial the details about the Infringing Antennas, including through evidence that Fractus will obtain through the discovery process. Fractus's investigation and identification of the Infringing Antennas is ongoing, and the information provided in this amended complaint should not be construed as limiting.

34. On information and belief, Sprint uses the Amphenol 6890300, the Kathrein 80010691V01, or antennas with a materially equivalent structure, to provide cellular telecommunication services to its customers. The Amphenol 6890300 antenna utilizes an interlaced multiband antenna array operating on a plurality of frequency bands using features claimed and disclosed in the Patents, specifically in the Fractus Multiband Array Patents:

		Long Neck		Long Neck
ELECTRICAL CHARACTERISTICS	R1			
Frequency Bands	698-960 MHz			
	698-806 MHz	790-862 MHz	824-894 MHz	880-960 MHz

ELECTRICAL CHARACTERISTICS	Y1				
Frequency Bands	1695-2690 MHz				
	1695-1880 MHz	1850-1990 MHz	1920-2180 MHz	2300-2500 MHz	2490-2690 MHz

ELECTRICAL CHARACTERISTICS	Y2				
Frequency Bands	1695-2690 MHz				
	1695-1880 MHz	1850-1990 MHz	1920-2180 MHz	2300-2500 MHz	2490-2690 MHz

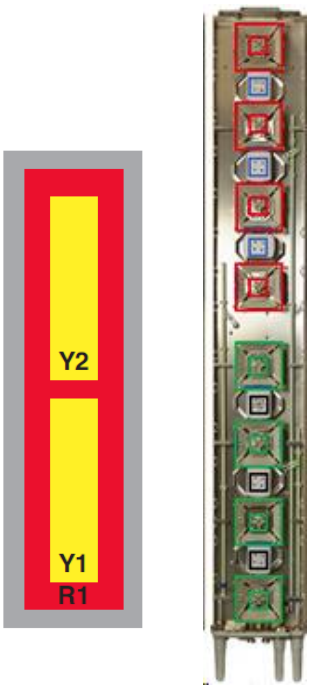
35. This exemplary antenna has antenna elements in an interlaced configuration determined by the juxtaposition of other antenna elements, as described in the Fractus Multiband

Array Patents. In accordance with other features claimed in the Fractus Multiband Array Patents, the antenna elements are arranged with respect to a longitudinal axis of the array. In addition, the spacing between antenna elements and the ratio between the frequencies match the particular spacing and frequency ratios claimed in the Patents.

36. The Amphenol 6890300 antenna operates on at least three frequency bands in a configuration disclosed and claimed by the Fractus Slim Triple Band Patents.

37. In accordance with other features claimed in the Fractus Slim Triple Band Patents, the antenna (or radiating) elements are arranged with respect to a vertical direction of a ground plane, and the antenna contains phase shifters that provide variable electrical downtilt. In addition, the size of the antenna elements and certain physical features of portions of antenna elements match the particular sizing and features claimed in the Fractus Slim Triple Band Patents.

38. Similarly, the Kathrein 80010691V01 antenna utilizes an interlaced multiband antenna array operating on a plurality of frequency bands using features claimed and disclosed in the Patents, specifically in the Fractus Multiband Array Patents:



Lowband		R1, connector 1–2			
		698–960			
Frequency Range	MHz	698 – 806	790 – 862	824 – 894	880 – 960

Lower highband		Y1, connector 3–4				
		1710–2690				
Frequency Range	MHz	1710 – 1880	1850 – 1990	1920 – 2180	2300 – 2400	2490 – 2690

Upper highband		Y2, connector 5–6				
		1710–2690				
Frequency Range	MHz	1710 – 1880	1850 – 1990	1920 – 2180	2300 – 2400	2490 – 2690

39. This exemplary antenna has antenna elements in an interlaced configuration determined by the juxtaposition of other antenna elements as described in the Fractus Multiband Array Patents. In accordance with other features claimed in the Fractus Multiband Array Patents, the antenna elements are arranged with respect to a longitudinal axis of the array. In addition, the spacing between the antenna elements and the ratio between the frequencies match the particular spacing and frequency ratios claimed in the Patents.

40. The Kathrein 80010691V01 antenna operates on at least three frequency bands in a configuration disclosed and claimed by the Fractus Slim Triple Band Patents.

41. In accordance with other features claimed in the Fractus Slim Triple Band Patents, the antenna (or radiating) elements are arranged with respect to a vertical direction of a ground plane, and the antenna contains phase shifters that provide variable electrical downtilt. In addition, the size of the antenna elements and certain physical features of portions of antenna elements match the particular sizing and features claimed in the Fractus Slim Triple Band Patents.

42. Fractus's patented technology has also been used in base station antennas manufactured by Intervenor-Defendants and offered for sale and sold in the United States to U.S. carriers including AT&T, Verizon, T-Mobile, Sprint, US Cellular and/or Claro Puerto Rico, even though Intervenor-Defendants have never paid any royalties for the right to do so. Fractus is entitled to compensation for Intervenor-Defendants' infringement.

43. Representative examples of these antennas, and a short summary of some of the ways they infringe are set forth below. Fractus will establish at trial the details about these infringing antennas, including through evidence that Fractus will obtain through the discovery process. Fractus's investigation and identification of the infringing antennas is ongoing, and the information provided in this amended complaint should not be construed as limiting.

44. Upon information and belief, CommScope at least manufactures the DBXLH-6565A-VTM, or antennas with a materially equivalent structure ("CommScope Interlaced Antennas"), to offer to sell and to sell to various wireless carriers in the United States. Upon information and belief, the CommScope DBXLH-6565A-VTM antenna utilizes an interlaced

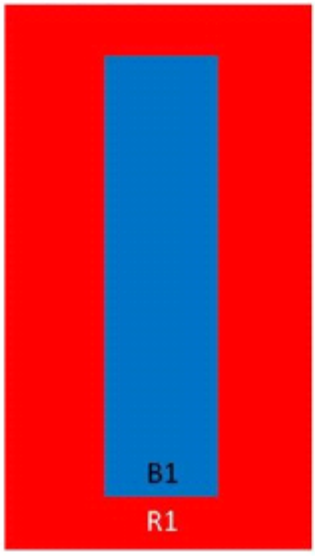
multiband antenna array operating on a plurality of frequency bands using features claimed and disclosed in the Patents, specifically in the Fractus Multiband Array Patents:

DBXLH-6565A-VTM | DBXLH-6565A-A2M

4-port sector antenna, 2x 824–960 and 2x 1710–2180 MHz, 65° HPBW, RET compatible

Electrical Specifications

Frequency Band, MHz	824–896	870–960	1710–1880	1850–1990	1920–2180
Gain, dBi	14.0	14.3	16.5	16.8	17.0
Beamwidth, Horizontal, degrees	70	67	67	63	60
Beamwidth, Vertical, degrees	15.2	14.5	7.2	6.8	6.5
Beam Tilt, degrees	0–15	0–15	0–8	0–8	0–8
USLS (First Lobe), dB	16	18	15	15	15
Front-to-Back Ratio at 180°, dB	25	25	28	28	27
Isolation, dB	25	30	30	30	30
Isolation, Intersystem, dB	33	33	33	33	33
VSWR | Return Loss, dB	1.4 | 15.6	1.5 | 14.0	1.5 | 14.0	1.4 | 15.6	1.5 | 14.0
PIM, 3rd Order, 2 x 20 W, dBc	-150	-150	-150	-150	-150
Input Power per Port, maximum, watts	350	350	350	350	350
Polarization	±45°	±45°	±45°	±45°	±45°
Impedance	50 ohm	50 ohm	50 ohm	50 ohm	50 ohm



Array	Freq (MHz)	Conns
R1	824-960	1-2
B1	1710-2180	3-4

45. Upon information and belief, this exemplary antenna has antenna elements in an interlaced configuration determined by the juxtaposition of other antenna elements as described in the Fractus Multiband Array Patents. In accordance with other features claimed in the Fractus

Multiband Array Patents, the antenna elements are arranged with respect to a longitudinal axis of the array. In addition, the spacing between the antenna elements and the ratio between the frequencies match the particular spacing and frequency ratios claimed in the Patents.

46. Upon information and belief, CommScope at least manufactures the TBXLHA-6565B-A3M antenna, or antennas with a materially equivalent structure ("CommScope '814 Antennas"), to offer to sell and to sell to various wireless carriers in the United States. Upon information and belief, the CommScope TBXLHA-6565B-A3M operates on at least three frequency bands in a configuration disclosed and claimed by certain of the Fractus Slim Triple Band Patents.

Product Specifications

COMMSCOPE®

TBXLHA-6565B-VTM | TBXLHA-6565B-A3M

6-port sector antenna, 2x 824–960 and 4x 1710–2180 MHz, 65° HPBW, RET compatible

- Three DualPol® antennas under one radome
- Interleaved dipole technology providing for attractive, low wind load mechanical package

Electrical Specifications

Frequency Band, MHz	824–896	870–960	1710–1880	1850–1990	1920–2180
Gain, dBi	15.9	16.5	15.6	15.6	15.6
Beamwidth, Horizontal, degrees	70	67	61	62	61
Beamwidth, Vertical, degrees	9.6	9.2	9.5	9.1	8.7
Beam Tilt, degrees	0–11	0–11	0–10	0–10	0–10
USLS (First Lobe), dB	15	15	15	15	15
Front-to-Back Ratio at 180°, dB	25	25	28	30	28
CPR at Boresight, dB	21	21	12	12	11
CPR at Sector, dB	13	10	5	5	5
Isolation, dB	30	30	30	30	30
Isolation, Intersystem, dB	30	30	30	30	30
VSWR | Return Loss, dB	1.4 | 15.6	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0
PIM, 3rd Order, 2 x 20 W, dBc	-150	-150	-150	-150	-150
Input Power per Port, maximum, watts	350	350	350	350	350
Polarization	±45°	±45°	±45°	±45°	±45°
Impedance	50 ohm	50 ohm	50 ohm	50 ohm	50 ohm

47. Upon information and belief, in accordance with other features claimed in the '814 patent, the antenna operates within specific frequency ranges and according to specific

cellular protocols. In addition, the size of the radiating elements and the dimensions of the antenna array are according to those features as claimed in the ’814 patent.

48. Upon information and belief, CommScope at least manufactures the DT465B-2XR-V2 antenna, or antennas with materially equivalent structure (“CommScope ’305 Antennas”), to offer to sell and to sell to various wireless carriers in the United States. Upon information and belief, the CommScope DT465B-2XR-V2 antenna operates in first, second, and third frequency bands in a configuration disclosed and claimed by certain of the Fractus Slim Triple Band Patents.

DT465B-2XR-V2

10-port, Multiband, DualPol® Planar Array ® Antenna, 2x 817-869, 8x 2490-2690 MHz, 65° HPBW, 2x RET with individual tilt available for the 850 MHz band and 2500 MHz bands.

- Integrated with a calibration board
- 1 column for 817-869 MHz and 4 columns for 2490-2690 MHz
- Two sets of AISG inputs for independent control of the internal RETs

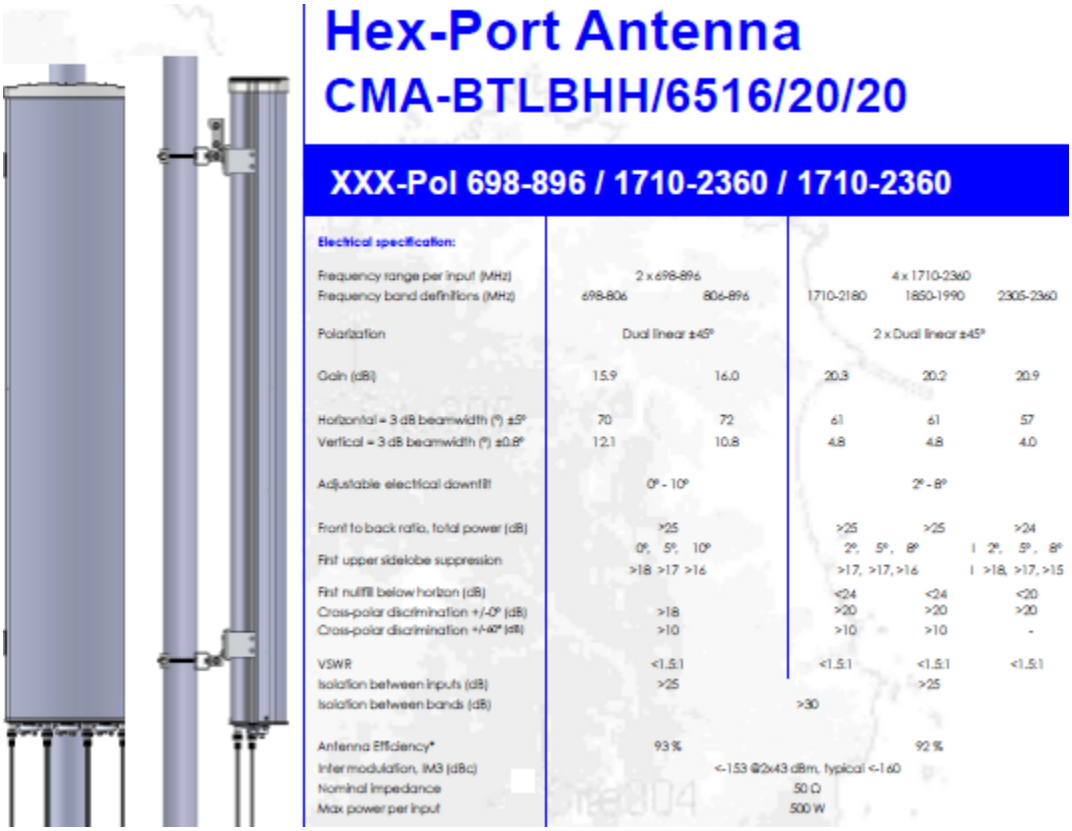
Electrical Specifications

Frequency Band, MHz	817–869	2490–2690
Gain, dBi	16.3	18.3
Beamwidth, Horizontal, degrees	62	69
Beamwidth, Vertical, degrees	10.6	4.3
Beam Tilt, degrees	0–8	0–6
USLS (First Lobe), dB	19	16
Front-to-Back Ratio at 180°, dB	28	28
Isolation, dB	28	27
Isolation, Intersystem, dB	30	30
VSWR | Return Loss, dB	1.5 | 14.0	1.5 | 14.0
PIM, 3rd Order, 2 x 20 W, dBc	-150	-150
Input Power per Port, maximum, watts	300	50
Polarization	±45°	±45°
Impedance	50 ohm	50 ohm

49. Upon information and belief, in accordance with other features claimed in the ’305 patent, the antenna (or radiating) elements are arranged along and/or displaced off a substantially vertical direction of a ground plane. In addition, the size of the antenna elements

and certain physical features of portions of antenna elements match the particular sizing and features claimed in the ’305 patent.

50. Upon information and belief, CellMax at least manufactures CMA-BTLBHH/6516/20/20, or antennas with a materially equivalent structure (“CellMax Interlaced Antennas”), to offer to sell and to sell to various wireless carriers in the United States. Upon information and belief, the CellMax CMA-BTLBHH/6516/20/20 antenna utilizes an interlaced multiband antenna array operating on a plurality of frequency bands using features claimed and disclosed in the Patents, specifically in the Fractus Multiband Array Patents:



51. Upon information and belief, this exemplary antenna has antenna elements in an interlaced configuration determined by the juxtaposition of other antenna elements as described in the Fractus Multiband Array Patents. In accordance with other features claimed in the Fractus Multiband Array Patents, the antenna elements are arranged with respect to a longitudinal axis of the array. In addition, the spacing between the antenna elements and the ratio between the frequencies match the particular spacing and frequency ratios claimed in the Patents.

COUNT ONE: INFRINGEMENT OF U.S. PATENT 6,937,191

52. The ’191 patent, entitled “Interlaced Multiband Antenna Arrays,” was duly and legally issued by the PTO on August 30, 2005, after a full and fair examination. Fractus owns the ’191 patent by assignment. The named inventors on the ’191 patent are Carles Puente Baliarda, Jordi Romeu Robert, and Sebastian Blanch Boris. A true and correct copy of the ’191 patent is attached hereto as Exhibit A.

53. The ’191 patent is valid and enforceable. Sprint, CommScope, and CellMax do not have a license to practice any of the inventions claimed in the ’191 patent.

54. Sprint directly infringes at least claim 1 of the ’191 patent by making, using, selling, offering to sell, and/or importing products or services that infringe the Patents—

including the Infringing Antennas—which meet every limitation of at least claim 1 of the ’191 patent.

55. CommScope directly infringes at least claim 1 of the ’191 patent by making, using, selling, offering to sell, and/or importing products or services that infringe the Patents—including the CommScope Interlaced Antennas—which meet every limitation of at least claim 1 of the ’191 patent.

56. CellMax directly infringes at least claim 1 of the ’191 patent by making, using, selling, offering to sell, and/or importing products or services that infringe the Patents—including the CellMax Interlaced Antennas—which meet every limitation of at least claim 1 of the ’191 patent.

57. To the extent Sprint does not directly own and operate the Infringing Antennas, the Infringing Antennas are nevertheless under the direct control of Sprint and are used by Sprint in providing cellular services.

58. In addition, Sprint has actively induced and continues to actively induce others to directly infringe the ’191 patent by making, using, selling, offering to sell, and/or importing the Infringing Antennas. Moreover, Sprint has known of and/or should have known of the ’191 patent, by at least the date of the patent’s issuance, such that Sprint knew and should have known that it was and would be inducing infringement. To the extent Sprint was not previously aware of the ’191 patent, it was aware of it as of the filing of the original Complaint.

59. On information and belief, CommScope has actively induced and continues to actively induce others to directly infringe the ’191 patent by making, using, selling, offering to sell, and/or importing CommScope Interlaced Antennas. For example, CommScope sells such infringing antennas to U.S. wireless carriers, while actively encouraging and enabling these

carriers to use such infringing antennas in the United States, including by providing instructions on how to use the infringing antennas. Moreover, CommScope has known of and/or should have known of the '191 patent, by at least the date of the patent's issuance, such that CommScope knew and should have known that it was and would be inducing infringement. To the extent CommScope was not previously aware of the '191 patent, it became aware of such patent soon after the original Complaint in this action was filed, when CommScope was contacted by Sprint and/or other original defendants in this litigation concerning indemnification with regard to Fractus's claims of infringement.

60. On information and belief, CellMax has actively induced and continues to actively induce others to directly infringe the '191 patent by making, using, selling, offering to sell, and/or importing CellMax Interlaced Antennas. For example, CellMax sells such infringing antennas to U.S. wireless carriers, while actively encouraging and enabling these carriers to use such infringing antennas in the United States, including by providing instructions on how to use the infringing antennas. Moreover, CellMax has known of and/or should have known of the '191 patent, by at least the date of the patent's issuance, such that CellMax knew and should have known that it was and would be inducing infringement. To the extent CellMax was not previously aware of the '191 patent, it became aware of such patent soon after the original Complaint in this action was filed, when CellMax was contacted by Sprint and/or other original defendants in this litigation concerning indemnification with regard to Fractus's claims of infringement.

61. In addition, on information and belief from at least as early as the filing of the original Complaint, Sprint has infringed or induced others to make, use, sell, offer to sell, and/or import the Infringing Antennas with knowledge of and/or willful blindness to the fact that such

use infringes the ’191 patent, has disregarded an objectively high likelihood of infringement of the ’191 patent, and has acted, and continues to act, willfully, wantonly, and in deliberate disregard of Fractus’s rights.

62. Likewise, on information and belief, from at least as early as July 5, 2018, CommScope has infringed or induced others to make, use, sell, offer to sell, and/or import CommScope Interlaced Antennas with knowledge of and/or willful blindness to the fact that such activities infringe the ’191 patent, has disregarded an objectively high likelihood of infringement of the ’191 patent, and has acted, and continues to act, willfully, wantonly, and in deliberate disregard of Fractus’s rights.

63. Likewise, on information and belief, from at least as early as July 31, 2018, CellMax has infringed or induced others to make, use, sell, offer to sell, and/or import CellMax Interlaced Antennas with knowledge of and/or willful blindness to the fact that such activities infringe the ’191 patent, has disregarded an objectively high likelihood of infringement of the ’191 patent, and has acted, and continues to act, willfully, wantonly, and in deliberate disregard of Fractus’s rights.

64. As the direct and proximate result of Sprint’s and Intervenor-Defendants’ conduct, Fractus has suffered and, if Sprint’s and Intervenor-Defendants’ conduct is not stopped, will continue to suffer, severe competitive harm, irreparable injury, and significant damages, in an amount to be proven at trial. Because Fractus’s remedy at law is inadequate, Fractus seeks, in addition to damages, injunctive relief. Fractus’s business operates in a competitive market and will continue suffering irreparable harm absent injunctive relief.

65. Fractus is entitled to injunctive relief and damages of no less than a reasonable royalty in accordance with 35 U.S.C. §§ 271, 281, 283, and 284.

66. Sprint's and Intervenor-Defendants' conduct, including their infringement of the '191 patent, is exceptional and entitles Fractus to attorneys' fees and costs under 35 U.S.C. § 285.

67. From at least as early as the filing of the original Complaint, Sprint has been on notice of its infringement of the '191 patent, and its infringement has been and continues to be willful and egregious, entitling Fractus to enhanced damages in accordance with 35 U.S.C. § 284.

68. From at least as early July 5, 2018, CommScope has been on notice of its infringement of the '191 patent, and its infringement has been and continues to be willful and egregious, entitling Fractus to enhanced damages in accordance with 35 U.S.C. § 284.

69. From at least as early July 31, 2018, CellMax has been on notice of its infringement of the '191 patent, and its infringement has been and continues to be willful and egregious, entitling Fractus to enhanced damages in accordance with 35 U.S.C. § 284.

COUNT TWO: INFRINGEMENT OF U.S. PATENT 7,250,918

70. The '918 patent, entitled "Interlaced Multiband Antenna Arrays," was duly and legally issued by the PTO on July 31, 2007, after a full and fair examination. Fractus owns the '918 patent by assignment. The named inventors on the '918 patent are Carles Puente Baliarda, Jordi Romeu Robert, and Sebastian Blanch Boris. A true and correct copy of the '918 patent is attached hereto as Exhibit B.

71. The '918 patent is valid and enforceable. Sprint, CommScope, and CellMax do not have a license to practice any of the inventions claimed in the '918 patent.

72. Sprint directly infringes at least claim 1 of the '918 patent by making, using, selling, offering to sell, and/or importing products or services that infringe the Patents—

including the Infringing Antennas—which meet every limitation of at least claim 1 of the ’918 patent.

73. CommScope directly infringes at least claim 1 of the ’918 patent by making, using, selling, offering to sell, and/or importing products or services that infringe the Patents—including the CommScope Interlaced Antennas—which meet every limitation of at least claim 1 of the ’918 patent.

74. CellMax directly infringes at least claim 1 of the ’918 patent by making, using, selling, offering to sell, and/or importing products or services that infringe the Patents—including the CellMax Interlaced Antennas—which meet every limitation of at least claim 1 of the ’918 patent.

75. To the extent Sprint does not directly own and operate the Infringing Antennas, the Infringing Antennas are nevertheless under the direct control of Sprint and are used by Sprint in providing cellular services.

76. In addition, Sprint has actively induced and continues to actively induce others to directly infringe the ’918 patent by making, using, selling, offering to sell, and/or importing the Infringing Antennas. Moreover, Sprint has known of and/or should have known of the ’918 patent, by at least the date of the patent’s issuance, such that Sprint knew and should have known that it was and would be inducing infringement. To the extent Sprint was not previously aware of the ’918 patent, it was aware of it as of the filing of the original Complaint.

77. On information and belief, CommScope has actively induced and continues to actively induce others to directly infringe the ’918 patent by making, using, selling, offering to sell, and/or importing CommScope Interlaced Antennas. For example, CommScope sells such infringing antennas to U.S. wireless carriers, while actively encouraging and enabling these

carriers to use such infringing antennas in the United States, including by providing instructions on how to use the infringing antennas. Moreover, CommScope has known of and/or should have known of the '918 patent, by at least the date of the patent's issuance, such that CommScope knew and should have known that it was and would be inducing infringement. To the extent CommScope was not previously aware of the '918 patent, it became aware of such patent soon after the original Complaint in this action was filed, when CommScope was contacted by Sprint and/or other original defendants in this litigation concerning indemnification with regard to Fractus's claims of infringement.

78. On information and belief, CellMax has actively induced and continues to actively induce others to directly infringe the '918 patent by making, using, selling, offering to sell, and/or importing CellMax Interlaced Antennas. For example, CellMax sells such infringing antennas to U.S. wireless carriers, while actively encouraging and enabling these carriers to use such infringing antennas in the United States, including by providing instructions on how to use the infringing antennas. Moreover, CellMax has known of and/or should have known of the '918 patent, by at least the date of the patent's issuance, such that CellMax knew and should have known that it was and would be inducing infringement. To the extent CellMax was not previously aware of the '918 patent, it became aware of such patent soon after the original Complaint in this action was filed, when CellMax was contacted by Sprint and/or other original defendants in this litigation concerning indemnification with regard to Fractus's claims of infringement.

79. In addition, on information and belief from at least as early as the filing of the original Complaint, Sprint has infringed or induced others to make, use, sell, offer to sell, and/or import the Infringing Antennas with knowledge of and/or willful blindness to the fact that such

use infringes the ’918 patent, has disregarded an objectively high likelihood of infringement of the ’918 patent, and has acted, and continues to act, willfully, wantonly, and in deliberate disregard of Fractus’s rights.

80. Likewise, on information and belief, from at least as early as July 5, 2018, CommScope has infringed or induced others to make, use, sell, offer to sell, and/or import CommScope Interlaced Antennas with knowledge of and/or willful blindness to the fact that such activities infringe the ’918 patent, has disregarded an objectively high likelihood of infringement of the ’918 patent, and has acted, and continues to act, willfully, wantonly, and in deliberate disregard of Fractus’s rights.

81. Likewise, on information and belief, from at least as early as July 31, 2018, CellMax has infringed or induced others to make, use, sell, offer to sell, and/or import CellMax Interlaced Antennas with knowledge of and/or willful blindness to the fact that such activities infringe the ’918 patent, has disregarded an objectively high likelihood of infringement of the ’918 patent, and has acted, and continues to act, willfully, wantonly, and in deliberate disregard of Fractus’s rights.

82. As the direct and proximate result of Sprint’s and Intervenor-Defendants’ conduct, Fractus has suffered and, if Sprint’s and Intervenor-Defendants’ conduct is not stopped, will continue to suffer, severe competitive harm, irreparable injury, and significant damages, in an amount to be proven at trial. Because Fractus’s remedy at law is inadequate, Fractus seeks, in addition to damages, injunctive relief. Fractus’s business operates in a competitive market and will continue suffering irreparable harm absent injunctive relief.

83. Fractus is entitled to injunctive relief and damages of no less than a reasonable royalty in accordance with 35 U.S.C. §§ 271, 281, 283, and 284.

84. Sprint's and Intervenor-Defendants' conduct, including their infringement of the '918 patent, is exceptional and entitles Fractus to attorneys' fees and costs under 35 U.S.C. § 285.

85. From at least as early as the filing of the original Complaint, Sprint has been on notice of its infringement of the '918 patent, and its infringement has been and continues to be willful and egregious, entitling Fractus to enhanced damages in accordance with 35 U.S.C. § 284.

86. From at least as early July 5, 2018, CommScope has been on notice of its infringement of the '918 patent, and its infringement has been and continues to be willful and egregious, entitling Fractus to enhanced damages in accordance with 35 U.S.C. § 284.

87. From at least as early July 31, 2018, CellMax has been on notice of its infringement of the '918 patent, and its infringement has been and continues to be willful and egregious, entitling Fractus to enhanced damages in accordance with 35 U.S.C. § 284.

COUNT THREE: INFRINGEMENT OF U.S. PATENT 7,557,768

88. The '768 patent, entitled "Interlaced Multiband Antenna Arrays," was duly and legally issued by the PTO on July 7, 2009, after a full and fair examination. Fractus owns the '768 patent by assignment. The named inventors on the '768 patent are Carles Puente Baliarda, Jordi Romeu Robert, and Sebastian Blanch Boris. A true and correct copy of the '768 patent is attached hereto as Exhibit C.

89. The '768 patent is valid and enforceable. Sprint, CommScope, and CellMax do not have a license to practice any of the inventions claimed in the '768 patent.

90. AT&T directly infringes at least claim 1 of the '768 patent by making, using, selling, offering to sell, and/or importing products or services that infringe the Patents—

including the Infringing Antennas—which meet every limitation of at least claim 1 of the ’768 patent.

91. CommScope directly infringes at least claim 1 of the ’768 patent by making, using, selling, offering to sell, and/or importing products or services that infringe the Patents—including the CommScope Interlaced Antennas—which meet every limitation of at least claim 1 of the ’768 patent.

92. CellMax directly infringes at least claim 1 of the ’768 patent by making, using, selling, offering to sell, and/or importing products or services that infringe the Patents—including the CellMax Interlaced Antennas—which meet every limitation of at least claim 1 of the ’768 patent.

93. To the extent AT&T does not directly own and operate the Infringing Antennas, the Infringing Antennas are nevertheless under the direct control of AT&T and are used by AT&T in providing cellular services.

94. In addition, AT&T has actively induced and continues to actively induce others to directly infringe the ’768 patent by making, using, selling, offering to sell, and/or importing the Infringing Antennas. Moreover, AT&T has known of and/or should have known of the ’768 patent, by at least the date of the patent’s issuance, such that AT&T knew and should have known that it was and would be inducing infringement. To the extent AT&T was not previously aware of the ’768 patent, it was aware of it as of the filing of the original Complaint.

95. On information and belief, CommScope has actively induced and continues to actively induce others to directly infringe the ’768 patent by making, using, selling, offering to sell, and/or importing CommScope Interlaced Antennas. For example, CommScope sells such infringing antennas to U.S. wireless carriers, while actively encouraging and enabling these

carriers to use such infringing antennas in the United States, including by providing instructions on how to use the infringing antennas. Moreover, CommScope has known of and/or should have known of the '768 patent, by at least the date of the patent's issuance, such that CommScope knew and should have known that it was and would be inducing infringement. To the extent CommScope was not previously aware of the '768 patent, it became aware of such patent soon after the original Complaint in this action was filed, when CommScope was contacted by AT&T and/or other original defendants in this litigation concerning indemnification with regard to Fractus's claims of infringement.

96. On information and belief, CellMax has actively induced and continues to actively induce others to directly infringe the '768 patent by making, using, selling, offering to sell, and/or importing CellMax Interlaced Antennas. For example, CellMax sells such infringing antennas to U.S. wireless carriers, while actively encouraging and enabling these carriers to use such infringing antennas in the United States, including by providing instructions on how to use the infringing antennas. Moreover, CellMax has known of and/or should have known of the '768 patent, by at least the date of the patent's issuance, such that CellMax knew and should have known that it was and would be inducing infringement. To the extent CellMax was not previously aware of the '768 patent, it became aware of such patent soon after the original Complaint in this action was filed, when CellMax was contacted by AT&T and/or other original defendants in this litigation concerning indemnification with regard to Fractus's claims of infringement.

97. In addition, on information and belief from at least as early as the filing of the original Complaint, AT&T has infringed or induced others to make, use, sell, offer to sell, and/or import the Infringing Antennas with knowledge of and/or willful blindness to the fact that such

use infringes the ’768 patent, has disregarded an objectively high likelihood of infringement of the ’768 patent, and has acted, and continues to act, willfully, wantonly, and in deliberate disregard of Fractus’s rights.

98. Likewise, on information and belief, from at least as early as July 5, 2018, CommScope has infringed or induced others to make, use, sell, offer to sell, and/or import CommScope Interlaced Antennas with knowledge of and/or willful blindness to the fact that such activities infringe the ’768 patent, has disregarded an objectively high likelihood of infringement of the ’768 patent, and has acted, and continues to act, willfully, wantonly, and in deliberate disregard of Fractus’s rights.

99. Likewise, on information and belief, from at least as early as July 31, 2018, CellMax has infringed or induced others to make, use, sell, offer to sell, and/or import CellMax Interlaced Antennas with knowledge of and/or willful blindness to the fact that such activities infringe the ’768 patent, has disregarded an objectively high likelihood of infringement of the ’768 patent, and has acted, and continues to act, willfully, wantonly, and in deliberate disregard of Fractus’s rights.

100. As the direct and proximate result of AT&T’s and Intervenor-Defendants’ conduct, Fractus has suffered and, if AT&T’s and Intervenor-Defendants’ conduct is not stopped, will continue to suffer, severe competitive harm, irreparable injury, and significant damages, in an amount to be proven at trial. Because Fractus’s remedy at law is inadequate, Fractus seeks, in addition to damages, injunctive relief. Fractus’s business operates in a competitive market and will continue suffering irreparable harm absent injunctive relief.

101. Fractus is entitled to injunctive relief and damages of no less than a reasonable royalty in accordance with 35 U.S.C. §§ 271, 281, 283, and 284.

102. AT&T's and Intervenor-Defendants' conduct, including their infringement of the '768 patent, is exceptional and entitles Fractus to attorneys' fees and costs under 35 U.S.C. § 285.

103. From at least as early as the filing of the original Complaint, AT&T has been on notice of its infringement of the '768 patent, and its infringement has been and continues to be willful and egregious, entitling Fractus to enhanced damages in accordance with 35 U.S.C. § 284.

104. From at least as early July 5, 2018, CommScope has been on notice of its infringement of the '768 patent, and its infringement has been and continues to be willful and egregious, entitling Fractus to enhanced damages in accordance with 35 U.S.C. § 284.

105. From at least as early July 31, 2018, CellMax has been on notice of its infringement of the '768 patent, and its infringement has been and continues to be willful and egregious, entitling Fractus to enhanced damages in accordance with 35 U.S.C. § 284.

COUNT FOUR: INFRINGEMENT OF U.S. PATENT 7,932,870

106. The '870 patent, entitled "Interlaced Multiband Antenna Arrays," was duly and legally issued by the PTO on April 26, 2011, after a full and fair examination. Fractus owns the '870 patent by assignment. The named inventors on the '870 patent are Carles Puente Baliarda, Jordi Romeu Robert, and Sebastian Blanch Boris. A true and correct copy of the '870 patent is attached hereto as Exhibit D.

107. The '870 patent is valid and enforceable. Sprint, CommScope, and CellMax do not have a license to practice any of the inventions claimed in the '870 patent.

108. Sprint directly infringes at least claim 1 of the '870 patent by making, using, selling, offering to sell, and/or importing products or services that infringe the Patents—

including the Infringing Antennas—which meet every limitation of at least claim 1 of the ’870 patent.

109. CommScope directly infringes at least claim 1 of the ’870 patent by making, using, selling, offering to sell, and/or importing products or services that infringe the Patents—including the CommScope Interlaced Antennas—which meet every limitation of at least claim 1 of the ’870 patent.

110. CellMax directly infringes at least claim 1 of the ’870 patent by making, using, selling, offering to sell, and/or importing products or services that infringe the Patents—including the CellMax Interlaced Antennas—which meet every limitation of at least claim 1 of the ’870 patent.

111. To the extent Sprint does not directly own and operate the Infringing Antennas, the Infringing Antennas are nevertheless under the direct control of Sprint and are used by Sprint in providing cellular services.

112. In addition, Sprint has actively induced and continues to actively induce others to directly infringe the ’870 patent by making, using, selling, offering to sell, and/or importing the Infringing Antennas. Moreover, Sprint has known of and/or should have known of the ’870 patent, by at least the date of the patent’s issuance, such that Sprint knew and should have known that it was and would be inducing infringement. To the extent Sprint was not previously aware of the ’870 patent, it was aware of it as of the filing of the original Complaint.

113. On information and belief, CommScope has actively induced and continues to actively induce others to directly infringe the ’870 patent by making, using, selling, offering to sell, and/or importing CommScope Interlaced Antennas. For example, CommScope sells such infringing antennas to U.S. wireless carriers, while actively encouraging and enabling these

carriers to use such infringing antennas in the United States, including by providing instructions on how to use the infringing antennas. Moreover, CommScope has known of and/or should have known of the '870 patent, by at least the date of the patent's issuance, such that CommScope knew and should have known that it was and would be inducing infringement. To the extent CommScope was not previously aware of the '870 patent, it became aware of such patent soon after the original Complaint in this action was filed, when CommScope was contacted by Sprint and/or other original defendants in this litigation concerning indemnification with regard to Fractus's claims of infringement.

114. On information and belief, CellMax has actively induced and continues to actively induce others to directly infringe the '870 patent by making, using, selling, offering to sell, and/or importing CellMax Interlaced Antennas. For example, CellMax sells such infringing antennas to U.S. wireless carriers, while actively encouraging and enabling these carriers to use such infringing antennas in the United States, including by providing instructions on how to use the infringing antennas. Moreover, CellMax has known of and/or should have known of the '870 patent, by at least the date of the patent's issuance, such that CellMax knew and should have known that it was and would be inducing infringement. To the extent CellMax was not previously aware of the '870 patent, it became aware of such patent soon after the original Complaint in this action was filed, when CellMax was contacted by Sprint and/or other original defendants in this litigation concerning indemnification with regard to Fractus's claims of infringement.

115. In addition, on information and belief from at least as early as the filing of the original Complaint, Sprint has infringed or induced others to make, use, sell, offer to sell, and/or import the Infringing Antennas with knowledge of and/or willful blindness to the fact that such

use infringes the ’870 patent, has disregarded an objectively high likelihood of infringement of the ’870 patent, and has acted, and continues to act, willfully, wantonly, and in deliberate disregard of Fractus’s rights.

116. Likewise, on information and belief, from at least as early as July 5, 2018, CommScope has infringed or induced others to make, use, sell, offer to sell, and/or import CommScope Interlaced Antennas with knowledge of and/or willful blindness to the fact that such activities infringe the ’870 patent, has disregarded an objectively high likelihood of infringement of the ’870 patent, and has acted, and continues to act, willfully, wantonly, and in deliberate disregard of Fractus’s rights.

117. Likewise, on information and belief, from at least as early as July 31, 2018, CellMax has infringed or induced others to make, use, sell, offer to sell, and/or import CellMax Interlaced Antennas with knowledge of and/or willful blindness to the fact that such activities infringe the ’870 patent, has disregarded an objectively high likelihood of infringement of the ’870 patent, and has acted, and continues to act, willfully, wantonly, and in deliberate disregard of Fractus’s rights.

118. As the direct and proximate result of Sprint’s and Intervenor-Defendants’ conduct, Fractus has suffered and, if Sprint’s and Intervenor-Defendants’ conduct is not stopped, will continue to suffer, severe competitive harm, irreparable injury, and significant damages, in an amount to be proven at trial. Because Fractus’s remedy at law is inadequate, Fractus seeks, in addition to damages, injunctive relief. Fractus’s business operates in a competitive market and will continue suffering irreparable harm absent injunctive relief.

119. Fractus is entitled to injunctive relief and damages of no less than a reasonable royalty in accordance with 35 U.S.C. §§ 271, 281, 283, and 284.

120. Sprint's and Intervenor-Defendants' conduct, including their infringement of the '870 patent, is exceptional and entitles Fractus to attorneys' fees and costs under 35 U.S.C. § 285.

121. From at least as early as the filing of the original Complaint, Sprint has been on notice of its infringement of the '870 patent, and its infringement has been and continues to be willful and egregious, entitling Fractus to enhanced damages in accordance with 35 U.S.C. § 284.

122. From at least as early July 5, 2018, CommScope has been on notice of its infringement of the '870 patent, and its infringement has been and continues to be willful and egregious, entitling Fractus to enhanced damages in accordance with 35 U.S.C. § 284.

123. From at least as early July 31, 2018, CellMax has been on notice of its infringement of the '870 patent, and its infringement has been and continues to be willful and egregious, entitling Fractus to enhanced damages in accordance with 35 U.S.C. § 284.

COUNT FIVE: INFRINGEMENT OF U.S. PATENT 8,228,256

124. The '256 patent, entitled "Interlaced Multiband Antenna Arrays," was duly and legally issued by the PTO on July 24, 2012, after a full and fair examination. Fractus owns the '256 patent by assignment. The named inventors on the '256 patent are Carles Puente Baliarda, Jordi Romeu Robert, and Sebastian Blanch Boris. A true and correct copy of the '256 patent is attached hereto as Exhibit E.

125. The '256 patent is valid and enforceable. Sprint, CommScope, and CellMax do not have a license to practice any of the inventions claimed in the '256 patent.

126. Sprint directly infringes at least claim 1 of the '256 patent by making, using, selling, offering to sell, and/or importing products or services that infringe the Patents—

including the Infringing Antennas—which meet every limitation of at least claim 1 of the ’256 patent.

127. CommScope directly infringes at least claim 1 of the ’256 patent by making, using, selling, offering to sell, and/or importing products or services that infringe the Patents—including the CommScope Interlaced Antennas—which meet every limitation of at least claim 1 of the ’256 patent.

128. CellMax directly infringes at least claim 1 of the ’256 patent by making, using, selling, offering to sell, and/or importing products or services that infringe the Patents—including the CellMax Interlaced Antennas—which meet every limitation of at least claim 1 of the ’256 patent.

129. To the extent Sprint does not directly own and operate the Infringing Antennas, the Infringing Antennas are nevertheless under the direct control of Sprint and are used by Sprint in providing cellular services.

130. In addition, Sprint has actively induced and continues to actively induce others to directly infringe the ’256 patent by making, using, selling, offering to sell, and/or importing the Infringing Antennas. Moreover, Sprint has known of and/or should have known of the ’256 patent, by at least the date of the patent’s issuance, such that Sprint knew and should have known that it was and would be inducing infringement. To the extent Sprint was not previously aware of the ’256 patent, it was aware of it as of the filing of the original Complaint.

131. On information and belief, CommScope has actively induced and continues to actively induce others to directly infringe the ’256 patent by making, using, selling, offering to sell, and/or importing CommScope Interlaced Antennas. For example, CommScope sells such infringing antennas to U.S. wireless carriers, while actively encouraging and enabling these

carriers to use such infringing antennas in the United States, including by providing instructions on how to use the infringing antennas. Moreover, CommScope has known of and/or should have known of the '256 patent, by at least the date of the patent's issuance, such that CommScope knew and should have known that it was and would be inducing infringement. To the extent CommScope was not previously aware of the '256 patent, it became aware of such patent soon after the original Complaint in this action was filed, when CommScope was contacted by Sprint and/or other original defendants in this litigation concerning indemnification with regard to Fractus's claims of infringement.

132. On information and belief, CellMax has actively induced and continues to actively induce others to directly infringe the '256 patent by making, using, selling, offering to sell, and/or importing CellMax Interlaced Antennas. For example, CellMax sells such infringing antennas to U.S. wireless carriers, while actively encouraging and enabling these carriers to use such infringing antennas in the United States, including by providing instructions on how to use the infringing antennas. Moreover, CellMax has known of and/or should have known of the '256 patent, by at least the date of the patent's issuance, such that CellMax knew and should have known that it was and would be inducing infringement. To the extent CellMax was not previously aware of the '256 patent, it became aware of such patent soon after the original Complaint in this action was filed, when CellMax was contacted by Sprint and/or other original defendants in this litigation concerning indemnification with regard to Fractus's claims of infringement.

133. In addition, on information and belief from at least as early as the filing of the original Complaint, Sprint has infringed or induced others to make, use, sell, offer to sell, and/or import the Infringing Antennas with knowledge of and/or willful blindness to the fact that such

use infringes the ’256 patent, has disregarded an objectively high likelihood of infringement of the ’256 patent, and has acted, and continues to act, willfully, wantonly, and in deliberate disregard of Fractus’s rights.

134. Likewise, on information and belief, from at least as early as July 5, 2018, CommScope has infringed or induced others to make, use, sell, offer to sell, and/or import CommScope Interlaced Antennas with knowledge of and/or willful blindness to the fact that such activities infringe the ’256 patent, has disregarded an objectively high likelihood of infringement of the ’256 patent, and has acted, and continues to act, willfully, wantonly, and in deliberate disregard of Fractus’s rights.

135. Likewise, on information and belief, from at least as early as July 31, 2018, CellMax has infringed or induced others to make, use, sell, offer to sell, and/or import CellMax Interlaced Antennas with knowledge of and/or willful blindness to the fact that such activities infringe the ’256 patent, has disregarded an objectively high likelihood of infringement of the ’256 patent, and has acted, and continues to act, willfully, wantonly, and in deliberate disregard of Fractus’s rights.

136. As the direct and proximate result of Sprint’s and Intervenor-Defendants’ conduct, Fractus has suffered and, if Sprint’s and Intervenor-Defendants’ conduct is not stopped, will continue to suffer, severe competitive harm, irreparable injury, and significant damages, in an amount to be proven at trial. Because Fractus’s remedy at law is inadequate, Fractus seeks, in addition to damages, injunctive relief. Fractus’s business operates in a competitive market and will continue suffering irreparable harm absent injunctive relief.

137. Fractus is entitled to injunctive relief and damages of no less than a reasonable royalty in accordance with 35 U.S.C. §§ 271, 281, 283, and 284.

138. Sprint's and Intervenor-Defendants' conduct, including their infringement of the '256 patent, is exceptional and entitles Fractus to attorneys' fees and costs under 35 U.S.C. § 285.

139. From at least as early as the filing of the original Complaint, Sprint has been on notice of its infringement of the '256 patent, and its infringement has been and continues to be willful and egregious, entitling Fractus to enhanced damages in accordance with 35 U.S.C. § 284.

140. From at least as early July 5, 2018, CommScope has been on notice of its infringement of the '256 patent, and its infringement has been and continues to be willful and egregious, entitling Fractus to enhanced damages in accordance with 35 U.S.C. § 284.

141. From at least as early July 31, 2018, CellMax has been on notice of its infringement of the '256 patent, and its infringement has been and continues to be willful and egregious, entitling Fractus to enhanced damages in accordance with 35 U.S.C. § 284.

COUNT SIX: INFRINGEMENT OF U.S. PATENT 8,896,493

142. The '493 patent, entitled "Interlaced Multiband Antenna Arrays," was duly and legally issued by the PTO on November 25, 2014, after a full and fair examination. Fractus owns the '493 patent by assignment. The named inventors on the '493 patent are Carles Puente Baliarda, Jordi Romeu Robert, and Sebastian Blanch Boris. A true and correct copy of the '493 patent is attached hereto as Exhibit F.

143. The '493 patent is valid and enforceable. Sprint, CommScope, and CellMax do not have a license to practice any of the inventions claimed in the '493 patent.

144. Sprint directly infringes at least claim 11 of the '493 patent by making, using, selling, offering to sell, and/or importing products or services that infringe the Patents—

including the Infringing Antennas—which meet every limitation of at least claim 11 of the ’493 patent.

145. CommScope directly infringes at least claim 11 of the ’493 patent by making, using, selling, offering to sell, and/or importing products or services that infringe the Patents—including the CommScope Interlaced Antennas—which meet every limitation of at least claim 11 of the ’493 patent.

146. CellMax directly infringes at least claim 18 of the ’493 patent by making, using, selling, offering to sell, and/or importing products or services that infringe the Patents—including the CellMax Interlaced Antennas—which meet every limitation of at least claim 18 of the ’493 patent.

147. To the extent Sprint does not directly own and operate the Infringing Antennas, the Infringing Antennas are nevertheless under the direct control of Sprint and are used by Sprint in providing cellular services.

148. In addition, Sprint has actively induced and continues to actively induce others to directly infringe the ’493 patent by making, using, selling, offering to sell, and/or importing the Infringing Antennas. Moreover, Sprint has known of and/or should have known of the ’493 patent, by at least the date of the patent’s issuance, such that Sprint knew and should have known that it was and would be inducing infringement. To the extent Sprint was not previously aware of the ’493 patent, it was aware of it as of the filing of the original Complaint.

149. On information and belief, CommScope has actively induced and continues to actively induce others to directly infringe the ’493 patent by making, using, selling, offering to sell, and/or importing CommScope Interlaced Antennas. For example, CommScope sells such infringing antennas to U.S. wireless carriers, while actively encouraging and enabling these

carriers to use such infringing antennas in the United States, including by providing instructions on how to use the infringing antennas. Moreover, CommScope has known of and/or should have known of the '493 patent, by at least the date of the patent's issuance, such that CommScope knew and should have known that it was and would be inducing infringement. To the extent CommScope was not previously aware of the '493 patent, it became aware of such patent soon after the original Complaint in this action was filed, when CommScope was contacted by Sprint and/or other original defendants in this litigation concerning indemnification with regard to Fractus's claims of infringement.

150. On information and belief, CellMax has actively induced and continues to actively induce others to directly infringe the '493 patent by making, using, selling, offering to sell, and/or importing CellMax Interlaced Antennas. For example, CellMax sells such infringing antennas to U.S. wireless carriers, while actively encouraging and enabling these carriers to use such infringing antennas in the United States, including by providing instructions on how to use the infringing antennas. Moreover, CellMax has known of and/or should have known of the '493 patent, by at least the date of the patent's issuance, such that CellMax knew and should have known that it was and would be inducing infringement. To the extent CellMax was not previously aware of the '493 patent, it became aware of such patent soon after the original Complaint in this action was filed, when CellMax was contacted by Sprint and/or other original defendants in this litigation concerning indemnification with regard to Fractus's claims of infringement.

151. In addition, on information and belief from at least as early as the filing of the original Complaint, Sprint has infringed or induced others to make, use, sell, offer to sell, and/or import the Infringing Antennas with knowledge of and/or willful blindness to the fact that such

use infringes the ’493 patent, has disregarded an objectively high likelihood of infringement of the ’493 patent, and has acted, and continues to act, willfully, wantonly, and in deliberate disregard of Fractus’s rights.

152. Likewise, on information and belief, from at least as early as July 5, 2018, CommScope has infringed or induced others to make, use, sell, offer to sell, and/or import CommScope Interlaced Antennas with knowledge of and/or willful blindness to the fact that such activities infringe the ’493 patent, has disregarded an objectively high likelihood of infringement of the ’493 patent, and has acted, and continues to act, willfully, wantonly, and in deliberate disregard of Fractus’s rights.

153. Likewise, on information and belief, from at least as early as July 31, 2018, CellMax has infringed or induced others to make, use, sell, offer to sell, and/or import CellMax Interlaced Antennas with knowledge of and/or willful blindness to the fact that such activities infringe the ’493 patent, has disregarded an objectively high likelihood of infringement of the ’493 patent, and has acted, and continues to act, willfully, wantonly, and in deliberate disregard of Fractus’s rights.

154. As the direct and proximate result of Sprint’s and Intervenor-Defendants’ conduct, Fractus has suffered and, if Sprint’s and Intervenor-Defendants’ conduct is not stopped, will continue to suffer, severe competitive harm, irreparable injury, and significant damages, in an amount to be proven at trial. Because Fractus’s remedy at law is inadequate, Fractus seeks, in addition to damages, injunctive relief. Fractus’s business operates in a competitive market and will continue suffering irreparable harm absent injunctive relief.

155. Fractus is entitled to injunctive relief and damages of no less than a reasonable royalty in accordance with 35 U.S.C. §§ 271, 281, 283, and 284.

156. Sprint's and Intervenor-Defendants' conduct, including their infringement of the '493 patent, is exceptional and entitles Fractus to attorneys' fees and costs under 35 U.S.C. § 285.

157. From at least as early as the filing of the original Complaint, Sprint has been on notice of its infringement of the '493 patent, and its infringement has been and continues to be willful and egregious, entitling Fractus to enhanced damages in accordance with 35 U.S.C. § 284.

158. From at least as early July 5, 2018, CommScope has been on notice of its infringement of the '493 patent, and its infringement has been and continues to be willful and egregious, entitling Fractus to enhanced damages in accordance with 35 U.S.C. § 284.

159. From at least as early July 31, 2018, CellMax has been on notice of its infringement of the '493 patent, and its infringement has been and continues to be willful and egregious, entitling Fractus to enhanced damages in accordance with 35 U.S.C. § 284.

COUNT SEVEN: INFRINGEMENT OF U.S. PATENT 9,905,940

160. The '940 patent, entitled "Interlaced Multiband Antenna Arrays," was duly and legally issued by the PTO on February 27, 2018, after a full and fair examination. Fractus owns the '940 patent by assignment. The named inventors on the '940 patent are Carles Puente Baliarda, Jordi Romeu Robert, and Sebastian Blanch Boris. A true and correct copy of the '940 patent is attached hereto as Exhibit G.

161. The '940 patent is valid and enforceable. Sprint and CommScope do not have a license to practice any of the inventions claimed in the '940 patent.

162. Sprint directly infringes at least claim 1 of the '940 patent by making, using, selling, offering to sell, and/or importing products or services that infringe the Patents—

including the Infringing Antennas—which meet every limitation of at least claim 1 of the ’940 patent.

163. CommScope directly infringes at least claim 1 of the ’940 patent by making, using, selling, offering to sell, and/or importing products or services that infringe the Patents—including the CommScope Interlaced Antennas—which meet every limitation of at least claim 1 of the ’940 patent.

164. To the extent Sprint does not directly own and operate the Infringing Antennas, the Infringing Antennas are nevertheless under the direct control of Sprint and are used by Sprint in providing cellular services.

165. In addition, Sprint has actively induced and continues to actively induce others to directly infringe the ’940 patent by making, using, selling, offering to sell, and/or importing the Infringing Antennas. Moreover, Sprint has known of and/or should have known of the ’940 patent, by at least the date of the patent’s issuance, such that Sprint knew and should have known that it was and would be inducing infringement. To the extent Sprint was not previously aware of the ’940 patent, it was aware of it as of the filing of the original Complaint.

166. On information and belief, CommScope has actively induced and continues to actively induce others to directly infringe the ’940 patent by making, using, selling, offering to sell, and/or importing CommScope Interlaced Antennas. For example, CommScope sells such infringing antennas to U.S. wireless carriers, while actively encouraging and enabling these carriers to use such infringing antennas in the United States, including by providing instructions on how to use the infringing antennas. Moreover, CommScope has known of and/or should have known of the ’940 patent, by at least the date of the patent’s issuance, such that CommScope knew and should have known that it was and would be inducing infringement. To the extent

CommScope was not previously aware of the ’940 patent, it became aware of such patent soon after the original Complaint in this action was filed, when CommScope was contacted by Sprint and/or other original defendants in this litigation concerning indemnification with regard to Fractus’s claims of infringement.

167. In addition, on information and belief from at least as early as the filing of the original Complaint, Sprint has infringed or induced others to make, use, sell, offer to sell, and/or import the Infringing Antennas with knowledge of and/or willful blindness to the fact that such use infringes the ’940 patent, has disregarded an objectively high likelihood of infringement of the ’940 patent, and has acted, and continues to act, willfully, wantonly, and in deliberate disregard of Fractus’s rights.

168. Likewise, on information and belief, from at least as early as July 5, 2018, CommScope has infringed or induced others to make, use, sell, offer to sell, and/or import CommScope Interlaced Antennas with knowledge of and/or willful blindness to the fact that such activities infringe the ’940 patent, has disregarded an objectively high likelihood of infringement of the ’940 patent, and has acted, and continues to act, willfully, wantonly, and in deliberate disregard of Fractus’s rights.

169. As the direct and proximate result of Sprint’s and CommScope’s conduct, Fractus has suffered and, if Sprint’s and CommScope’s conduct is not stopped, will continue to suffer, severe competitive harm, irreparable injury, and significant damages, in an amount to be proven at trial. Because Fractus’s remedy at law is inadequate, Fractus seeks, in addition to damages, injunctive relief. Fractus’s business operates in a competitive market and will continue suffering irreparable harm absent injunctive relief.

170. Fractus is entitled to injunctive relief and damages of no less than a reasonable royalty in accordance with 35 U.S.C. §§ 271, 281, 283, and 284.

171. Sprint's and CommScope's conduct, including their infringement of the '940 patent, is exceptional and entitles Fractus to attorneys' fees and costs under 35 U.S.C. § 285.

172. From at least as early as the filing of the original Complaint, Sprint has been on notice of its infringement of the '940 patent, and its infringement has been and continues to be willful and egregious, entitling Fractus to enhanced damages in accordance with 35 U.S.C. § 284.

173. From at least as early July 5, 2018, CommScope has been on notice of its infringement of the '940 patent, and its infringement has been and continues to be willful and egregious, entitling Fractus to enhanced damages in accordance with 35 U.S.C. § 284.

COUNT EIGHT: INFRINGEMENT OF U.S. PATENT 8,497,814

174. The '814 patent, entitled "Slim Triple Band Antenna Array for Cellular Base Stations," was duly and legally issued by the PTO on July 30, 2013, after a full and fair examination. Fractus owns the '814 patent by assignment. The named inventors on the '814 patent are Carles Puente Baliarda, Carmen Borja, Anthony Teillet, Dillon Kirchhofer, and Jaume Anguera. A true and correct copy of the '814 patent is attached hereto as Exhibit H.

175. The '814 patent is valid and enforceable. Sprint and CommScope do not have a license to practice any of the inventions claimed in the '814 patent.

176. Sprint directly infringes at least claim 1 of the '814 patent by making, using, selling, offering to sell, and/or importing products or services that infringe the Patents—including the Infringing Antennas—which meet every limitation of at least claim 1 of the '814 patent.

177. CommScope directly infringes at least claim 1 of the ’814 patent by making, using, selling, offering to sell, and/or importing products or services that infringe the Patents—including the CommScope ’814 Antennas—which meet every limitation of at least claim 1 of the ’814 patent.

178. To the extent Sprint does not directly own and operate the Infringing Antennas, the Infringing Antennas are nevertheless under the direct control of Sprint and are used by Sprint in providing cellular services.

179. In addition, Sprint has actively induced and continues to actively induce others to directly infringe the ’814 patent by making, using, selling, offering to sell, and/or importing the Infringing Antennas. Moreover, Sprint has known of and/or should have known of the ’814 patent, by at least the date of the patent’s issuance, such that Sprint knew and should have known that it was and would be inducing infringement. To the extent Sprint was not previously aware of the ’814 patent, it was aware of it as of the filing of the original Complaint.

180. On information and belief, CommScope has actively induced and continues to actively induce others to directly infringe the ’814 patent by making, using, selling, offering to sell, and/or importing CommScope ’814 Antennas. For example, CommScope sells such infringing antennas to U.S. wireless carriers, while actively encouraging and enabling these carriers to use such infringing antennas in the United States, including by providing instructions on how to use the infringing antennas. Moreover, CommScope has known of and/or should have known of the ’814 patent, by at least the date of the patent’s issuance, such that CommScope knew and should have known that it was and would be inducing infringement. To the extent CommScope was not previously aware of the ’814 patent, it became aware of such patent soon after the original Complaint in this action was filed, when CommScope was contacted by Sprint

and/or other original defendants in this litigation concerning indemnification with regard to Fractus's claims of infringement.

181. In addition, on information and belief from at least as early as the filing of the original Complaint, Sprint has infringed or induced others to make, use, sell, offer to sell, and/or import the Infringing Antennas with knowledge of and/or willful blindness to the fact that such use infringes the '814 patent, has disregarded an objectively high likelihood of infringement of the '814 patent, and has acted, and continues to act, willfully, wantonly, and in deliberate disregard of Fractus's rights.

182. Likewise, on information and belief, from at least as early as July 5, 2018, CommScope has infringed or induced others to make, use, sell, offer to sell, and/or import CommScope '814 Antennas with knowledge of and/or willful blindness to the fact that such activities infringe the '814 patent, has disregarded an objectively high likelihood of infringement of the '814 patent, and has acted, and continues to act, willfully, wantonly, and in deliberate disregard of Fractus's rights.

183. As the direct and proximate result of Sprint's and CommScope's conduct, Fractus has suffered and, if Sprint's and CommScope's conduct is not stopped, will continue to suffer, severe competitive harm, irreparable injury, and significant damages, in an amount to be proven at trial. Because Fractus's remedy at law is inadequate, Fractus seeks, in addition to damages, injunctive relief. Fractus's business operates in a competitive market and will continue suffering irreparable harm absent injunctive relief.

184. Fractus is entitled to injunctive relief and damages of no less than a reasonable royalty in accordance with 35 U.S.C. §§ 271, 281, 283, and 284.

185. Sprint's and CommScope's conduct, including their infringement of the '814 patent, is exceptional and entitles Fractus to attorneys' fees and costs under 35 U.S.C. § 285.

186. From at least as early as the filing of the original Complaint, Sprint has been on notice of its infringement of the '814 patent, and its infringement has been and continues to be willful and egregious, entitling Fractus to enhanced damages in accordance with 35 U.S.C. § 284.

187. From at least as early July 5, 2018, CommScope has been on notice of its infringement of the '814 patent, and its infringement has been and continues to be willful and egregious, entitling Fractus to enhanced damages in accordance with 35 U.S.C. § 284.

COUNT NINE: INFRINGEMENT OF THE U.S. PATENT 8,754,824

188. The '824 patent, entitled "Slim Triple Band Antenna Array for Cellular Base Stations," was duly and legally issued by the PTO on June 17, 2014, after a full and fair examination. Fractus owns the '824 patent by assignment. The named inventors on the '824 patent are Carles Puente Baliarda, Carmen Borja, Anthony Teillet, Dillon Kirchhofer, and Jaume Anguera. A true and correct copy of the '824 patent is attached hereto as Exhibit I.

189. The '824 patent is valid and enforceable. Sprint does not have a license to practice any of the inventions claimed in the '824 patent.

190. Sprint directly infringes at least claim 1 of the '824 patent by making, using, selling, offering to sell, and/or importing products or services that infringe the Patents—including the Infringing Antennas—which meet every limitation of at least claim 1 of the '824 patent.

191. To the extent Sprint does not directly own and operate the Infringing Antennas, the Infringing Antennas are nevertheless under the direct control of Sprint and are used by Sprint in providing cellular services.

192. In addition, Sprint has actively induced and continues to actively induce others to directly infringe the ’824 patent by making, using, selling, offering to sell, and/or importing the Infringing Antennas. Moreover, Sprint has known of and/or should have known of the ’824 patent, by at least the date of the patent’s issuance, such that Sprint knew and should have known that it was and would be inducing infringement. To the extent Sprint was not previously aware of the ’824 patent, it was aware of it as of the filing of the original Complaint.

193. In addition, on information and belief from at least as early as the filing of the original Complaint, Sprint has infringed or induced others to make, use, sell, offer to sell, and/or import the Infringing Antennas with knowledge of and/or willful blindness to the fact that such use infringes the ’824 patent, has disregarded an objectively high likelihood of infringement of the ’824 patent, and has acted, and continues to act, willfully, wantonly, and in deliberate disregard of Fractus’s rights.

194. As the direct and proximate result of Sprint’s conduct, Fractus has suffered and, if Sprint’s conduct is not stopped, will continue to suffer, severe competitive harm, irreparable injury, and significant damages, in an amount to be proven at trial. Because Fractus’s remedy at law is inadequate, Fractus seeks, in addition to damages, injunctive relief. Fractus’s business operates in a competitive market and will continue suffering irreparable harm absent injunctive relief.

195. Fractus is entitled to injunctive relief and damages of no less than a reasonable royalty in accordance with 35 U.S.C. §§ 271, 281, 283, and 284.

196. Sprint's conduct, including its infringement of the '824 patent, is exceptional and entitles Fractus to attorneys' fees and costs under 35 U.S.C. § 285.

197. From at least as early as the filing of the original Complaint, Sprint has been on notice of its infringement of the '824 patent, and its infringement has been and continues to be willful and egregious, entitling Fractus to enhanced damages in accordance with 35 U.S.C. § 284.

COUNT TEN: INFRINGEMENT OF U.S. PATENT 9,450,305

198. The '305 patent, entitled "Slim Triple Band Antenna Array for Cellular Base Stations," was duly and legally issued by the PTO on September 20, 2016, after a full and fair examination. Fractus owns the '305 patent by assignment. The named inventors on the '305 patent are Carles Puente Baliarda, Carmen Borja, Anthony Teillet, Dillon Kirchhofer, and Jaume Anguera. A true and correct copy of the '305 patent is attached hereto as Exhibit J.

199. The '305 patent is valid and enforceable. Sprint and CommScope do not have a license to practice any of the inventions claimed in the '305 patent.

200. Sprint directly infringes at least claim 1 of the '305 patent by making, using, selling, offering to sell, and/or importing products or services that infringe the Patents—including the Infringing Antennas—which meet every limitation of at least claim 1 of the '305 patent.

201. CommScope directly infringes at least claim 12 of the '305 patent by making, using, selling, offering to sell, and/or importing products or services that infringe the Patents—including the CommScope '305 Antennas—which meet every limitation of at least claim 12 of the '305 patent.

202. To the extent Sprint does not directly own and operate the Infringing Antennas, the Infringing Antennas are nevertheless under the direct control of Sprint and are used by Sprint in providing cellular services.

203. In addition, Sprint has actively induced and continues to actively induce others to directly infringe the ’305 patent by making, using, selling, offering to sell, and/or importing the Infringing Antennas. Moreover, Sprint has known of and/or should have known of the ’305 patent, by at least the date of the patent’s issuance, such that Sprint knew and should have known that it was and would be inducing infringement. To the extent Sprint was not previously aware of the ’305 patent, it was aware of it as of the filing of the original Complaint.

204. On information and belief, CommScope has actively induced and continues to actively induce others to directly infringe the ’305 patent by making, using, selling, offering to sell, and/or importing CommScope ’305 Antennas. For example, CommScope sells such infringing antennas to U.S. wireless carriers, while actively encouraging and enabling these carriers to use such infringing antennas in the United States, including by providing instructions on how to use the infringing antennas. Moreover, CommScope has known of and/or should have known of the ’305 patent, by at least the date of the patent’s issuance, such that CommScope knew and should have known that it was and would be inducing infringement. To the extent CommScope was not previously aware of the ’305 patent, it became aware of such patent soon after the original Complaint in this action was filed, when CommScope was contacted by Sprint and/or other original defendants in this litigation concerning indemnification with regard to Fractus’s claims of infringement.

205. In addition, on information and belief from at least as early as the filing of the original Complaint, Sprint has infringed or induced others to make, use, sell, offer to sell, and/or

import the Infringing Antennas with knowledge of and/or willful blindness to the fact that such use infringes the '305 patent, has disregarded an objectively high likelihood of infringement of the '305 patent, and has acted, and continues to act, willfully, wantonly, and in deliberate disregard of Fractus's rights.

206. Likewise, on information and belief, from at least as early as July 5, 2018, CommScope has infringed or induced others to make, use, sell, offer to sell, and/or import CommScope '305 Antennas with knowledge of and/or willful blindness to the fact that such activities infringe the '305 patent, has disregarded an objectively high likelihood of infringement of the '305 patent, and has acted, and continues to act, willfully, wantonly, and in deliberate disregard of Fractus's rights.

207. As the direct and proximate result of Sprint's and CommScope's conduct, Fractus has suffered and, if Sprint's and CommScope's conduct is not stopped, will continue to suffer, severe competitive harm, irreparable injury, and significant damages, in an amount to be proven at trial. Because Fractus's remedy at law is inadequate, Fractus seeks, in addition to damages, injunctive relief. Fractus's business operates in a competitive market and will continue suffering irreparable harm absent injunctive relief.

208. Fractus is entitled to injunctive relief and damages of no less than a reasonable royalty in accordance with 35 U.S.C. §§ 271, 281, 283, and 284.

209. Sprint's and CommScope's conduct, including their infringement of the '305 patent, is exceptional and entitles Fractus to attorneys' fees and costs under 35 U.S.C. § 285.

210. From at least as early as the filing of the original Complaint, Sprint has been on notice of its infringement of the '305 patent, and its infringement has been and continues to be willful and egregious, entitling Fractus to enhanced damages in accordance with 35 U.S.C. § 284

211. From at least as early July 5, 2018, CommScope has been on notice of its infringement of the '305 patent, and its infringement has been and continues to be willful and egregious, entitling Fractus to enhanced damages in accordance with 35 U.S.C. § 284.

DEMAND FOR JURY TRIAL

Fractus hereby demands a jury trial on all issues triable to a jury.

PRAYER FOR RELIEF

WHEREFORE, Plaintiff respectfully prays for entry of judgment as follows:

a) That Sprint and Intervenor-Defendants have infringed and continue to infringe one or more claims of the Patents;

b) That Plaintiff recover from Sprint and/or Intervenor-Defendants all damages to which it is entitled under 35 U.S.C. § 284, but in no event less than a reasonable royalty;

c) That Sprint and Intervenor-Defendants be permanently enjoined from further infringement of the Patents;

d) That Plaintiff, as the prevailing party, shall recover from Sprint and Intervenor-Defendants all taxable costs of court;

e) That Plaintiff shall recover from Sprint and/or Intervenor-Defendants all pre- and post-judgment interest on the damages award, calculated at the highest interest rates allowed by law;

f) That Sprint's and Intervenor-Defendants' conduct was willful and that Plaintiff should therefore recover treble damages, including attorneys' fees, expenses, and costs incurred in this action, and an increase in the damage award pursuant to 35 U.S.C. § 284;

g) That this case is exceptional and that Plaintiff shall therefore recover its attorneys' fees and other recoverable expenses, under 35 U.S.C. § 285; and

h) That Plaintiff shall recover from Sprint and/or Intervenor-Defendants such other and further relief as the Court deems appropriate.

Dated: January 7, 2019

Respectfully submitted,

/s/ *Michael Ng*
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CERTIFICATE OF SERVICE

I hereby certify that counsel of record who are deemed to have consented to electronic service are being served this January 7, 2019 with a copy of this document via the Court's CM/ECF System per Local Rule CV-5(a)(3). Any other counsel of record will be served by electronic mail, facsimile transmission and/or first class mail on this same date.

/s/ *Michael Ng*
Michael Ng