

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE**

COMMSCOPE TECHNOLOGIES LLC,)	
)	
Plaintiff,)	C.A. No. 20-01053-RGA
)	
v.)	JURY TRIAL DEMANDED
)	
ROSENBERGER SITE SOLUTIONS,)	
LLC; ROSENBERGER ASIA PACIFIC)	
ELECTRONIC CO., LTD.;)	
ROSENBERGER TECHNOLOGIES)	
(KUNSHAN) CO. LTD.;)	
ROSENBERGER TECHNOLOGY, LLC,)	
)	
Defendants.)	

AMENDED COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff CommScope Technologies LLC (“CommScope”) brings this action against Defendants Rosenberger Site Solutions, LLC (“Rosenberger SSL”); Rosenberger Asia Pacific Electronic Co., Ltd. (“Rosenberger AP”); Rosenberger Technologies (Kunshan) Co., Ltd. (“Rosenberger China”); and Rosenberger Technology, LLC (“Rosenberger Tech”) (collectively “Rosenberger” or “Defendants”) and alleges as follows:

Nature of the Case

1. This is an action for patent infringement of nine patents: (1) United States Patent No. 7,358,922 (“the ‘922 patent”), (2) United States Patent No. 7,535,430 (“the ‘430 patent”), (3) United States Patent No. 9,698,486 (“the ‘486 patent”), (4) United States Patent No. 9,831,548 (“the ‘548 patent”), (5) United States Patent No. 10,439,285 (“the ‘285 patent”), (6) United States Patent No. 10,498,035 (“the ‘035 patent”); (7) United States Patent No. 10,547,110 (“the ‘110 patent”); (8) United States Patent No. 10,777,885 (“the ‘885 patent”); and (9) United States

Patent No. 8,164,536 (“the ‘536 patent”). These patents (collectively the “patents-in-suit”) relate to base station antenna systems used in mobile phone networks.

2. Defendants have been making, using, importing, selling and/or offering for sale antennas that infringe the patents-in-suit. Plaintiff CommScope seeks damages and an injunction against any further infringement of its patents by Rosenberger.

Parties

3. CommScope, formerly known as Andrew LLC, is a Delaware company, headquartered in Hickory, North Carolina. Together with its affiliated companies, CommScope designs, manufactures, and sells telecommunications products and equipment around the world. CommScope’s innovative products are used to build network infrastructures that enable wired and wireless communications. For example, CommScope designs and manufactures a wide range of innovative base station antennas (BSAs) for wireless outdoor networks to support wireless communications, such as cellular telephone communications. CommScope protects its investment in research and development of innovative antenna systems by filing and obtaining patents on its innovations, including the patents-in-suit.

4. Upon information and belief, Defendant Rosenberger SSL is a Delaware company with headquarters at 102 Dupont Drive, Lake Charles, Louisiana 70607. Rosenberger SSL is part of a multinational conglomerate (“the Rosenberger family”) that competes with CommScope in the sale of telecommunications equipment, including BSAs.

5. Upon information and belief, Defendant Rosenberger AP is a Chinese entity with a place of business at No. 3, Anxiang Road, Block B, Tianzhu Airport Industrial Zone, Beijing 101300, China. It is a part of the Rosenberger family and is majority owned by the German parent company of the Rosenberger family.

6. Upon information and belief, Defendant Rosenberger China is a Chinese entity with a place of business at No. 6, Shenan Road, Dianshanhu Town, Kunshan Jiangsu, Province 215345, China. It is a part of the Rosenberger family and is owned by Rosenberger AP.

7. Upon information and belief, Defendant Rosenberger Tech is a limited liability company organized under the laws of New Jersey, having its principal place of business at 69 King Street, Dover, New Jersey. It is a part of the Rosenberger family and is a subsidiary of Rosenberger AP.

Jurisdiction

8. This action arises under the Patent Act, 35 U.S.C. § 271 *et seq.*

9. This Court has subject matter jurisdiction under 28 U.S.C. §§ 1331 and 1338(a).

10. This Court has personal jurisdiction over Rosenberger. Upon information and belief, Defendant Rosenberger SSL is incorporated in Delaware, while Defendants Rosenberger AP and Rosenberger China are incorporated in China. Upon information and belief, Rosenberger Tech imports BSAs into the United States and has continuous and systematic contacts with the State of Delaware; regularly conducts business in the State of Delaware, either directly or through one or more of its affiliates, agents, and/or alter egos; has purposefully availed itself of the privilege of doing business in the State of Delaware; and intends to sell Rosenberger BSAs in the State of Delaware.

11. Venue is proper in this district under 28 U.S.C. §§ 1391 and 1400(b). As set forth above, Rosenberger SSL is a Delaware corporation and Rosenberger Tech has significant contacts in the State of Delaware. Under 28 U.S.C. § 1391(c)(3) Rosenberger AP and Rosenberger China are not resident in the U.S. and may be sued in any district.

Background and Patents-in-Suit

12. The subject matter of this complaint relates to BSAs. BSAs are typically used to wirelessly communicate with mobile communication devices (cell phones) within a desired coverage area. Such antennas are commonly positioned in elevated positions atop cell towers or buildings to provide mobile phone service to an area near the antenna. The antennas transmit and/or receive radio waves to communicate wirelessly with cell phones or other wireless devices.

13. CommScope is a recognized innovator in the field of base station antenna systems. Employees of CommScope, and the companies CommScope has acquired, have developed many inventions for base station antennas, including the inventions in the patents-in-suit.

14. CommScope is the owner of the entire right, title and interest in and to the '922 patent, which duly and legally issued on April 15, 2008. The '922 patent is entitled "Directed Dipole Antenna." A copy of the '922 patent is attached as Exhibit A.

15. CommScope is the owner of the entire right, title, and interest in and to the '430 patent, which duly and legally issued on May 19, 2009. The '430 patent is entitled "Directed Dipole Antenna Having Improved Sector Power Ratio (SPR)" and is a continuation of the '922 patent. A copy of the '430 patent is attached as Exhibit B.

16. CommScope is the owner of the entire right, title, and interest in and to U.S. Patent No. 9,698,486 ("the '486 patent"), which duly and legally issued on July 4, 2017. The '486 patent is entitled "Low Common Mode Resonance Multiband Radiating Array." A copy of the '486 patent is attached as Exhibit C.

17. CommScope is the owner of the entire right, title, and interest in and to U.S. Patent No. 9,831,548 ("the '548 patent"), which duly and legally issued on November 28, 2017.

The '548 patent is entitled "Dual-Beam Sector Antenna and Array." A copy of the '548 patent is attached as Exhibit D.

18. CommScope is the owner of the entire right, title, and interest in and to U.S. Patent No. 10,439,285 ("the '285 patent"), which duly and legally issued on October 8, 2019. The '285 patent is entitled "Cloaked Low Band Elements for Multiband Radiating Arrays." A copy of the '285 patent is attached as Exhibit E.

19. CommScope is the owner of the entire right, title and interest in and to U.S. Patent No. 10,498,035 ("the '035 patent), which duly and legally issued on December 3, 2019. The '035 patent is entitled "Cloaked Low Band Elements for Multiband Radiating Arrays" and is a continuation of the '285 patent. A copy of the '035 patent is attached as Exhibit F.

20. CommScope is the owner of the entire right, title and interest in and to U.S. Patent No. 10,547,110 ("the '110 patent), which duly and legally issued on January 28, 2020. The '110 patent is entitled "Cloaked Low Band Elements for Multiband Radiating Arrays" and is a continuation of the '035 patent. A copy of the '110 patent is attached as Exhibit G.

21. CommScope is the owner of the entire right, title and interest in and to U.S. Patent No. 10,777,885 ("the '885 patent), which duly and legally issued on September 15, 2020. The '885 patent is entitled "Dual-Beam Sector Antenna and Array" and is a continuation of the '548 patent. A copy of the '885 patent is attached as Exhibit H.

22. CommScope is the owner of the entire right, title and interest in and to U.S. Patent No. 8,164,536 ("the '536 patent), which duly and legally issued on April 24, 2012. The '536 patent is entitled "Directed Dual Beam Antenna" and is a continuation of the '430 patent. A copy of the '536 patent is attached as Exhibit I.

Rosenberger's Infringing Products and Its Copying of CommScope's Patented Technology

23. Rosenberger has committed acts of patent infringement by making, using, selling, offering for sale, and/or importing into the United States its base station antennas including at least the following antenna models:

BA-AIO3O3T3T3VFX65F-06;

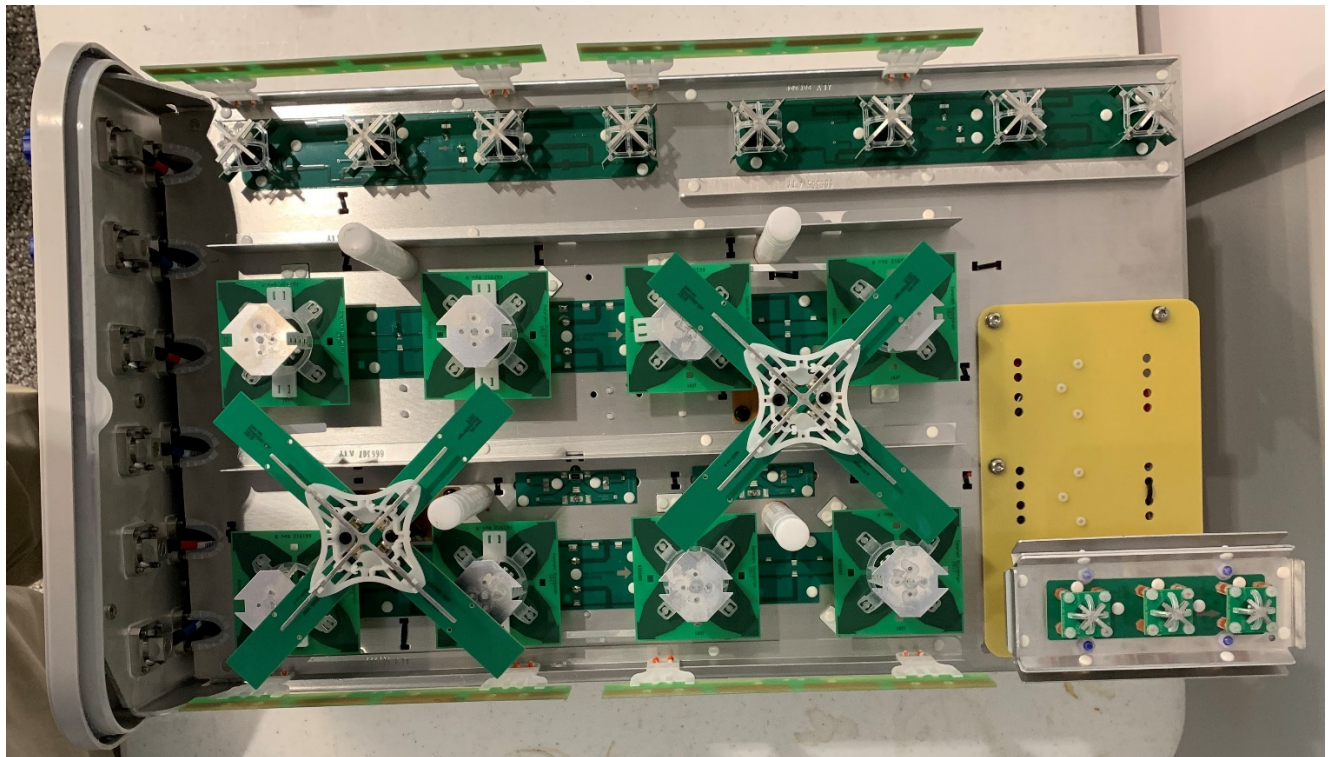
BA-AIO3O3T3T3VJX65F-06;

BA-O3O3T3T3VFX65F-06;

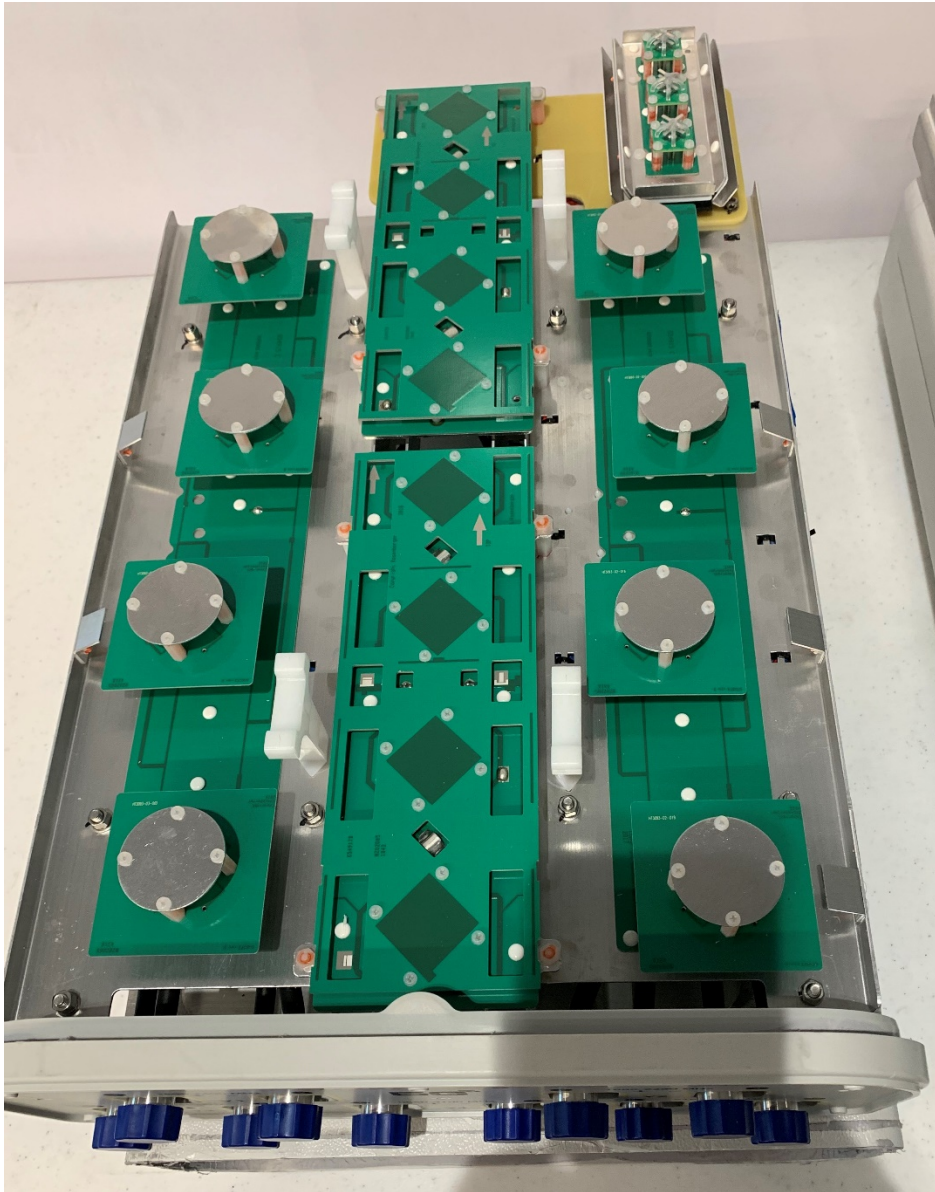
BA-A5A54O7X65V-01; and

MB-A64O9X65V-01

24. Shown below is a photograph of internal components of Rosenberger antenna model nos. BA-AIO3O3T3T3VFX65F-06, which is also representative of the relevant internal components of BA-AIO3O3T3T3VJX65F-06.



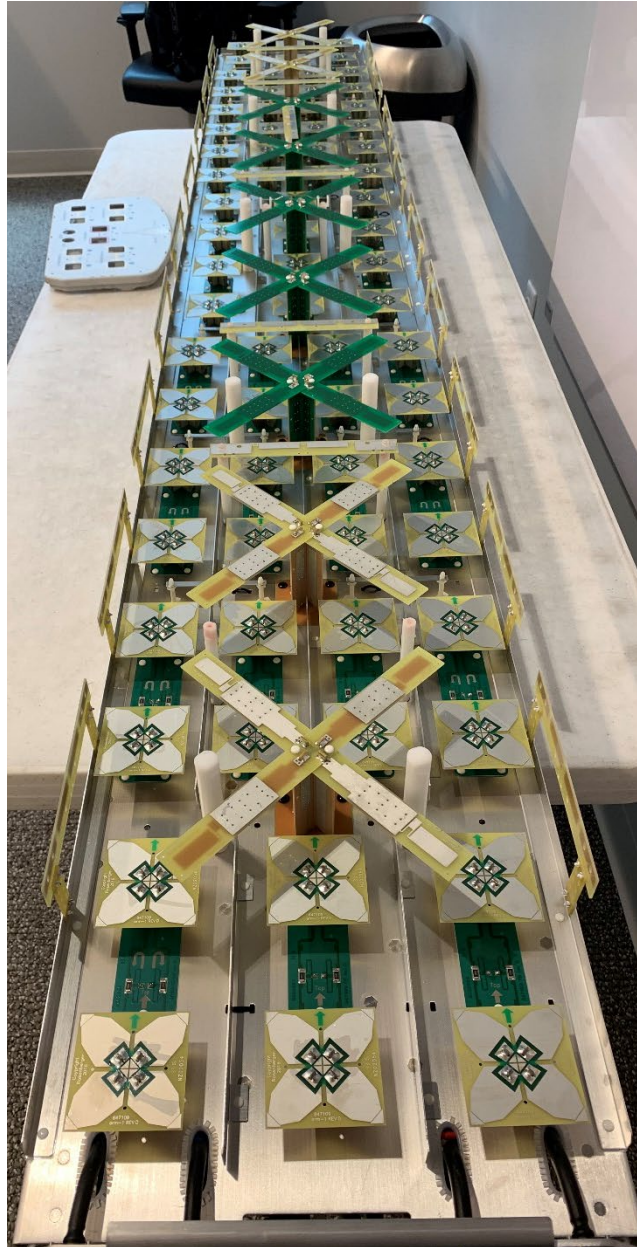
25. Shown below is a photograph of internal components of Rosenberger antenna model no. BA-O3O3T3T3VFX65F-06.



26. Shown below is a photograph of internal components of Rosenberger antenna model no. BA-A5A54O7X65V-01.



27. Shown below is a photograph of internal components of Rosenberger antenna model no. MB-A64O9X65V-01.



28. Upon information and belief, Rosenberger has been making, using, importing, offering for sale, and/or selling the antenna models identified above in the United States.

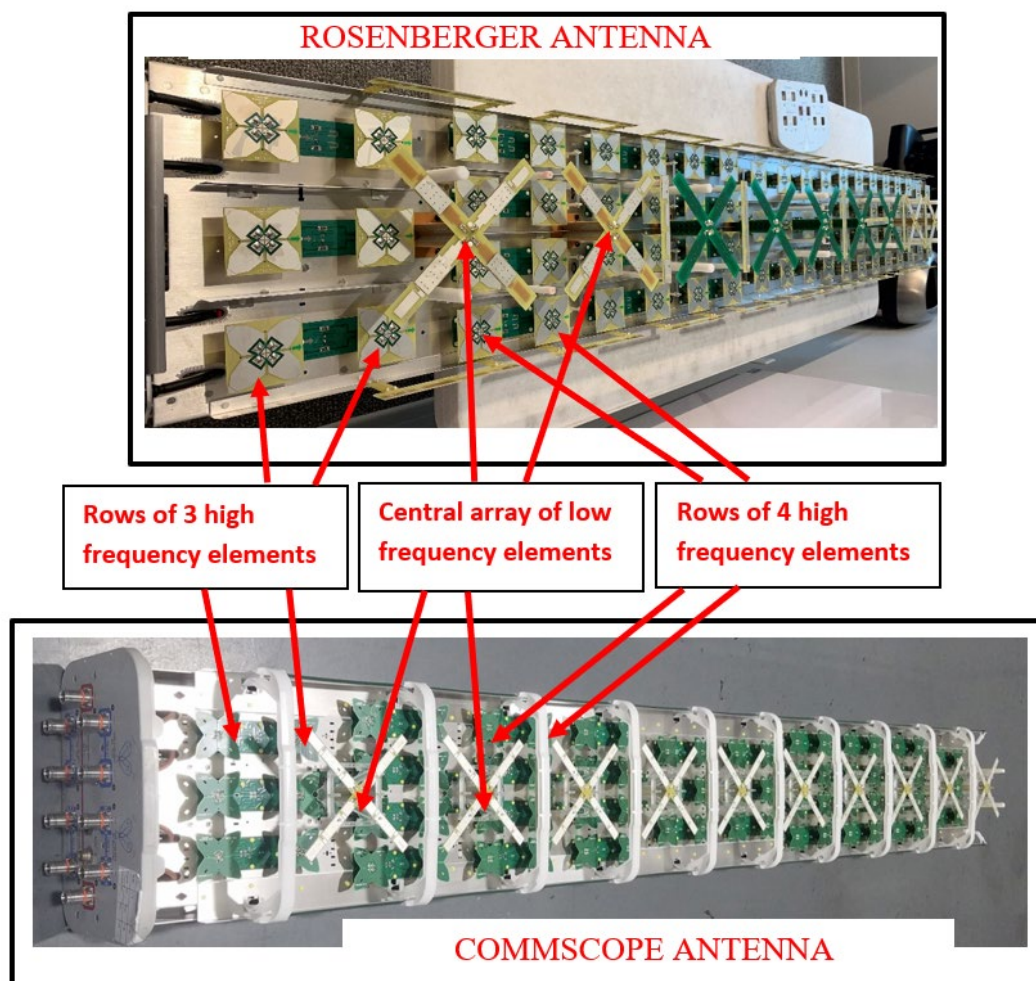
29. Rosenberger has engaged in a campaign of hiring CommScope's employees, and has successfully hired away more than a dozen of CommScope's employees who worked on CommScope's BSAs. The CommScope ex-employees include managers, supervisors and the former lead R&D manager of CommScope's Chinese business unit with responsibility for BSAs. They include mechanical engineers and radio frequency (RF) engineers, all of whom were familiar with all aspects of CommScope's BSAs, including design files and engineering drawings. They were also familiar with CommScope's intellectual property, including the patents CommScope had obtained to protect the designs of its BSAs. In the U.S., Rosenberger SSL has also employed former CommScope employees in leadership roles.

30. Rosenberger developed and marketed its infringing products after hiring away these CommScope employees who were intimately familiar with CommScope's BSA products and BSA innovations. Upon information and belief, these ex-CommScope employees knew that CommScope protects such products and innovations through patent protection.

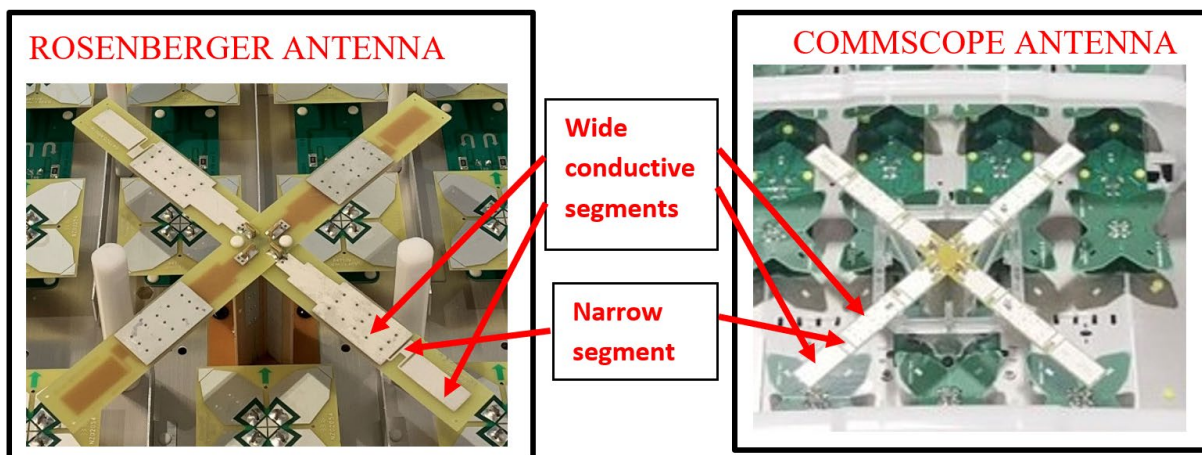
31. Several patented features of CommScope's BSAs appeared in Rosenberger products after hiring CommScope's ex-employees. For example, while employed at CommScope, Yang Zhongcao worked on CommScope's twin beam antennas, which are covered by CommScope's '548 patent. Within less than a year after he left CommScope for Rosenberger, Rosenberger was marketing a twin beam antenna that uses CommScope's patented technology.

32. Commscope's twin beam antenna model no. R2HH-6533CR5 is an antenna that uses a central array of low frequency radiating elements for generating a beam of low frequency band radiation and an array of high frequency radiating elements that generates two beams of high frequency band radiation. The array of high frequency radiating elements includes rows of

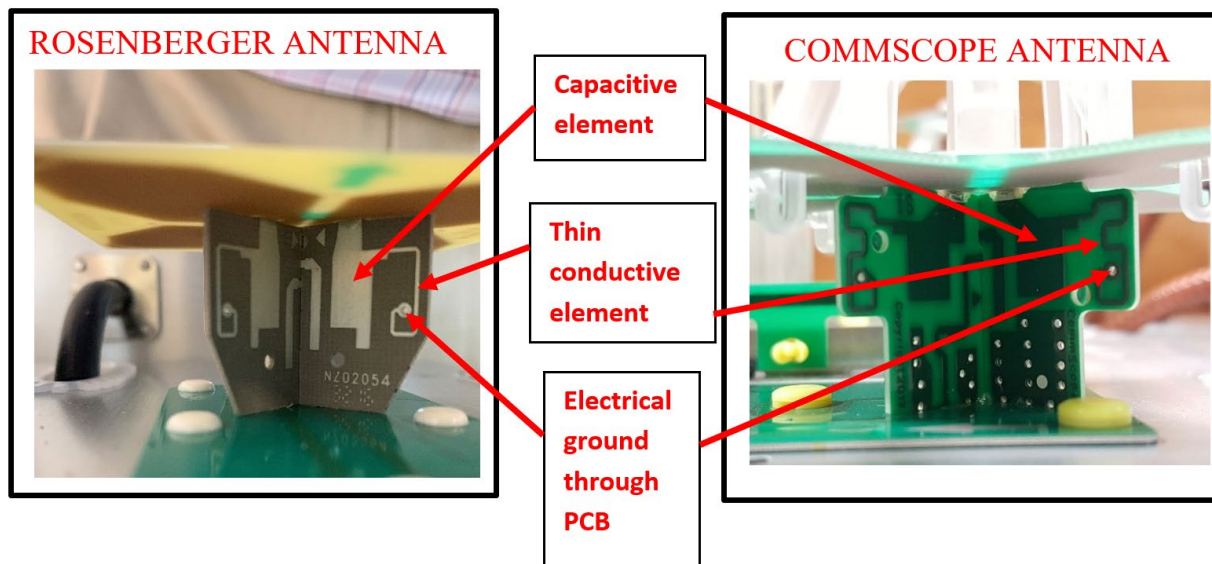
three or four elements in a distinctive pattern using rows of three and four radiating elements. A side-by-side comparison of the Rosenberger antenna model no. MB-A64O9X65V-01 (upper photo) with the CommScope twin beam antenna (lower photo) shows that these features have been copied over from CommScope’s design to the Rosenberger antenna.



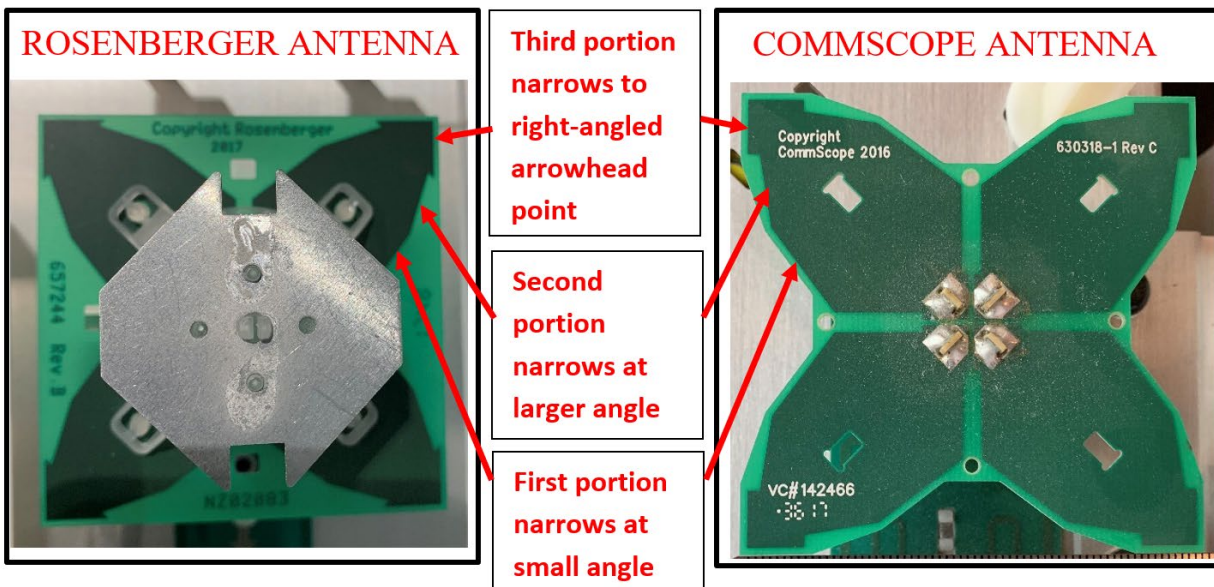
33. A comparison of the low frequency radiating elements of these two antennas shows that the design of the low frequency radiator in the CommScope antenna (right photo), in which the dipole leg is formed of wide conductive segments separated by narrow segments, has been copied over to the Rosenberger antenna (left photo).



34. A comparison of the high frequency radiating elements of these two antennas shows that multiple features have been copied. In both the CommScope and Rosenberger antennas, the high frequency radiating elements are crossed dipoles formed on etched printed circuit board (PCB) sitting atop a stalk made of two interlocking PCBs. The interlocking PCBs are provided with electrical circuitry to allow the radio frequency signal being radiated to reach the dipole. The electrical circuitry on the stalk includes a capacitive element coupled via a thin conductive element to an electrical ground through the PCB. The Rosenberger MB-A6409X65V-01 antenna (left photo) includes these features, which have been copied from the CommScope antenna (right photo). These features are also replicated in other Rosenberger antennas, including the BA- A5A5407X65V-01.



Another feature copied by Rosenberger is the shape of the crossed dipole elements on the PCB. CommScope developed a low profile dipole design in which the arms of the crossed dipole are formed in a metallization on a PCB, having a distinctive shape. Each arm extends from a central feed point to a maximum width and then narrows via a three narrowing portions, having linear sides, to a point. The narrowing portions narrow at different angles: the first narrowing portion narrows at a small angle, the second narrowing portion narrows at a larger angle, and the third narrowing portion narrows to a right-angled arrowhead point. The CommScope crossed dipole (right photo) has a 2016 copyright notice. The Rosenberger crossed dipole (left photo) has a 2017 copyright notice.



35. Rosenberger’s copied crossed dipole design is used across multiple antennas, including BA-AIO3O3T3T3VFX65F-06, BA-AIO3O3T3T3VJX65F-06, BA-A5A54O7X65V-01, and MB-A64O9X65V-01.

36. These similarities between CommScope’s and Rosenberger’s antennas are not coincidence and show that Rosenberger has copied CommScope’s products, including patented features of CommScope’s products.

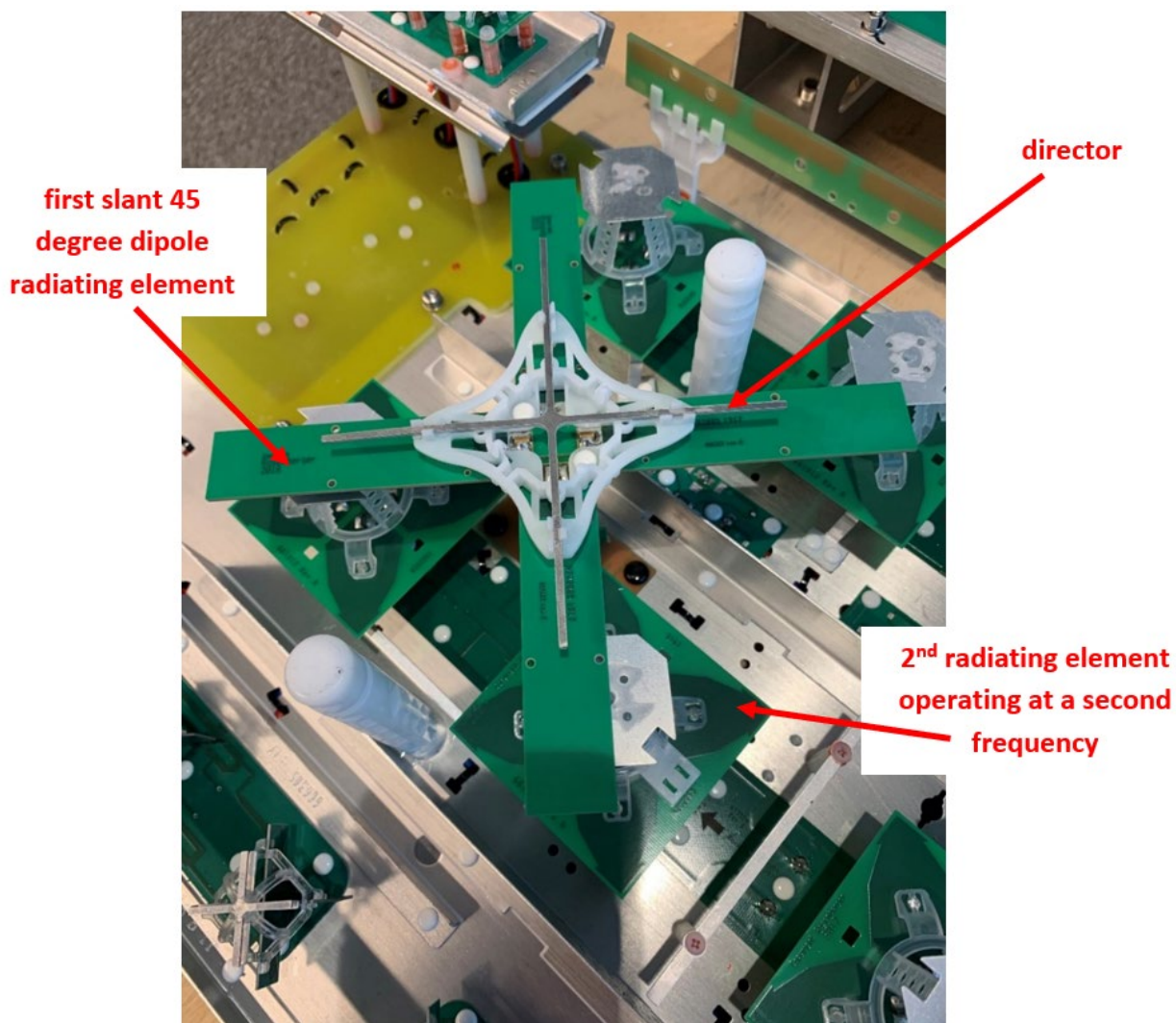
Count 1

Claim for Patent Infringement of U.S. Patent No. 7,358,922

37. CommScope incorporates by reference each of the paragraphs above as it fully states herein.

38. By its activities related to making, using, selling, offering for sale, and/or importing in or into the United States its base station antennas, including for example and without limitation its antenna model nos. BA-AIO3O3T3T3VFX65F-06 and BA-AIO3O3T3T3VJX65F-06, and BA-O3O3T3T3VFX65F-06, Rosenberger has infringed at least claim 27 of the ‘922 patent.

39. Shown below is an annotated photograph of interior components of Rosenberger antenna model no. BA-AIO3O3T3T3VFX65F-06:

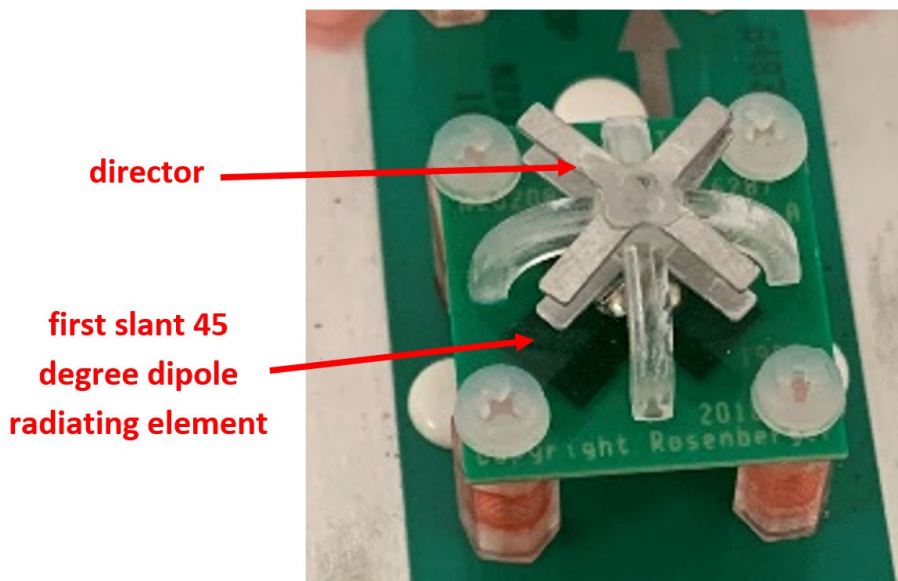


40. Claim 27 of the '922 patent is as follows:

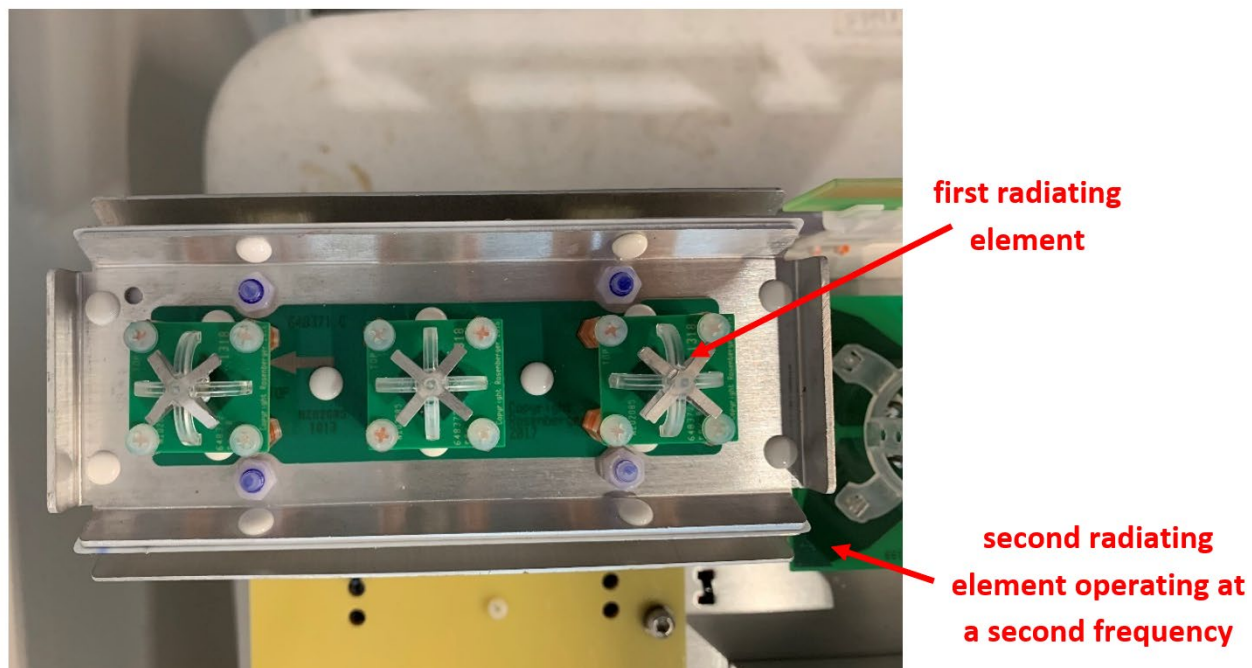
27. A dual-band antenna, comprising:
a first slant 45-degree dipole radiating element adapted to generate a first beam at a first frequency
a first director disposed proximate the first radiating element adapted to improve a Sector Power Ratio of the beam while maintaining an equivalent 3 dB beamwidth;
and
a second radiating element disposed proximate the first radiating element and adapted to generate a second beam at a second frequency.

41. With respect to claim 27, as indicated above, Rosenberger antenna model no. BA-AIO3O3T3T3VFX65F-06 includes an antenna comprising a slant 45 degree dipole radiating element adapted to first beam at a first frequency. As indicated above, Rosenberger antenna model no. BA-AIO3O3T3T3VFX65F-06 also comprises a first director disposed proximate the first radiating element. The first director improves the Sector Power Ratio (SPR) of the beam while maintaining an equivalent 3 dB beamwidth. As further indicated above, Rosenberger antenna model no. BA-AIO3O3T3T3VFX65F-06 also comprises a second radiating element disposed proximate the first radiating element, that is adapted to generate a second beam at a second frequency.

42. The radiating element, marked as “slant 45 degree dipole radiating element” in the photograph above, is one of the radiating elements for the antenna’s lowest RF band. Claim 27 can also be read on other radiating elements for other RF bands. Shown below is an annotated photograph of interior components of Rosenberger antenna model no. BA-AIO3O3T3T3VFX65F-06, including a first radiating element for the antenna’s highest RF band and a director.



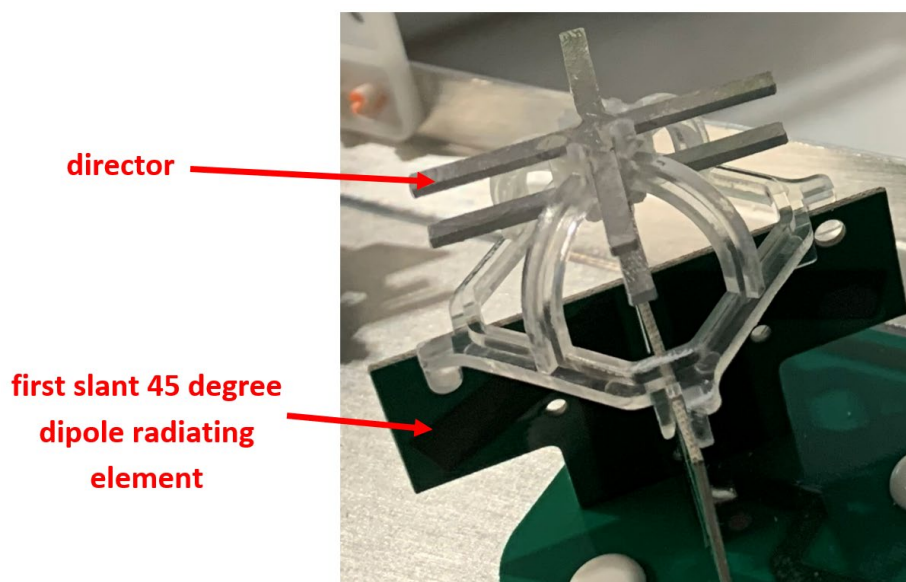
43. Shown below is an annotated photograph of interior components of Rosenberg antenna model no. BA-AIO3O3T3T3VFX65F-06, showing a second radiating element, adapted to generate a second beam at a second frequency, is proximate the first radiating element.



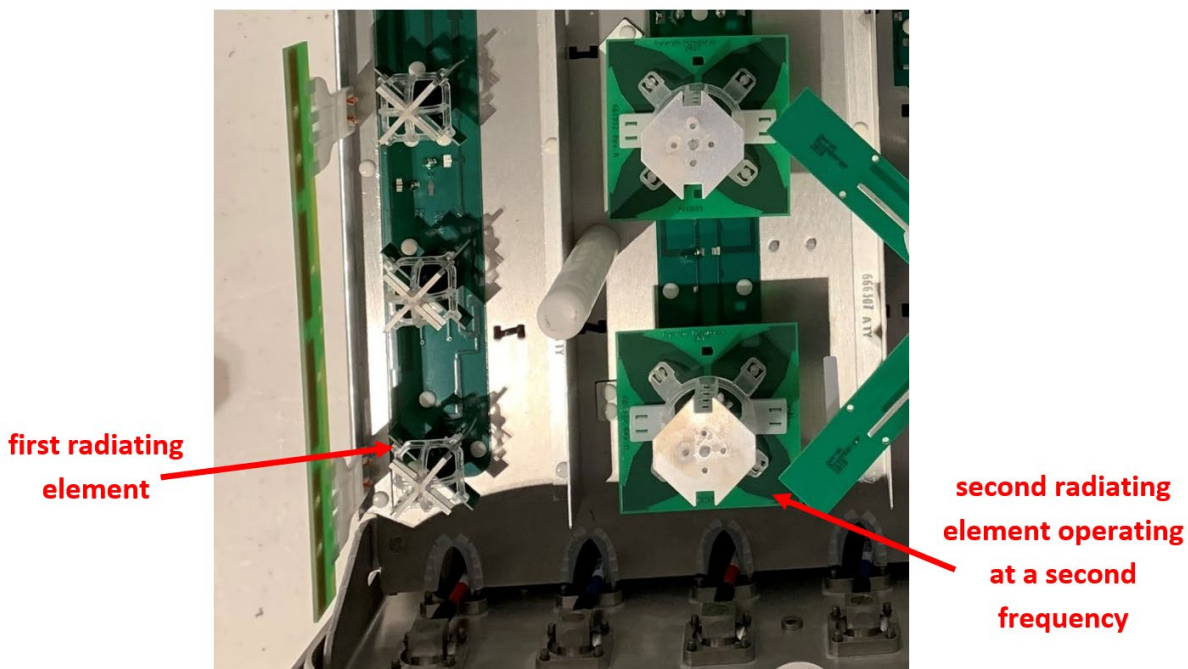
44. With respect to claim 27, as indicated above, Rosenberg antenna model no. BA-AIO3O3T3T3VFX65F-06 includes a highest frequency antenna that comprises a first slant 45

degree dipole radiating element adapted to generate a first beam at a first frequency and a first director proximate the first radiating element to improve an SPR of the beam while maintaining an equivalent 3 dB beamwidth. Furthermore, as indicated above, Rosenberger antenna model no. BA-AIO3O3T3T3VFX65F-06 also includes a second radiating element disposed proximate the first radiating element and adapted to generate a second beam at a second frequency.

45. Claim 27 can also be read on the radiating elements of the second highest RF band of Rosenberger's antenna model nos. BA-AIO3O3T3T3VFX65F-06 and BA-AIO3O3T3T3VJX65F-06. Shown below is an annotated photograph of interior components of Rosenberger antenna model no. BA-AIO3O3T3T3VFX65F-06, including a radiating element for the antenna's second highest RF band and a director.



46. Shown below is an annotated photograph of interior components of Rosenberger antenna model no. BA-AIO3O3T3T3VFX65F-06, showing a second radiator, proximate the first radiator, that is adapted to generate a second beam at a second frequency.

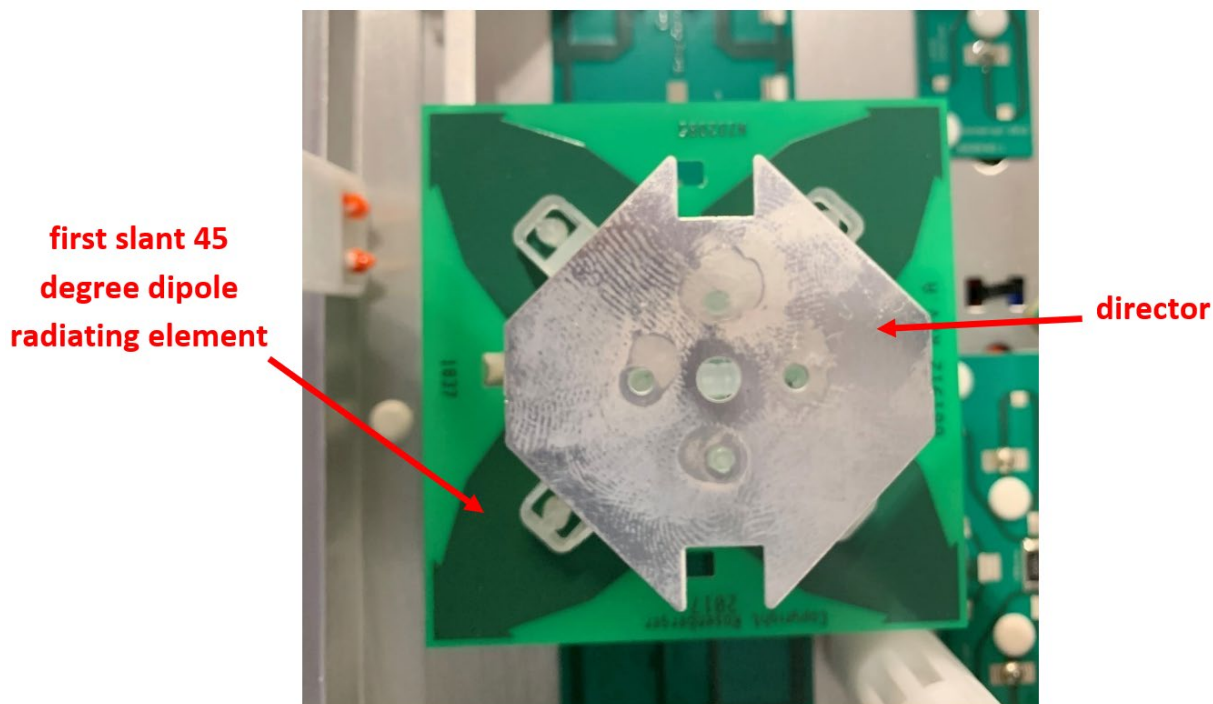


47. Rosenberg antenna model BA-AIO3O3T3T3VJX65F-06 contains the same elements as those shown above.

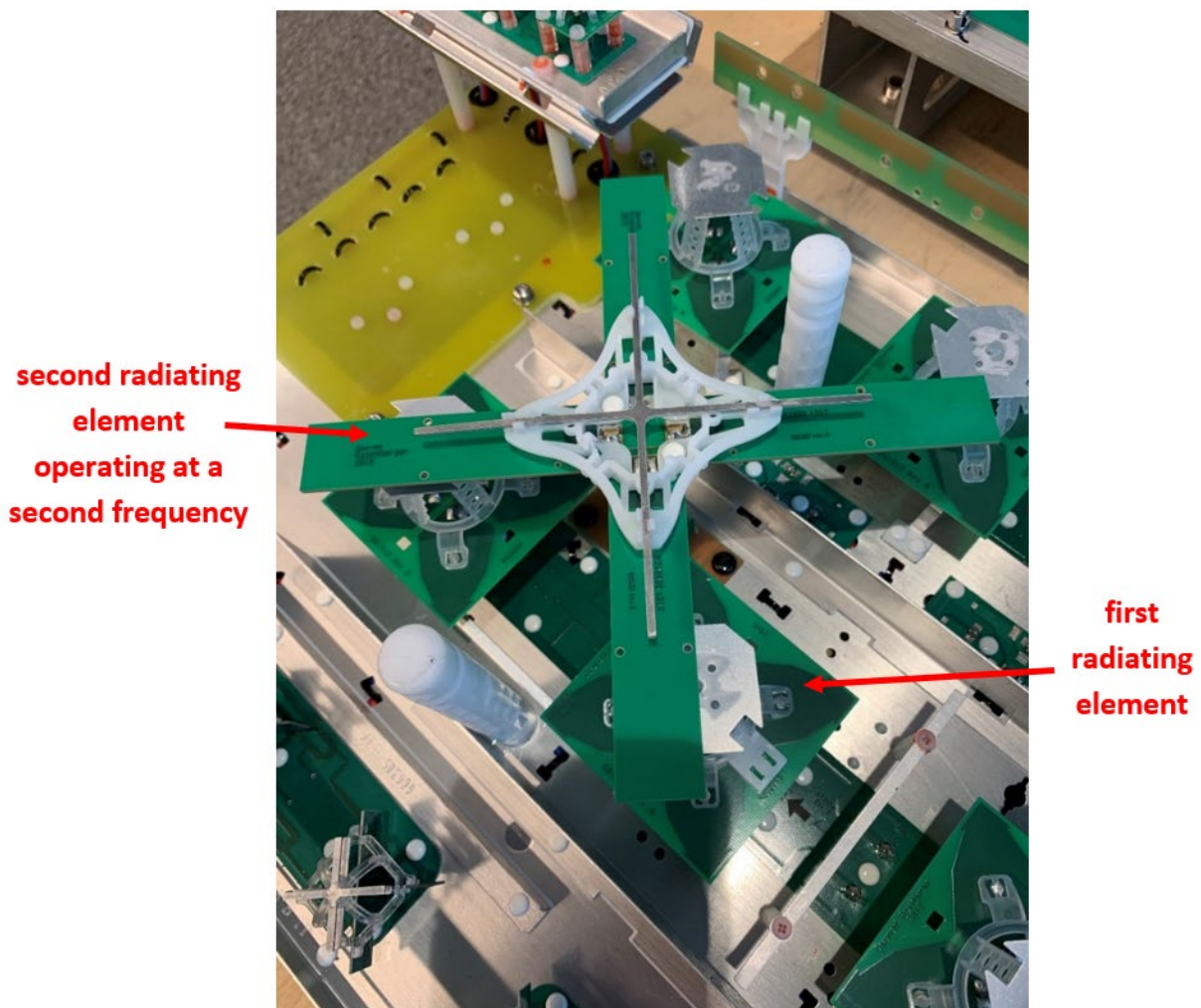
48. With respect to claim 27, as indicated above, Rosenberg antenna model nos. BA-AIO3O3T3T3VFX65F-06 and BA-AIO3O3T3T3VJX65F-06 include a second highest frequency antenna that comprises a first slant 45 degree dipole radiating element adapted to generate a first beam at a first frequency and a first director proximate the first radiating element to improve an SPR of the beam while maintaining an equivalent 3 dB beamwidth. Furthermore, as indicated above, Rosenberg antenna model nos. BA-AIO3O3T3T3VFX65F-06 and BA-AIO3O3T3T3VJX65F-06 also include a second radiating element, disposed proximate the first radiating element, that is adapted to generate a second beam at a second frequency.

49. Claim 27 can also be read on the radiating elements of the second lowest RF band of Rosenberg antenna model nos. BA-AIO3O3T3T3VFX65F-06 and BA-AIO3O3T3T3VJX65F-06 antennas. Shown below is an annotated photograph of interior

components of Rosenberger antenna model no. BA-AIO3O3T3T3VFX65F-06, including a radiating element for the antenna's second lowest RF band and a director.



50. Shown below is an annotated photograph of interior components of Rosenberger antenna model no. BA-AIO3O3T3T3VFX65F-06, showing a second radiator, proximate the first radiator, that is adapted to generate a second beam at a second frequency.

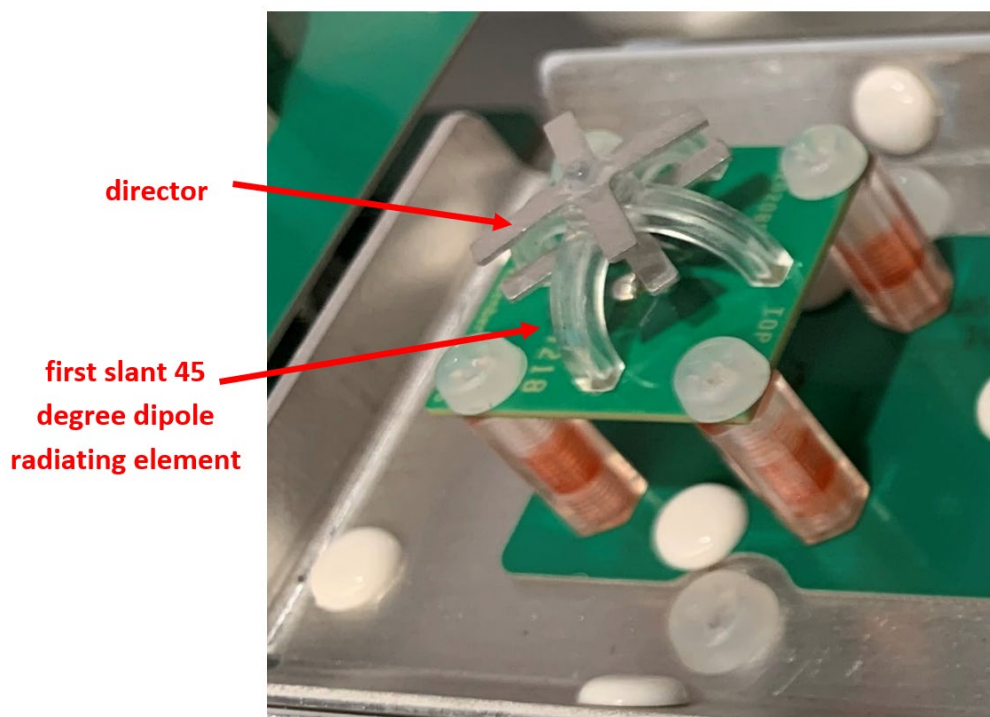


51. Rosenberg antenna model no. BA-AIO3O3T3T3VJX65F-06 contains the same elements as those shown above.

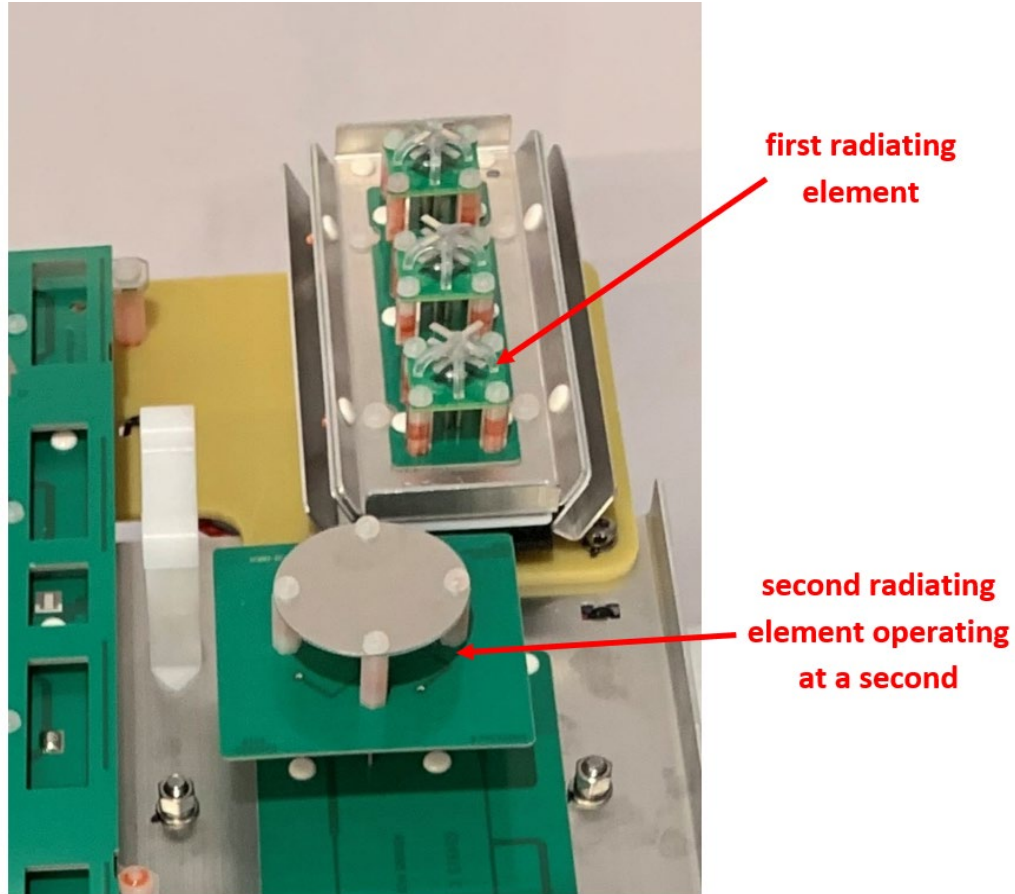
52. With respect to claim 27, as indicated above, Rosenberg antenna model nos. BA-AIO3O3T3T3VFX65F-06 and BA-AIO3O3T3T3VJX65F-06 include a second lowest frequency antenna that comprises a first slant 45 degree dipole radiating element adapted to generate a first beam at a first frequency and a first director proximate the first radiating element to improve an SPR of the beam while maintaining an equivalent 3 dB beamwidth. Furthermore, as indicated above, Rosenberg antenna model nos. BA-AIO3O3T3T3VFX65F-06 and BA-

AIO3O3T3T3VJX65F-06 also include a second radiating element, disposed proximate the first radiating element, that is adapted to generate a second beam at a second frequency.

53. Shown below is an annotated photograph of interior components of Rosenberger antenna model no. BA-O3O3T3T3VFX65F-06 showing a first slant 45 degree dipole radiating element adapted to generate a first beam at a first frequency, and a first director disposed proximate the first radiating element to improve the SPR while maintaining an equivalent 3 dB beamwidth.



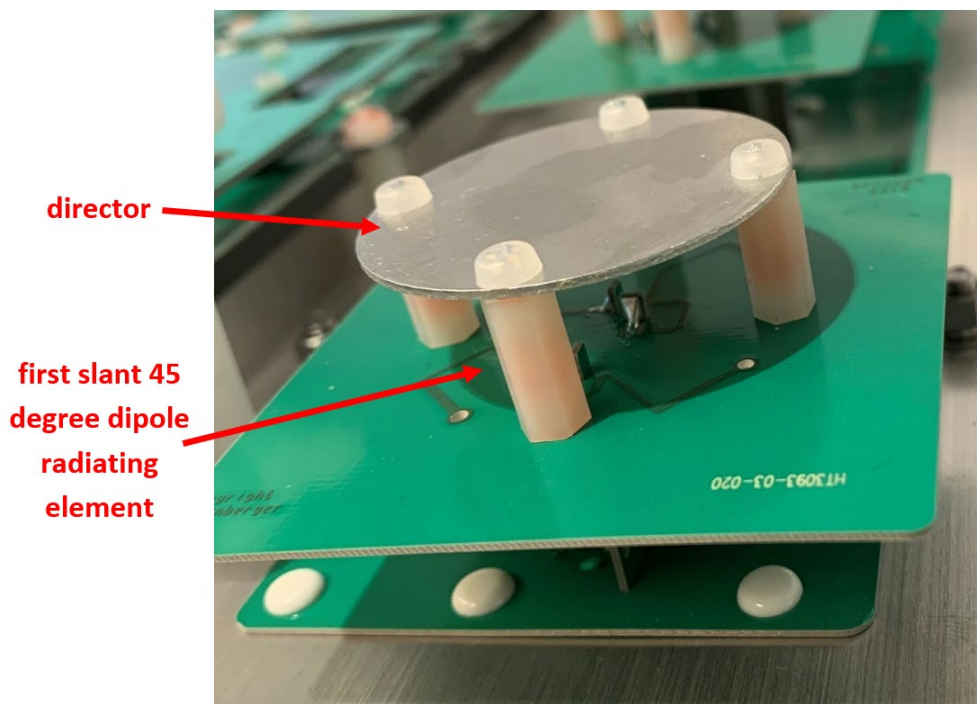
54. Shown below is another annotated photograph of interior components of Rosenberger antenna model no. BA-O3O3T3T3VFX65F-06 showing a second radiating element adapted to generate a second beam at a second frequency and which is disposed proximate the first radiator.



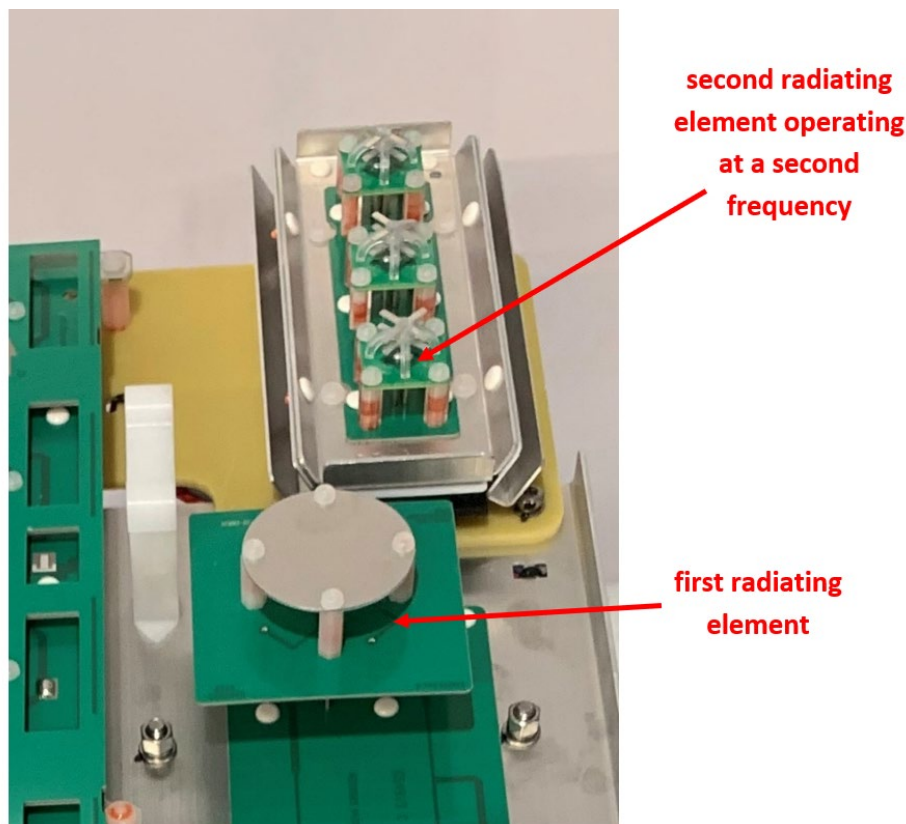
55. With respect to claim 27, as indicated above, Rosenberger model no. BA-O3O3T3T3VFX65F-06 includes an antenna that comprises a first slant 45 degree dipole radiating element adapted to generate a first beam at a first frequency and a first director proximate the first radiating element to improve an SPR of the beam while maintaining an equivalent 3 dB beamwidth. Furthermore, as indicated above, Rosenberger antenna model no. BA-O3O3T3T3VFX65F-06 also includes a second radiating element disposed proximate the first radiating element and adapted to generate a second beam at a second frequency.

56. The radiating element, marked as “first slant 45 degree dipole radiating element” for Rosenberger antenna model no. BA-O3O3T3T3VFX65F-06 above is one of the radiating elements of the highest RF band. This antenna is capable of operating in three different RF bands, each of which uses its own unique set of radiating elements. Claim 27 can also be read on

other radiating elements for the middle of the three RF bands. Shown below is an annotated photograph of interior components of Rosenberger antenna model no. BA-O3O3T3T3VFX65F-06, showing a first radiating element for the antenna's middle RF band, and a director.



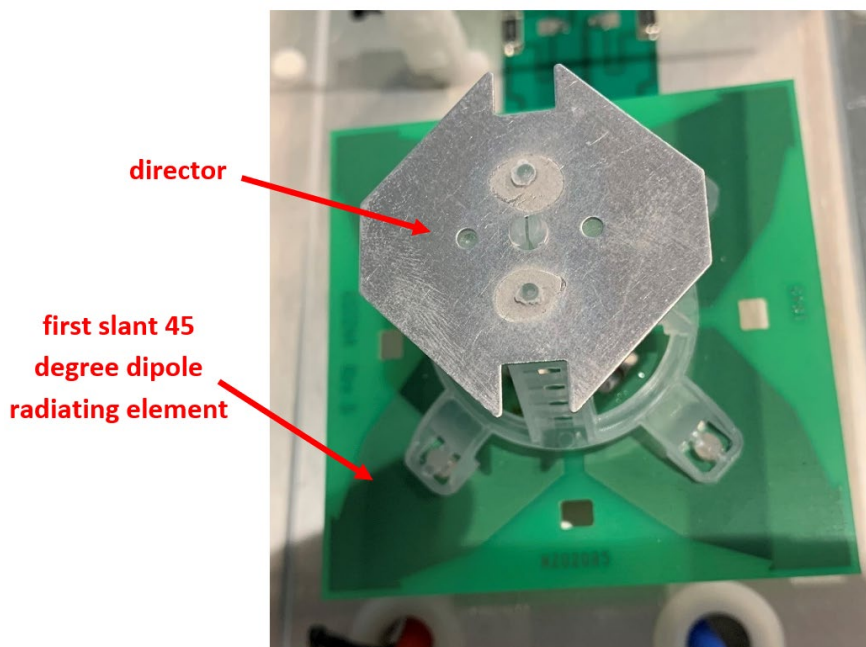
57. Shown below is another annotated photograph of interior components of Rosenberger antenna model no. BA-O3O3T3T3VFX65F-06, showing a second radiator, adapted to generate a beam at a second frequency, disposed proximate the first radiating element.



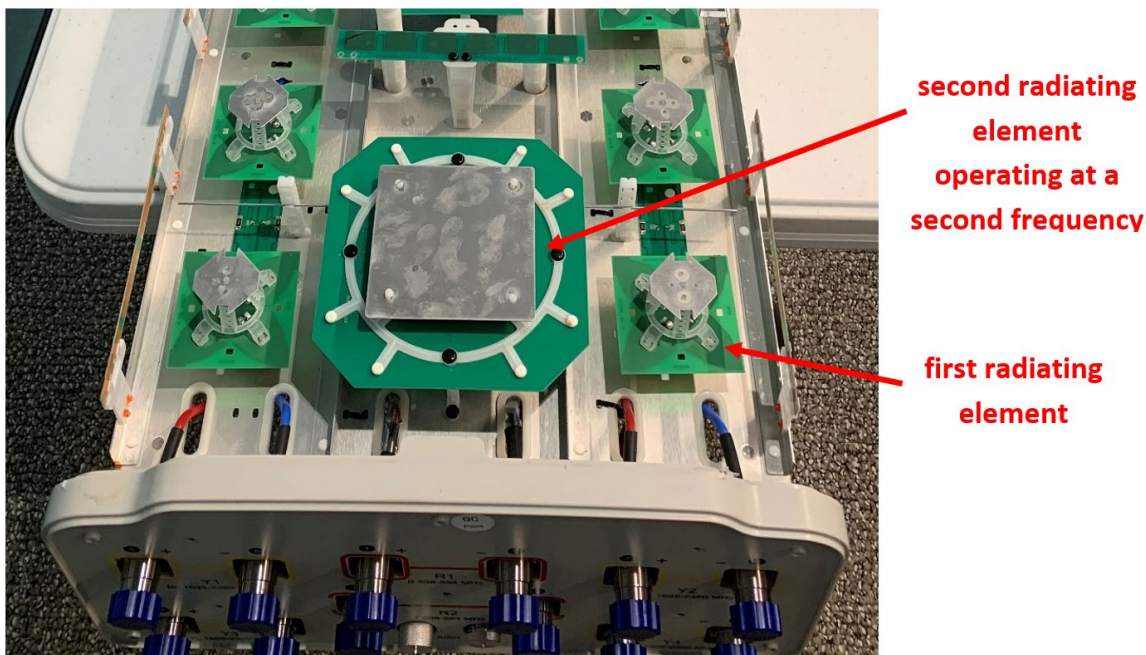
58. With respect to claim 27, as indicated above, Rosenberger antenna model no. BA-O3O3T3T3VFX65F-06 includes an antenna operating in the middle RF band that comprises a first slant 45 degree dipole radiating element adapted to generate a first beam at a first frequency and a first director proximate the first radiating element to improve an SPR of the beam while maintaining an equivalent 3 dB beamwidth. Furthermore, as indicated above, Rosenberger antenna model no. BA-O3O3T3T3VFX65F-06 also includes a second radiating element disposed proximate the first radiating element and adapted to generate a second beam at a second frequency.

59. Shown below is an annotated photograph of interior components of Rosenberger antenna model no. BA-A5A54O7X65V-01 antenna array, showing a first slant 45 degree dipole radiating element adapted to generate a first beam at a first frequency, and a first director

disposed proximate the first radiating element to improve the SPR while maintaining an equivalent 3 dB beamwidth.



60. Shown below is another annotated photograph of interior components of Rosenberg antenna model no. BA-A5A54O7X65V-01, showing a second radiator, adapted to generate a beam at a second frequency, disposed proximate the first radiating element.



61. With respect to claim 27, as indicated above, Rosenberger antenna model no. BA-A5A5407X65V-01 includes an antenna that comprises a first slant 45 degree dipole radiating element adapted to generate a first beam at a first frequency and a first director proximate the first radiating element to improve an SPR of the beam while maintaining an equivalent 3 dB beamwidth. Furthermore, as indicated above, Rosenberger antenna model no. BA-A5A5407X65V-01 also includes a second radiating element disposed proximate the first radiating element and adapted to generate a second beam at a second frequency.

62. Therefore, Rosenberger directly infringes, literally and under the doctrine of equivalents, claims of the '922 patent including, for example and without limitation, claim 27, through its making, using, selling, offering for sale, and/or importing of, for example and without limitation, its antenna model nos. BA-AIO3O3T3T3VFX65F-06, BA-AIO3O3T3T3VJX65F-06, BA-O3O3T3T3VFX65F-06, and BA-A5A5407X65V-01.

63. Rosenberger also indirectly infringes claims of the '922 patent, including, for example, and without limitation, claim 27. Operators of Rosenberger's antenna directly infringe

at least some claims of the '922 patent. At least as of the filing of this complaint, Rosenberger knows its products are especially made or especially adapted for use in an infringement.

64. Rosenberger products include features that are not staple articles of commerce suitable for substantial non-infringing uses. For example, there is no substantial use for these antennas that does not infringe the '922 patent. The intended, normal use of Rosenberger antennas results in infringement. Rosenberger products are a material part of the invention of the '922 patent.

65. CommScope has been damaged by Rosenberger's infringement of the '922 patent and will continue to be damaged in the future unless Rosenberger is enjoined from infringing the '922 patent.

66. CommScope has satisfied the notice and/or marking provisions of 35 U.S.C. § 287.

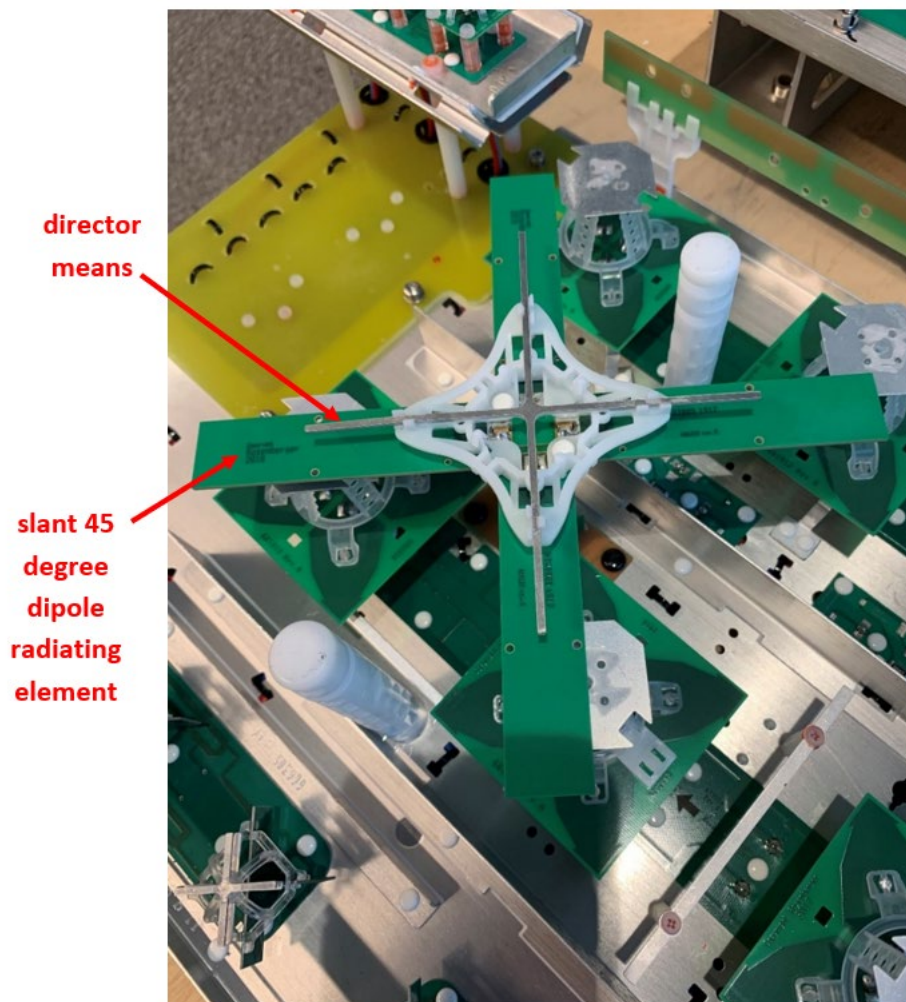
Count 2

Claim for Patent Infringement of U.S. Patent No. 7,535,430

67. CommScope incorporates by reference each of the paragraphs above as if fully stated herein.

68. By its activities related to making, using, selling, offering for sale, and/or importing in or into the United States its base station antennas, including for example and without limitation its antenna model nos. BA-AIO3O3T3T3VFX65F-06 and BA-AIO3O3T3T3VJX65F-06, and BA-O3O3T3T3VFX65F-06, Rosenberger has infringed at least claim 20 of the '430 patent.

69. Shown below is an annotated photograph of interior components of Rosenberger antenna model no. BA-AIO3O3T3T3VFX65F-06:



70. Claim 20 of the '430 patent recites as follows:

20. An antenna, comprising:

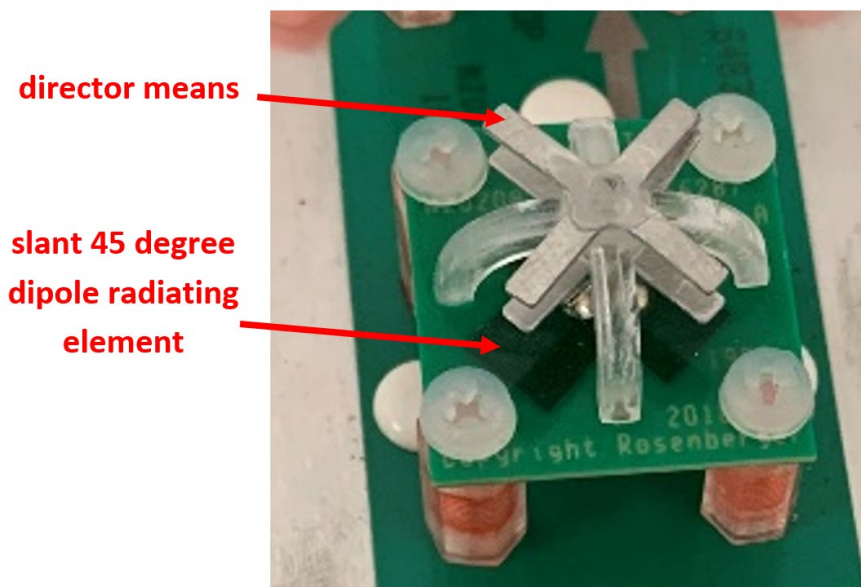
a slant 45 degree dipole radiating element adapted to generate a beam; and

director means disposed proximate the slant 45 degree dipole radiating element for directing the beam.

71. With respect to claim 20, as indicated above, Rosenberger antenna model no. BA-AIO3O3T3T3VFX65F-06 includes an antenna comprising a slant 45 degree dipole radiating

element adapted to generate a beam. As indicated above, Rosenberger antenna model no. BA-AIO3O3T3T3VFX65F-06 also comprises director means proximate the slant 45 degree dipole radiating element for directing the beam.

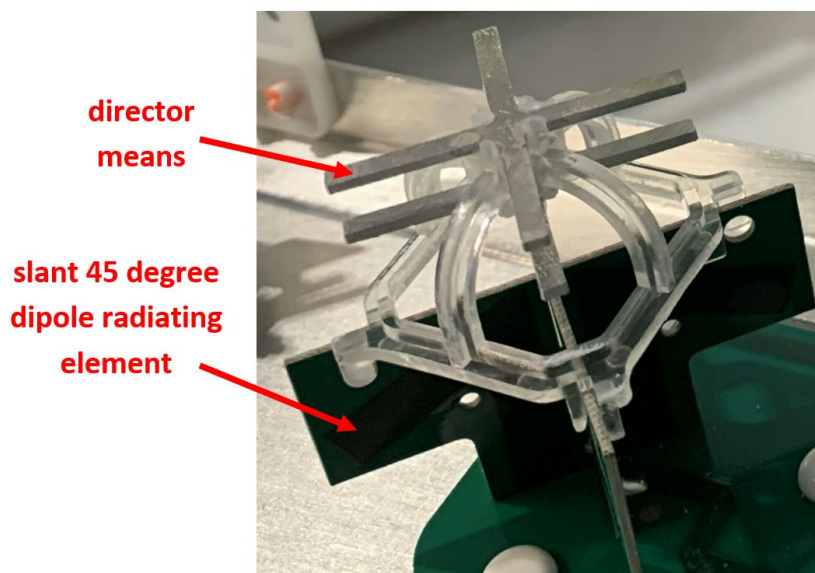
72. The radiating element, marked as “slant 45 degree dipole radiating element” in the photograph above, is one of the radiating elements for the antenna’s lowest RF band. Claim 20 can also be read on the radiating elements of the highest RF band of Rosenberger antenna model no. BA-AIO3O3T3T3VFX65F-06. Shown below is an annotated photograph of interior components of Rosenberger antenna model no. BA-AIO3O3T3T3VFX65F-06, including a radiating element for the antenna’s highest RF band.



73. With respect to claim 20, as indicated above, Rosenberger antenna model no. BA-AIO3O3T3T3VFX65F-06 includes a highest frequency antenna that comprises a slant 45 degree dipole radiating element adapted to generate a beam. As indicated above, Rosenberger antenna

model no. BA-AIO3O3T3T3VFX65F-06 also comprises director means proximate the slant 45 degree dipole radiating element for directing the beam.

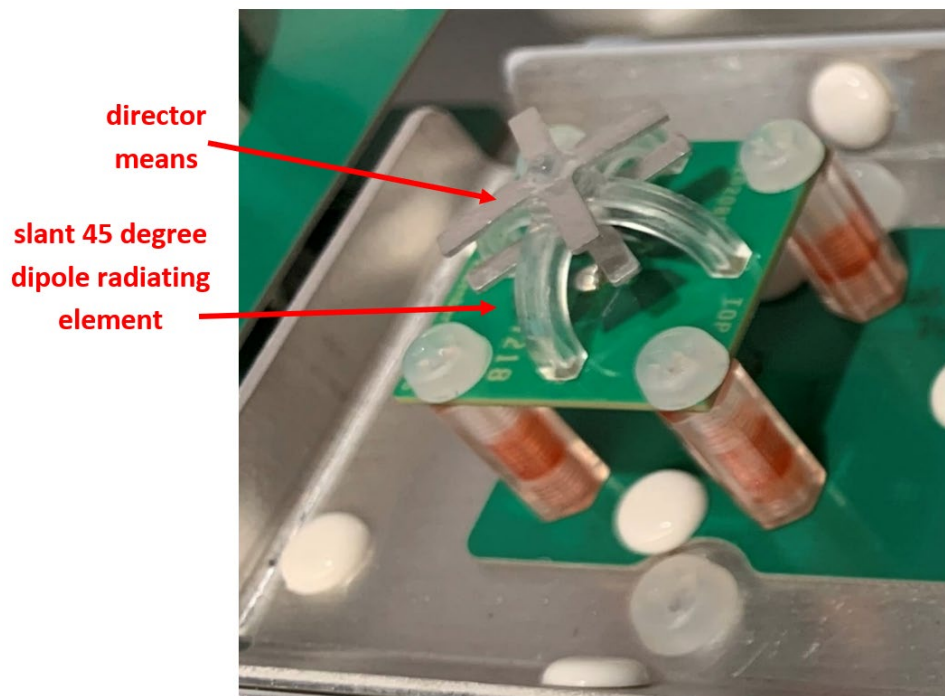
74. Claim 20 can also be read on the radiating elements of the second highest RF band of Rosenberger antenna model nos. BA-AIO3O3T3T3VFX65F-06 and BA-AIO3O3T3T3VJX65F-06. Shown below is an annotated photograph of interior components of Rosenberger antenna model no. BA-AIO3O3T3T3VFX65F-06, including a radiating element for the antenna's second highest RF band.



75. Rosenberger antenna model no. BA-AIO3O3T3T3VJX65F-06 contains the same elements as those shown above.

76. With respect to claim 20, as indicated above, Rosenberger antenna model nos. BA-AIO3O3T3T3VFX65F-06 and BA-AIO3O3T3T3VJX65F-06 include a second highest frequency antenna that comprises a slant 45 degree dipole radiating element adapted to generate a beam. As indicated above, Rosenberger antenna model nos. BA-AIO3O3T3T3VFX65F-06 and BA-AIO3O3T3T3VJX65F-06 also comprise director means proximate the slant 45 degree dipole radiating element for directing the beam.

77. Shown below is an annotated photograph of interior components of Rosenberger antenna model no. BA-O3O3T3T3VFX65F-06.



78. With respect to claim 20, as indicated above, Rosenberger antenna model no. BA-O3O3T3T3VFX65F-06 includes an antenna comprising a slant 45 degree dipole radiating element adapted to generate a beam. As indicated above, Rosenberger antenna model no. BA-O3O3T3T3VFX65F-06 also comprises director means disposed proximate the slant 45 degree dipole radiating element for directing the beam.

79. Therefore, Rosenberger directly infringes, literally and under the doctrine of equivalents, claims of the '430 patent including, for example and without limitation, claim 20, through its making, using, selling, offering for sale, and/or importing of, for example and without

limitation, its antenna model nos. BA-AIO3O3T3T3VFX65F-06, BA-AIO3O3T3T3VJX65F-06, and BA-O3O3T3T3VFX65F-06.

80. Rosenberg also indirectly infringes claims of the '430 patent, including, for example, and without limitation, claim 20. Operators of Rosenberg antennas directly infringe at least some claims of the '430 patent. At least as of the filing of this complaint, Rosenberg knows its products are especially made or especially adapted for use in an infringement.

81. Rosenberg products include features that are not staple articles of commerce suitable for substantial non-infringing uses. For example, there is no substantial use for the antennas that does not infringe the '430 patent. The intended, normal use of Rosenberg antennas results in infringement. Rosenberg products are a material part of the invention of the '430 patent.

82. CommScope has been damaged by Rosenberg's infringement of the '430 patent and will continue to be damaged in the future unless Rosenberg is enjoined from infringing the '430 patent.

83. CommScope has satisfied the notice and/or marking provisions of 35 U.S.C. § 287.

Count 3

Claim for Patent Infringement of U.S. Patent No. 9,698,486

84. CommScope incorporates by reference each of the paragraphs above as if fully stated herein.

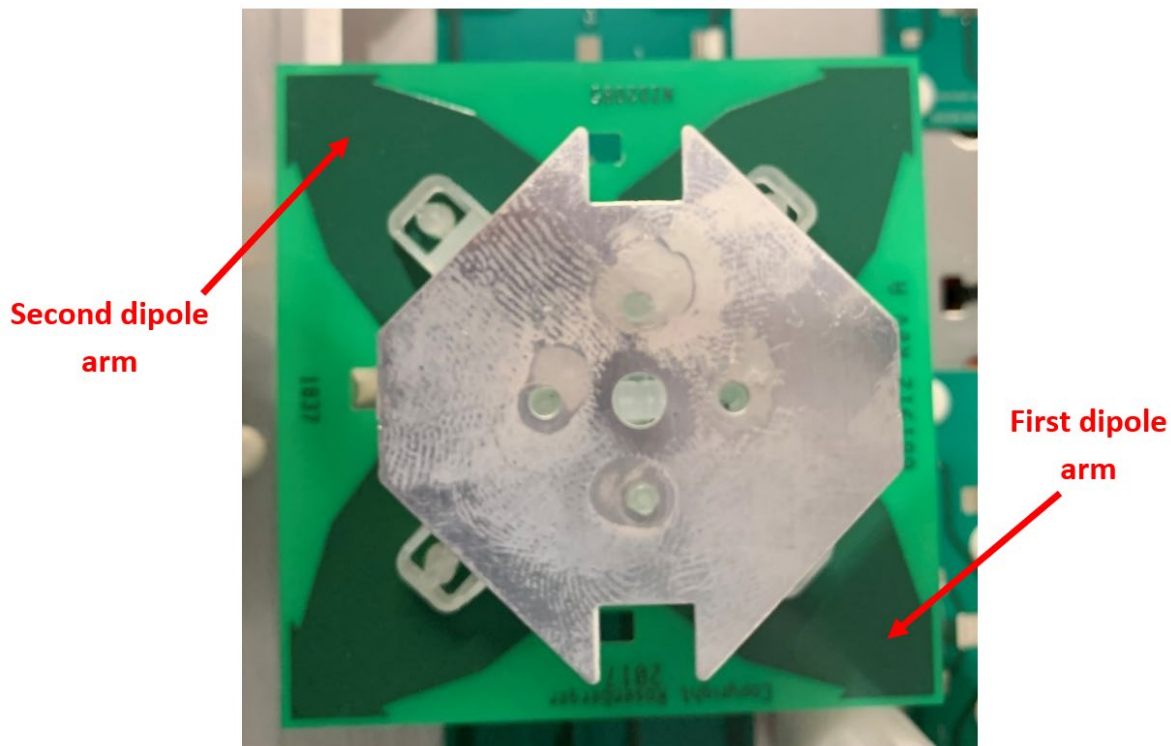
85. By its activities related to making, using, selling, offering for sale, and/or importing in or into the United States its base station antennas, including for example and without limitation its antenna model nos. BA-AIO3O3T3T3VFX65F-06, BA-

AIO3O3T3T3VJX65F-06, BA-A5A54O7X65V-01, and MB-A64O9X65V-01, Rosenberger has infringed at least claim 14 of the '486 patent.

86. Claim 14 of the '486 patent is as follows:

14. A higher band radiating element for a multiband antenna having at least higher band elements and lower band elements, comprising:
a first dipole arm;
a second dipole arm;
a feedboard having a balun and first and second matching circuits coupled to the balun, the first matching circuit being coupled to the first dipole arm and the second matching circuit being coupled to the second dipole arm,
the first matching circuit comprising a first stalk that is coupled to the balun and a first capacitor coupled between the first stalk and the first dipole arm, and
the second matching circuit comprising a second stalk that is coupled to the balun and a second capacitor coupled between the second stalk and the second dipole arm,
wherein the first matching circuit further comprises a common mode tuning circuit that provides a direct current path from a first node that is between the first capacitor and the first dipole arm to ground.

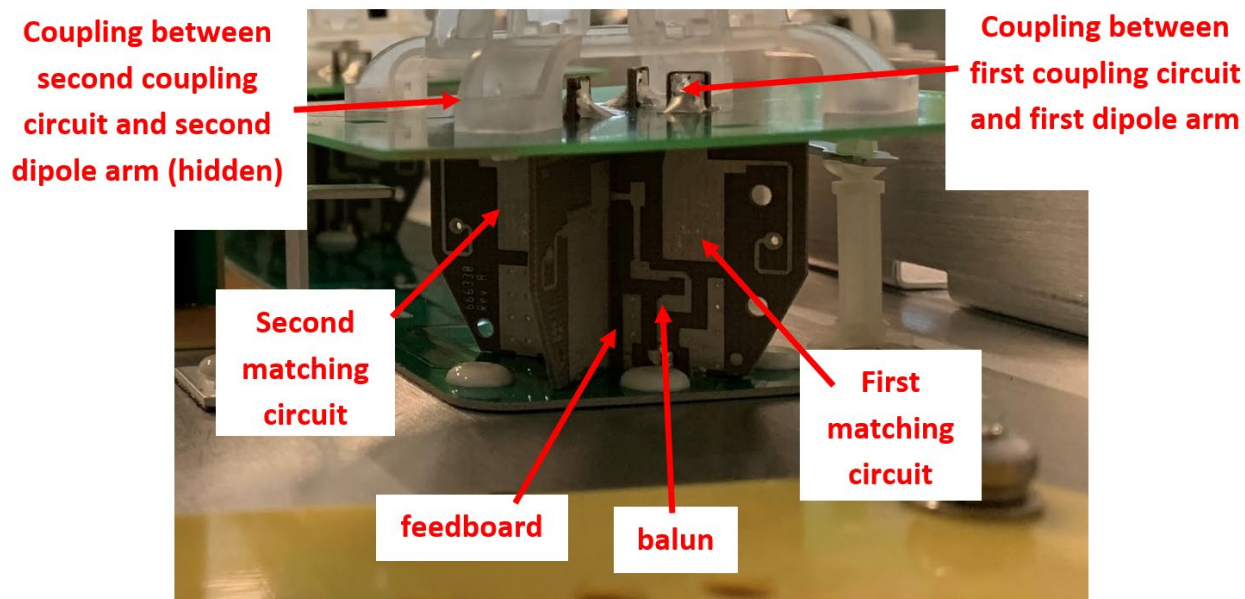
87. Shown below is an annotated photograph of interior components of Rosenberger antenna model no. BA-AIO3O3T3T3VFX65F-06:



88. Rosenberger antenna model no. BA-AIO3O3T3T3VJX65F-06 contains the same elements as those shown above.

89. With respect to claim 14, as indicated above, Rosenberger antenna model nos. BA-AIO3O3T3T3VFX65F-06 and BA-AIO3O3T3T3VJX65F-06 are antennas comprising a higher band radiating element that comprises a first dipole arm and a second dipole arm.

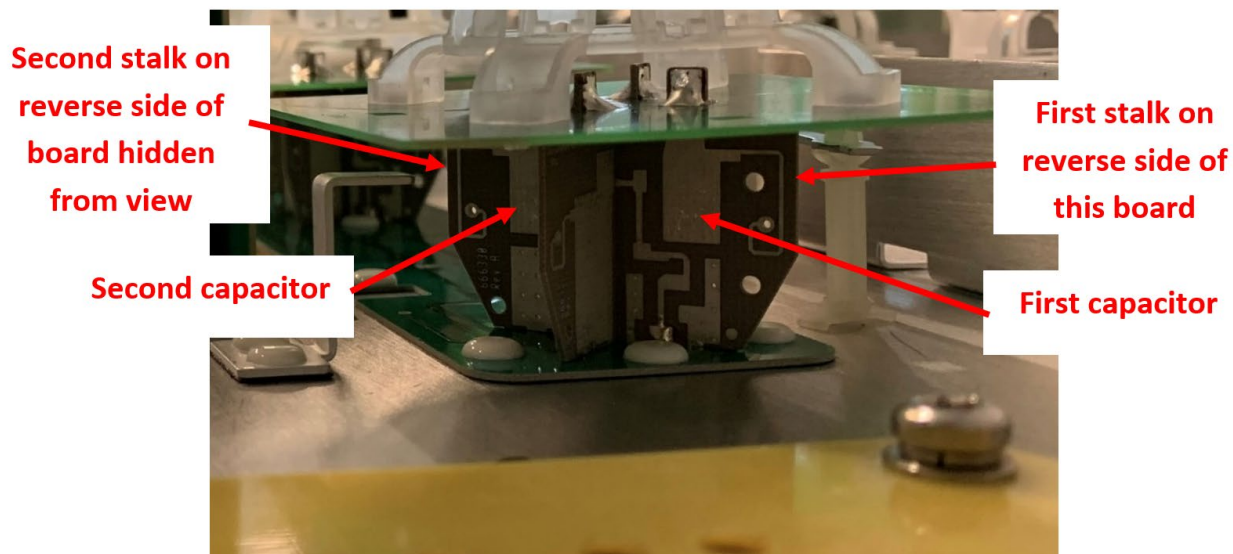
90. Shown below is another annotated photograph of interior components of Rosenberger antenna model no. BA-AIO3O3T3T3VFX65F-06:



91. Rosenberger antenna model no. BA-AIO3O3T3T3VJX65F-06 contains the same elements as those shown above.

92. With respect to claim 14, as indicated above, Rosenberger antenna model nos. BA-AIO3O3T3T3VFX65F-06 and BA-AIO3O3T3T3VJX65F-06 comprise a feedboard having a balun and first and second matching circuits coupled to the balun, the first matching circuit being coupled to the first dipole arm and the second matching circuit being coupled to the second dipole arm.

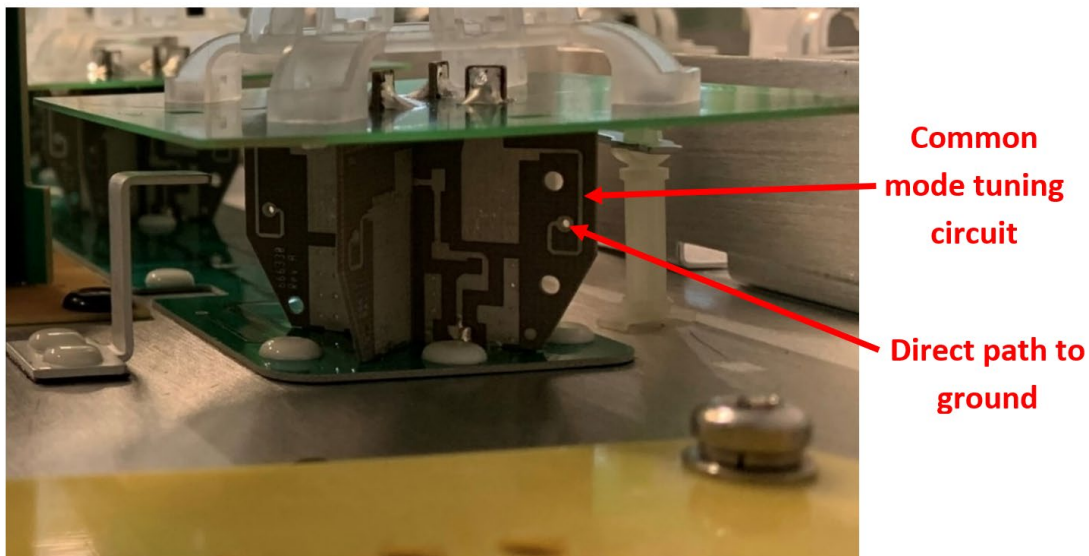
93. Shown below is another annotated photograph of interior components of Rosenberger antenna model no. BA-AIO3O3T3T3VFX65F-06:



94. Rosenberger antenna model no. BA-AIO3O3T3T3VJX65F-06 contains the same elements as those shown above.

95. With respect to claim 14, as indicated above, in Rosenberger antenna model nos. BA-AIO3O3T3T3VFX65F-06 and BA-AIO3O3T3T3VJX65F-06 the first matching circuit comprises a first stalk that is coupled to the balun and a first capacitor coupled between the first stalk and the first dipole arm, and the second matching circuit comprising a second stalk that is coupled to the balun and a second capacitor coupled between the second stalk and the second dipole arm.

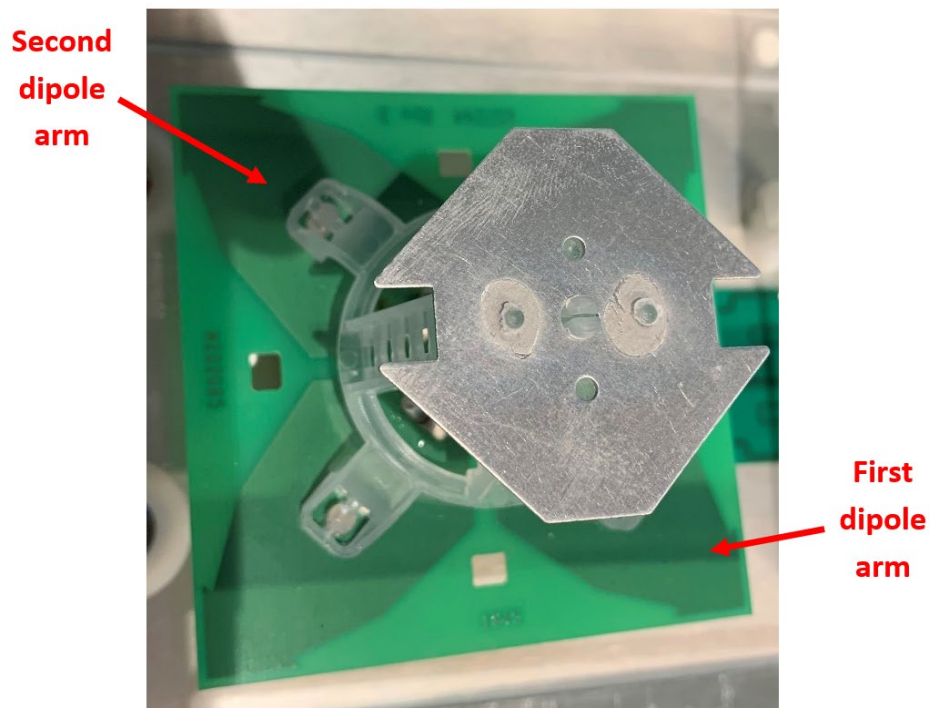
96. Shown below is another annotated photograph of interior components of Rosenberger antenna model no. BA-AIO3O3T3T3VFX65F-06:



97. Rosenberger antenna model no. BA-AIO3O3T3T3VJX65F-06 contains the same elements as those shown above.

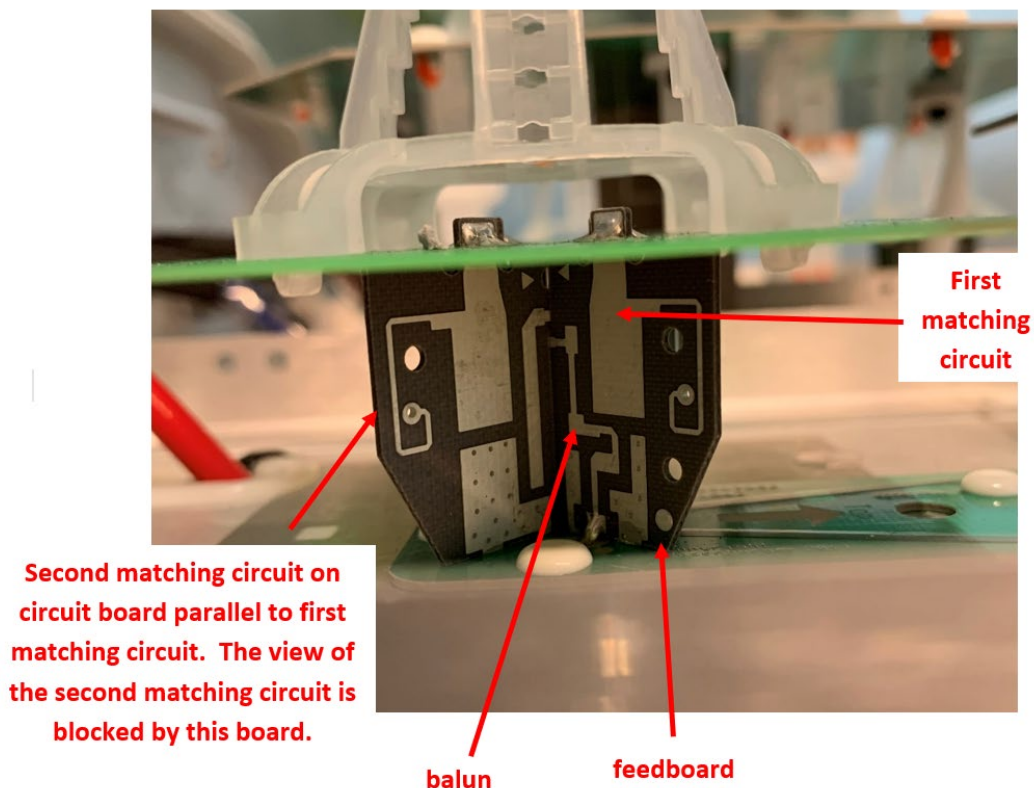
98. As indicated above, Rosenberger antenna model nos. BA-AIO3O3T3T3VFX65F-06 and BA-AIO3O3T3T3VJX65F-06 also comprise a common mode tuning circuit that provides a direct current path from a first node that is between the first capacitor and the first dipole to ground.

99. Shown below is an annotated photograph of interior components of Rosenberger antenna model no. BA-A5A54O7X65V-01:



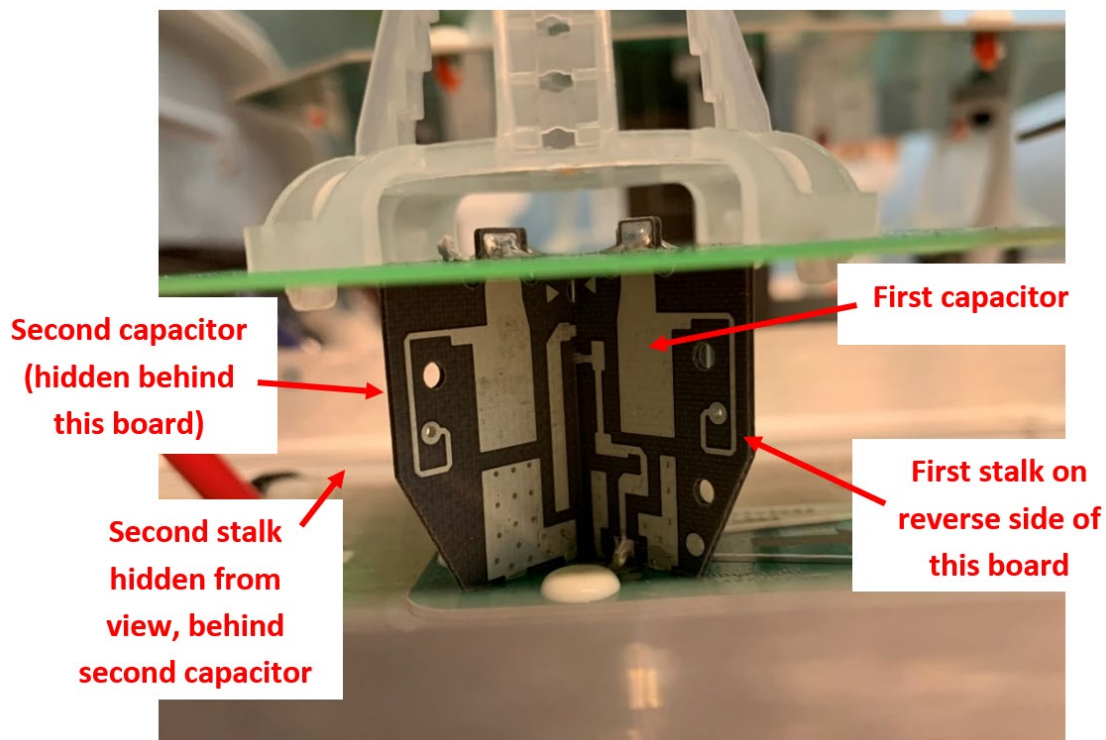
100. With respect to claim 14, as indicated above, Rosenberger antenna model no. BA-A5A54O7X65V-01 is an antenna comprising a higher band radiating element that comprises a first dipole arm and a second dipole arm.

101. Shown below is another annotated photograph of the same interior component of Rosenberger antenna model no. BA-A5A54O7X65V-01:



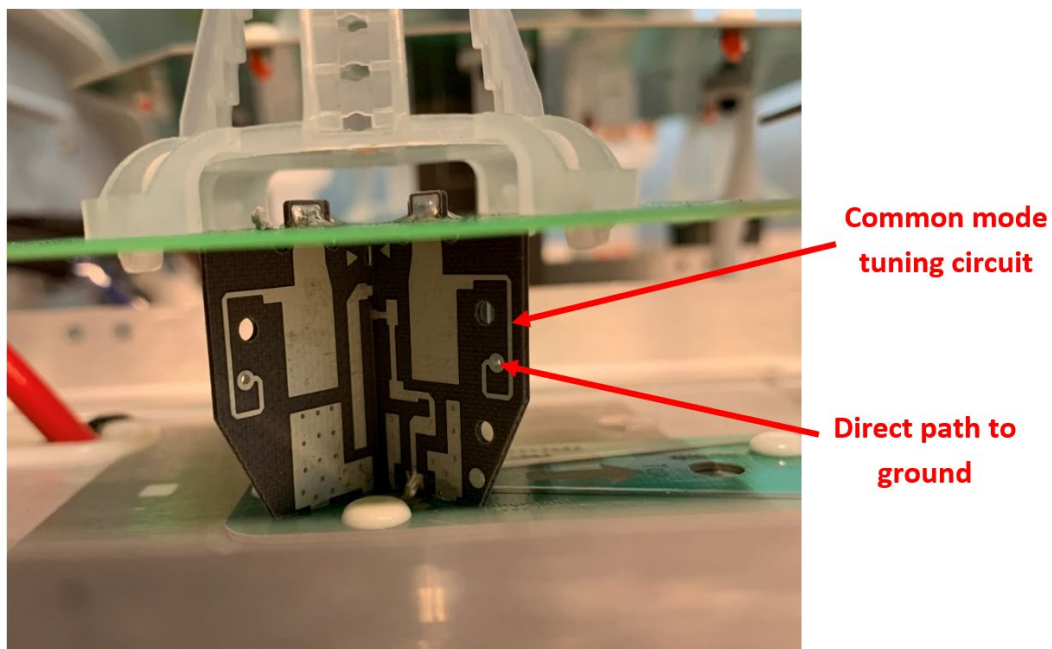
102. As indicated above, Rosenberger antenna model no. BA-A5A5407X65V-01 comprises a feedboard having a balun and first and second matching circuits coupled to the balun, the first matching circuit being coupled to the first dipole arm and the second matching circuit being coupled to the second dipole arm.

103. Shown below is another annotated photograph of the same interior component of Rosenberger antenna model no. BA-A5A5407X65V-01:



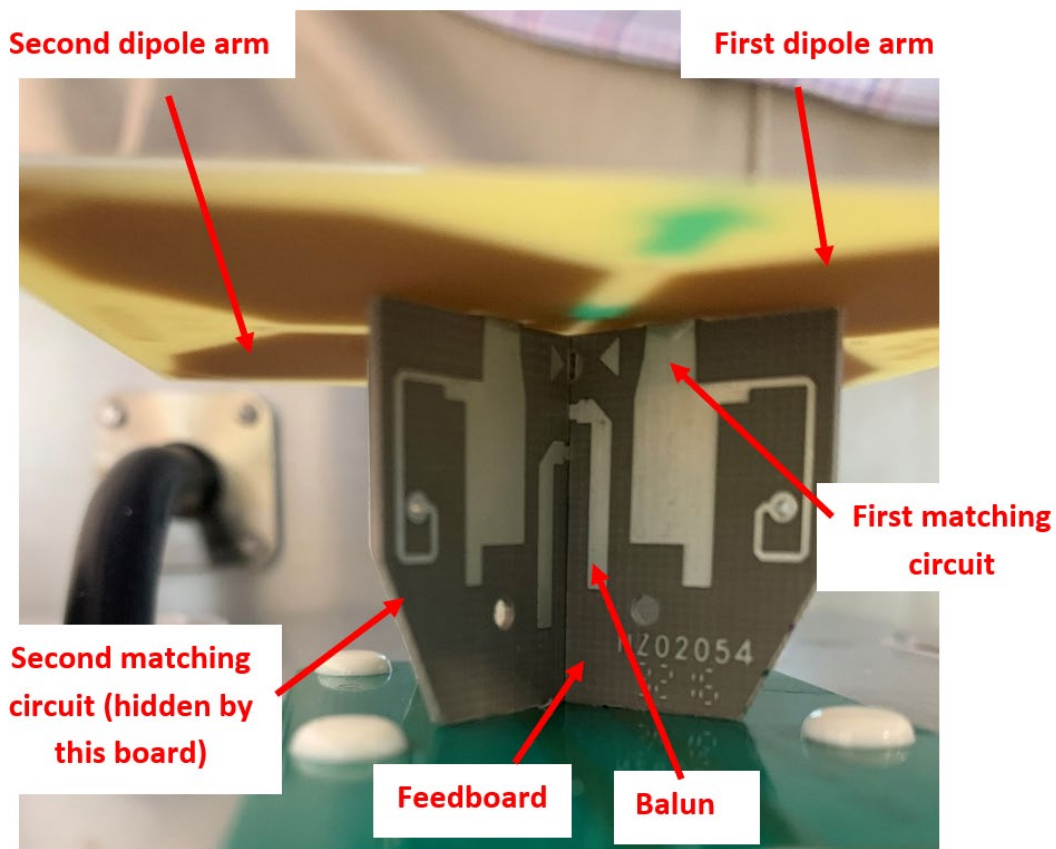
104. As indicated above, Rosenberg antenna model no. BA-A5A5407X65V-has the first matching circuit comprising a first stalk that is coupled to the balun and a first capacitor coupled between the first stalk and the first dipole arm, and the second matching circuit comprising a second stalk that is coupled to the balun and a second capacitor coupled between the second stalk and the second dipole arm.

105. Shown below is another annotated photograph of the same interior component of Rosenberg antenna model no. BA-A5A5407X65V-01.



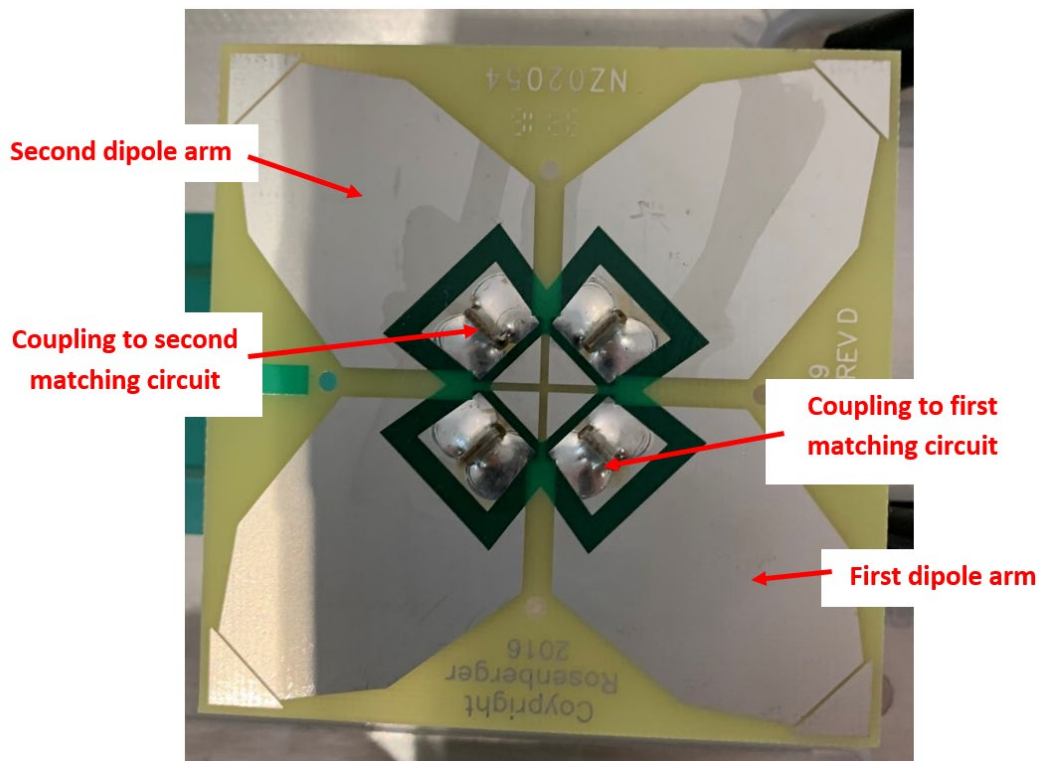
106. As indicated above, Rosenberger antenna model no. BA-A5A54O7X65V-01 also comprises a common mode tuning circuit that provides a direct current path from a first node that is between the first capacitor and the first dipole to ground.

107. Shown below is an annotated photograph of interior components of Rosenberger antenna model no. MB-A64O9X65V-01.



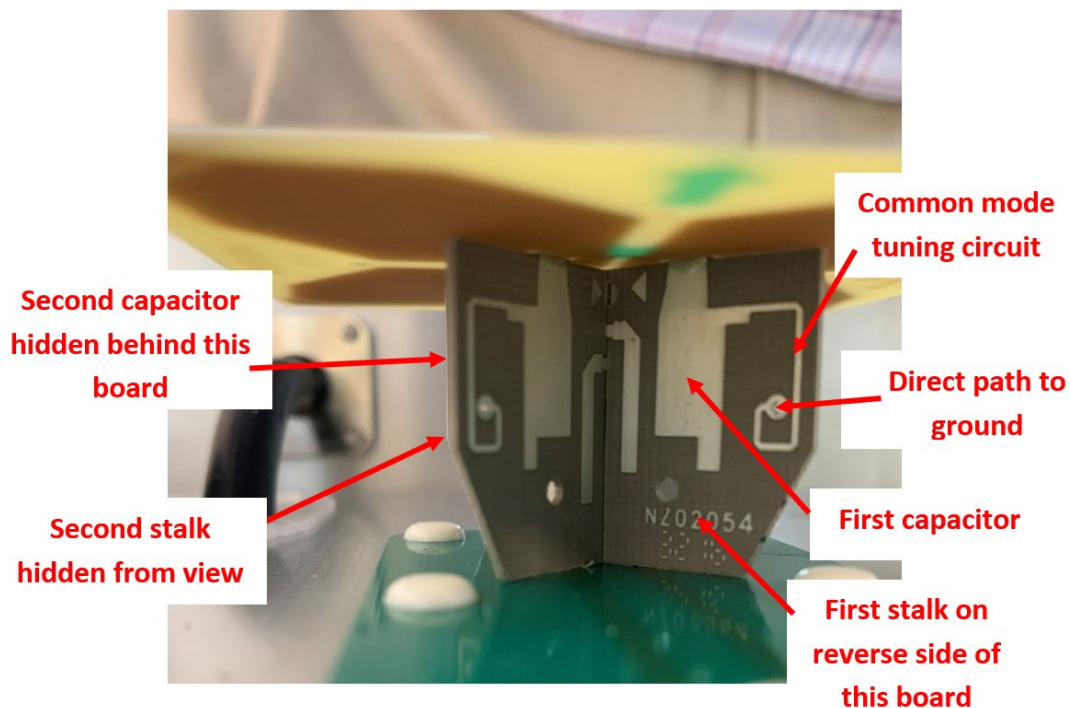
108. With respect to claim 14, as indicated above, Rosenberg antenna model no. MB-A64O9X65V-01 is an antenna comprising a higher band radiating element that comprises a first dipole arm and a second dipole arm and comprises a feedboard having a balun and first and second matching circuits coupled to the balun,

109. Shown below is another annotated photograph of interior components of Rosenberg antenna model no. MB-A64O9X65V-01.



110. With respect to claim 14, as indicated above, Rosenberg antenna model no. MB-A64O9X65V-01 includes the first matching circuit being coupled to the first dipole arm and the second matching circuit being coupled to the second dipole arm.

111. Shown below is another annotated photograph of interior components of Rosenberg antenna model no. MB-A64O9X65V-01.



112. With respect to claim 14, as indicated above, in Rosenberger antenna model no. MB-A64O9X65V-01 the first matching circuit comprising a first stalk that is coupled to the balun and a first capacitor coupled between the first stalk and the first dipole arm, and the second matching circuit comprising a second stalk that is coupled to the balun and a second capacitor coupled between the second stalk and the second dipole arm. Furthermore, as indicated above, Rosenberger antenna model no. MB-A64O9X65V-01 also comprises a common mode tuning circuit that provides a direct current path from a first node that is between the first capacitor and the first dipole to ground.

113. Therefore, Rosenberger directly infringes, literally and under the doctrine of equivalents, claims of the '486 patent, including, for example, and without limitation, claim 14, through its making, using, selling, offering for sale, and/or importing of, for example and without limitation, its antenna model nos. BA-AIO3O3T3T3VFX65F-06, BA-AIO3O3T3T3VJX65F-06, BA-A5A54O7X65V-01, and MB-A64O9X65V-01.

114. Rosenberg also indirectly infringes claims of the '486 patent, including, for example, and without limitation, claim 14. Operators of Rosenberg antennas directly infringe at least some claims of the '486 patent. At least as of the filing of this complaint, Rosenberg knows its products are especially made or especially adapted for use in an infringement.

115. Rosenberg products include features that are not staple articles of commerce suitable for substantial non-infringing uses. For example, there is no substantial use for the antennas that does not infringe the '486 patent. The intended, normal use of Rosenberg antennas results in infringement. Rosenberg products are a material part of the invention of the '486 patent.

116. CommScope has been damaged by Rosenberg's infringement of the '486 patent and will continue to be damaged in the future unless Rosenberg is enjoined from infringing the '486 patent.

117. CommScope has satisfied the notice and/or marking provisions of 35 U.S.C. § 287.

Count 4

Claim for Patent Infringement of U.S. Patent No. 9,831,548

118. CommScope incorporates by reference each of the paragraphs above as if fully stated herein.

119. By its activities related to making, using, selling, offering for sale, and/or importing in or into the United States its base station antennas, including for example and without limitation its antenna model no. MB-A64O9X65V-01, Rosenberg has infringed at least claim 1 of the '548 patent.

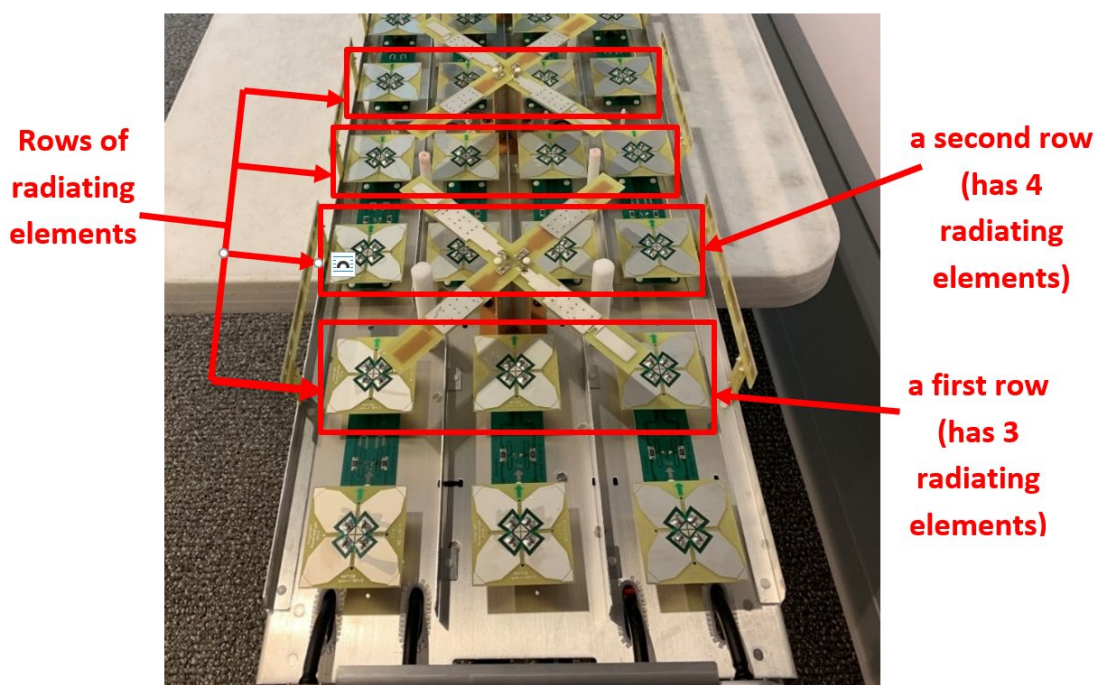
120. Claim 1 of the '548 patent recites:

1. A multi-beam cellular communication antenna, comprising:

an antenna array having a plurality of rows of radiating elements, wherein a first of the rows includes at least two radiating elements and a second of the rows includes at least three radiating elements and has a different number of radiating elements than the first of the rows; and

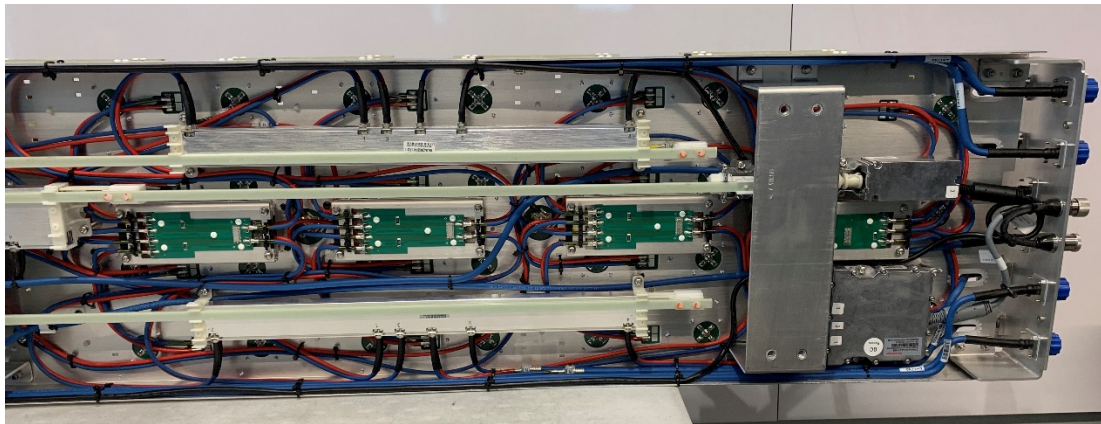
an antenna feed network that is configured to couple at least a first input signal and a second input signal to all of the radiating elements of the antenna array.

121. Shown below is an annotated photograph of interior components of Rosenberger antenna model no. MB-A64O9X65V-01:



122. With respect to claim 1, as indicated above, Rosenberger model no. MB-A64O9X65V-01 is a multi-beam cellular communication antenna that includes an antenna array having a plurality of rows of radiating elements. As indicated above, in Rosenberger antenna model no. MB-A64O9X65V-01 a first of the rows includes at least two radiating elements (indicated as having three elements in photo above), and a second of the rows includes at least three radiating elements and has a different number of radiating elements than the first of the rows (indicated as having four elements in the photo above).

123. Shown below is another photograph of interior components of Rosenberger antenna model no. MB-A64O9X65V-01, showing feed network components generally arranged on the underside of the reflector.



124. With respect to claim 1, as indicated above, Rosenberger antenna model no. MB-A64O9X65V-01 also comprises a feed network that is configured to couple at least a first input signal and a second input signal to all of the radiating elements of the antenna array.

125. Therefore, Rosenberger directly infringes, literally and under the doctrine of equivalents, claims of the '548 patent, including, for example, and without limitation, claim 1, through its making, using, selling, offering for sale, and/or importing of, for example and without limitation, its antenna model no. MB-A64O9X65V-01.

126. Rosenberger also indirectly infringes claims of the '548 patent, including, for example, and without limitation, claim 1. Operators of Rosenberger antennas directly infringe at least some claims of the '548 patent. Upon information and belief, at least as of the filing of this complaint, Rosenberger knows its products are especially made or especially adapted for use in an infringement.

127. Rosenberger products include features that are not staple articles of commerce suitable for substantial non-infringing uses. For example, there is no substantial use for the antennas that does not infringe the '548 patent. The intended, normal use of Rosenberger antennas results in infringement. Rosenberger products are a material part of the invention of the '548 patent.

128. CommScope has been damaged by Rosenberger's infringement of the '548 patent and will continue to be damaged in the future unless Rosenberger is enjoined from infringing the '548 patent.

129. CommScope has satisfied the notice and/or marking provisions of 35 U.S.C. § 287.

Count 5

Claim for Patent Infringement of U.S. Patent No. 10,439,285

130. CommScope incorporates by reference each of the paragraphs above as if fully stated herein.

131. By its activities related to making, using, selling, offering for sale, and/or importing in or into the United States its base station antennas, including for example and without limitation its antenna model nos. BA-AIO3O3T3T3VFX65F-06, BA-AIO3O3T3T3VJX65F-06, BA-A5A54O7X65V-01, and MB-A64O9X65V-01, Rosenberger has infringed at least claim 27 of the '285 patent.

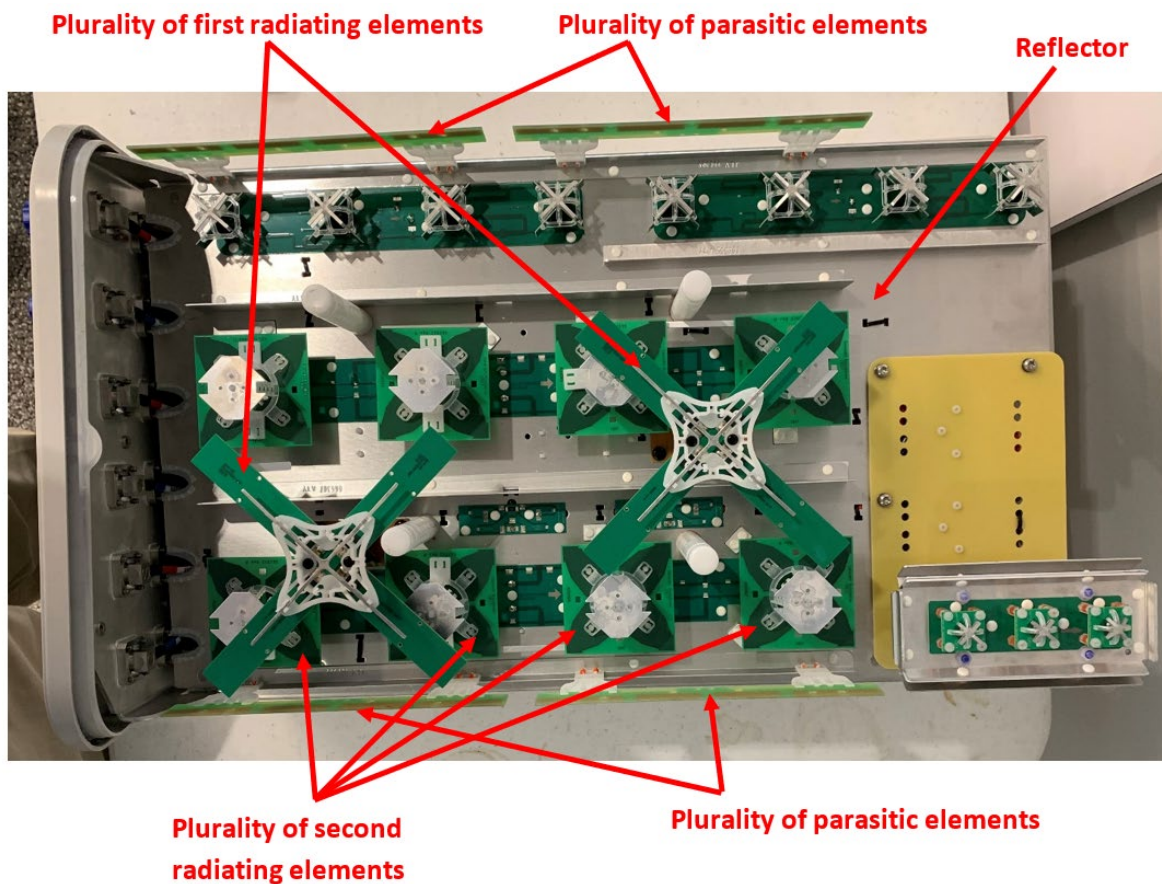
132. Claim 27 of the '285 patent is as follows:

27. A multiband antenna comprising:
a reflector;
a plurality of first radiating elements that are configured to operate in a first frequency band and that extend forwardly from the reflector;

a plurality of second radiating elements that are configured to operate in a second frequency band that is higher than the first frequency band, the second radiating elements extending forwardly from the reflector; and

a plurality of parasitic elements that extend forwardly from the reflector, wherein a first of the plurality of parasitic elements comprises a plurality of conductive segments coupled in series by a plurality of inductors.

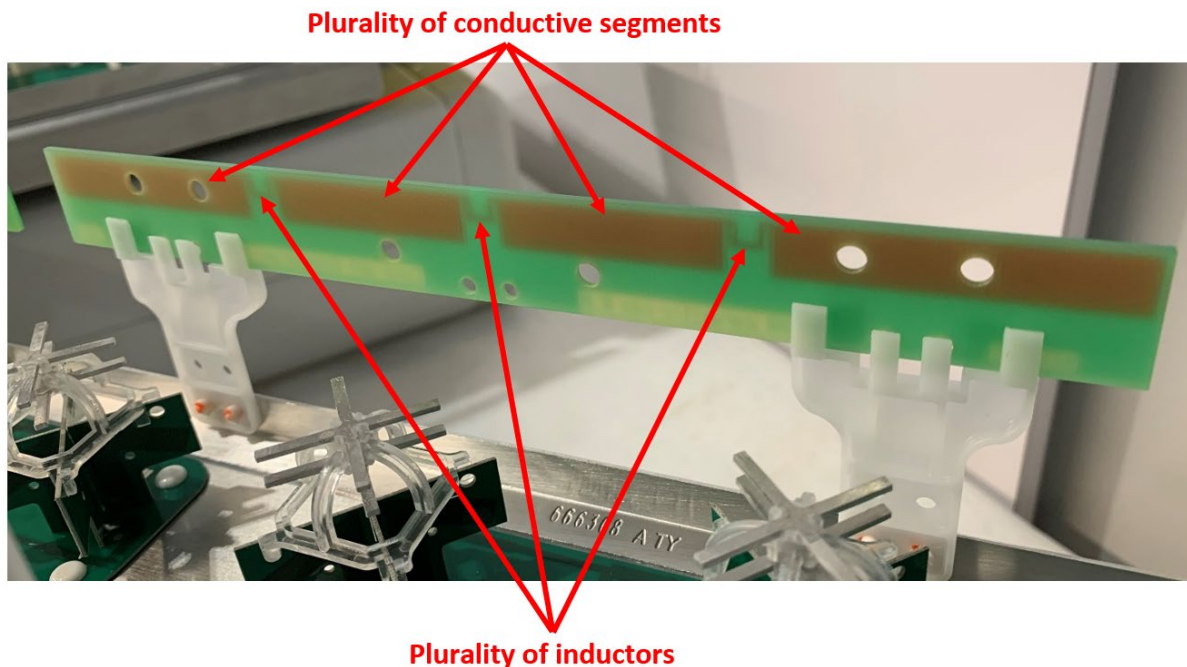
133. Shown below is an annotated photograph of interior components of Rosenberg antenna model no. BA-AIO3O3T3T3VFX65F-06.



134. Rosenberg antenna model no. BA-AIO3O3T3T3VJX65F-06 contains the same elements as those annotated above.

135. With respect to claim 27, as indicated above, Rosenberg antenna model nos. BA-AIO3O3T3T3VFX65F-06 and BA-AIO3O3T3T3VJX65F-06 are antennas comprising a reflector, a plurality of first radiating elements extending forwardly from the reflector, a plurality of second radiating elements configured to operate in a second frequency higher than the first frequency band, and that extend forwardly from the reflector, and a plurality of parasitic elements that extend forwardly from the reflector.

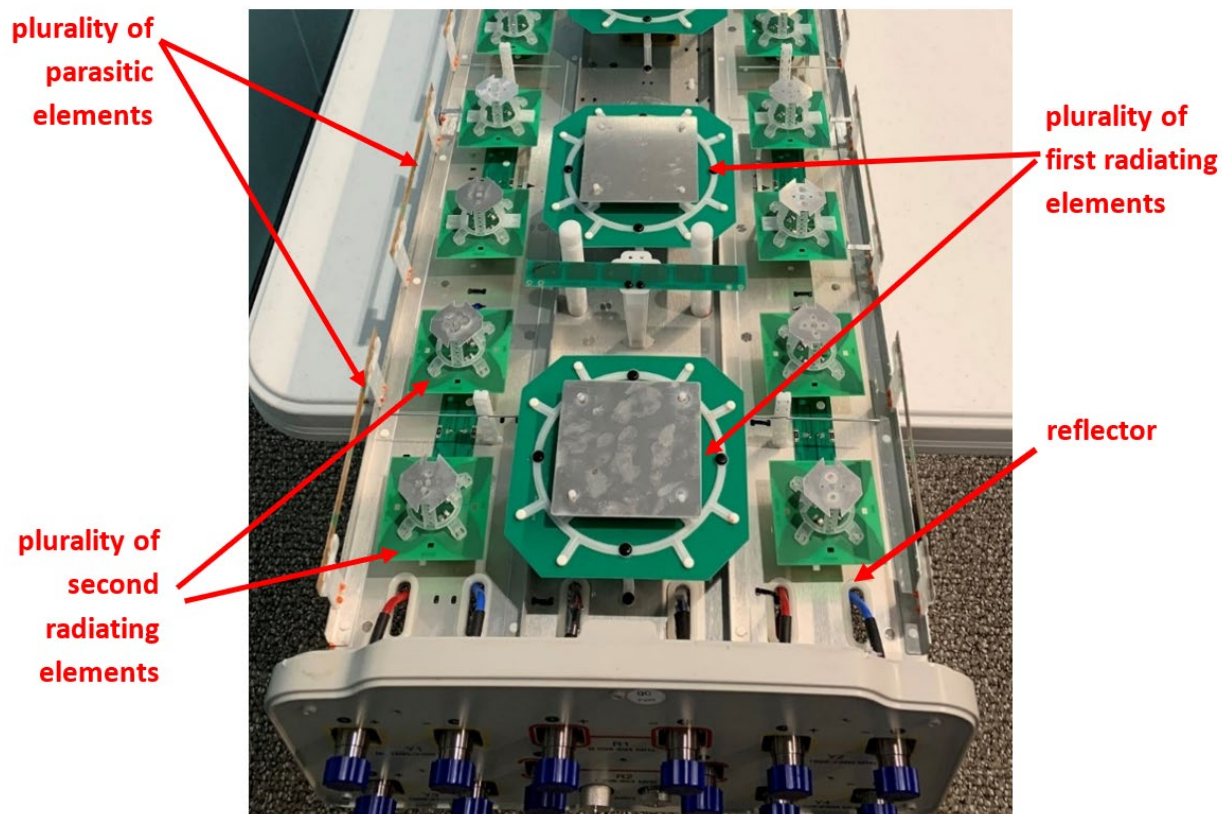
136. Shown below is another annotated photograph of interior components of Rosenberg antenna model no. BA-AIO3O3T3T3VFX65F-06.



137. Rosenberg antenna model no. BA-AIO3O3T3T3VJX65F-06 contains the same elements as those annotated above.

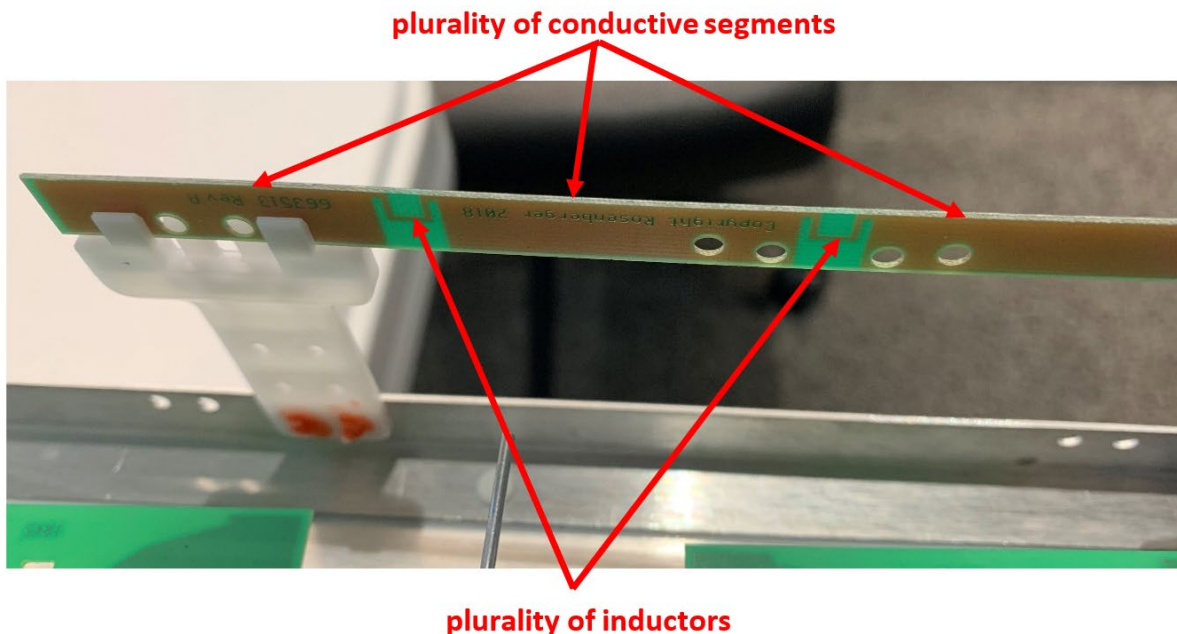
138. With respect to claim 27, as indicated above, Rosenberg antenna model nos. BA-AIO3O3T3T3VFX65F-06 and BA-AIO3O3T3T3VJX65F-06 are antennas that include a first parasitic element that comprises a plurality of conductive segments couples in series by a plurality of inductors.

139. Shown below is an annotated photograph of interior components of Rosenberg antenna model no. BA-A5A54O7X65V-01.



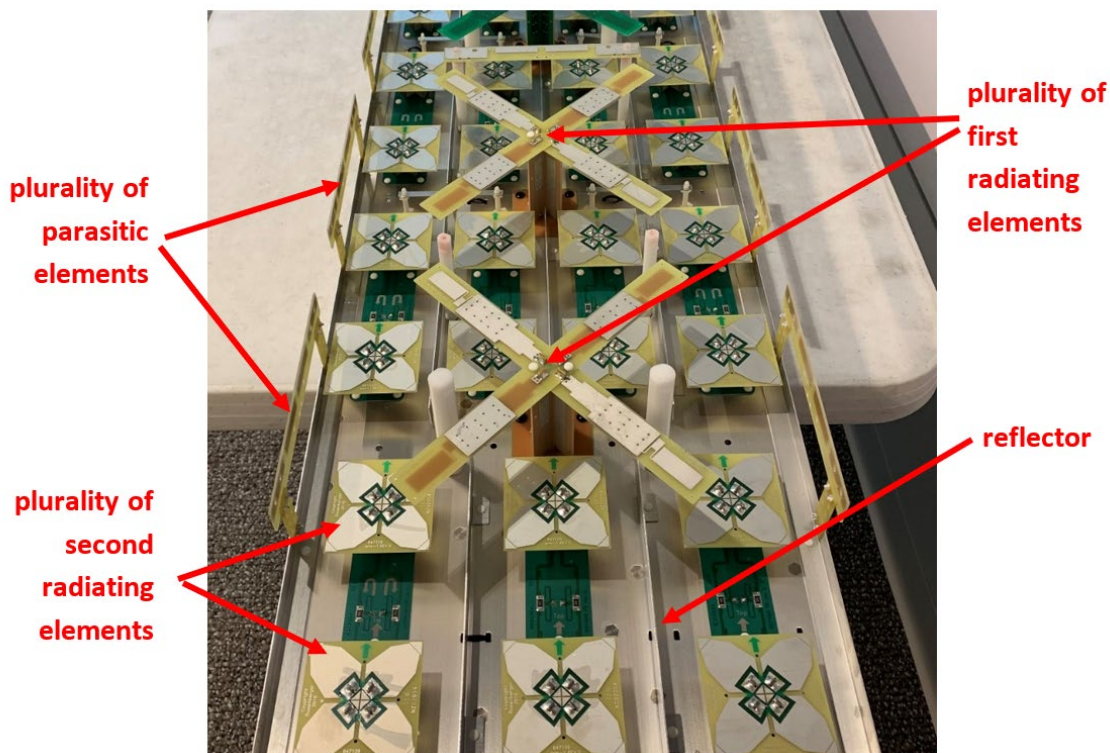
140. With respect to claim 27, as indicated above, Rosenberg antenna model no. BA-A5A54O7X65V-01 comprises a reflector, a plurality of first radiating elements extending forwardly from the reflector, a plurality of second radiating elements configured to operate in a second frequency higher than the first frequency band, and that extend forwardly from the reflector, and a plurality of parasitic elements that extend forwardly from the reflector.

141. Shown below is another annotated photograph of interior components of Rosenberg antenna model no. BA-A5A54O7X65V-01.



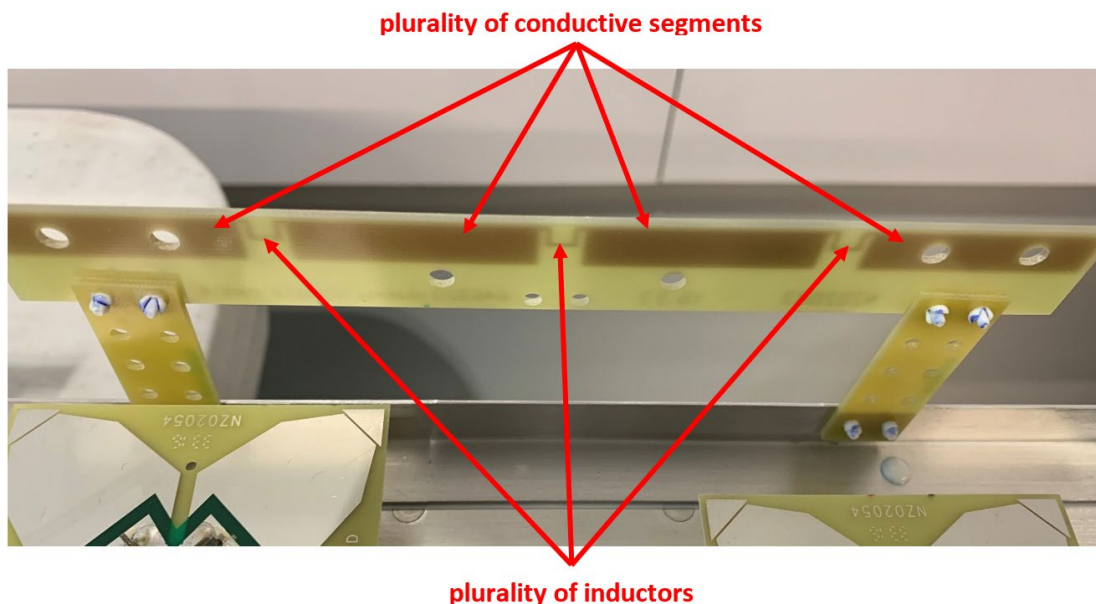
142. With respect to claim 27, as indicated above, Rosenberg antenna model no. BA-A5A54O7X65V-01 includes a first parasitic element that comprises a plurality of conductive segments couples in series by a plurality of inductors.

143. Shown below is an annotated photograph of interior components of Rosenberg antenna model no. MB-A64O9X65V-01 antenna.



144. With respect to claim 27, as indicated above, Rosenberger antenna model no. MB-A64O9X65V-01 comprises a reflector, a plurality of first radiating elements extending forwardly from the reflector, a plurality of second radiating elements configured to operate in a second frequency higher than the first frequency band, and that extend forwardly from the reflector, and a plurality of parasitic elements that extend forwardly from the reflector.

145. Shown below is another annotated photograph of interior components of Rosenberger antenna model no. MB-A64O9X65V-01.



146. With respect to claim 27, as indicated above, Rosenberger antenna model no. MB-A64O9X65V-01 includes a first parasitic element that comprises a plurality of conductive segments couples in series by a plurality of inductors.

147. Therefore, Rosenberger directly infringes, literally and under the doctrine of equivalents, claims of the '285 patent, including, for example and without limitation, claim 27, through its making, using, selling, offering for sale, and/or importing of, for example and without limitation, its antenna model nos. BA-AIO3O3T3T3VFX65F-06, BA-AIO3O3T3T3VJX65F-06, BA-A5A54O7X65V-01, and MB-A64O9X65V-01.

148. Rosenberger also indirectly infringes claims of the '285 patent, including, for example, and without limitation, claim 27. Operators of Rosenberger antennas directly infringe at least some claims of the '285 patent. At least as of the filing of this complaint, Rosenberger knows its products are especially made or especially adapted for use in an infringement.

149. Rosenberger products include features that are not staple articles of commerce suitable for substantial non-infringing uses. For example, there is no substantial use for the antennas that does not infringe the '285 patent. The intended, normal use of Rosenberger

antennas results in infringement. Rosenberger products are a material part of the invention of the '285 patent.

150. CommScope has been damaged by Rosenberger's infringement of the '285 patent and will continue to be damaged in the future unless Rosenberger is enjoined from infringing the '285 patent.

151. CommScope has satisfied the notice and/or marking provisions of 35 U.S.C. § 287.

Count 6

Claim for Patent Infringement of U.S. Patent No. 10,498,035

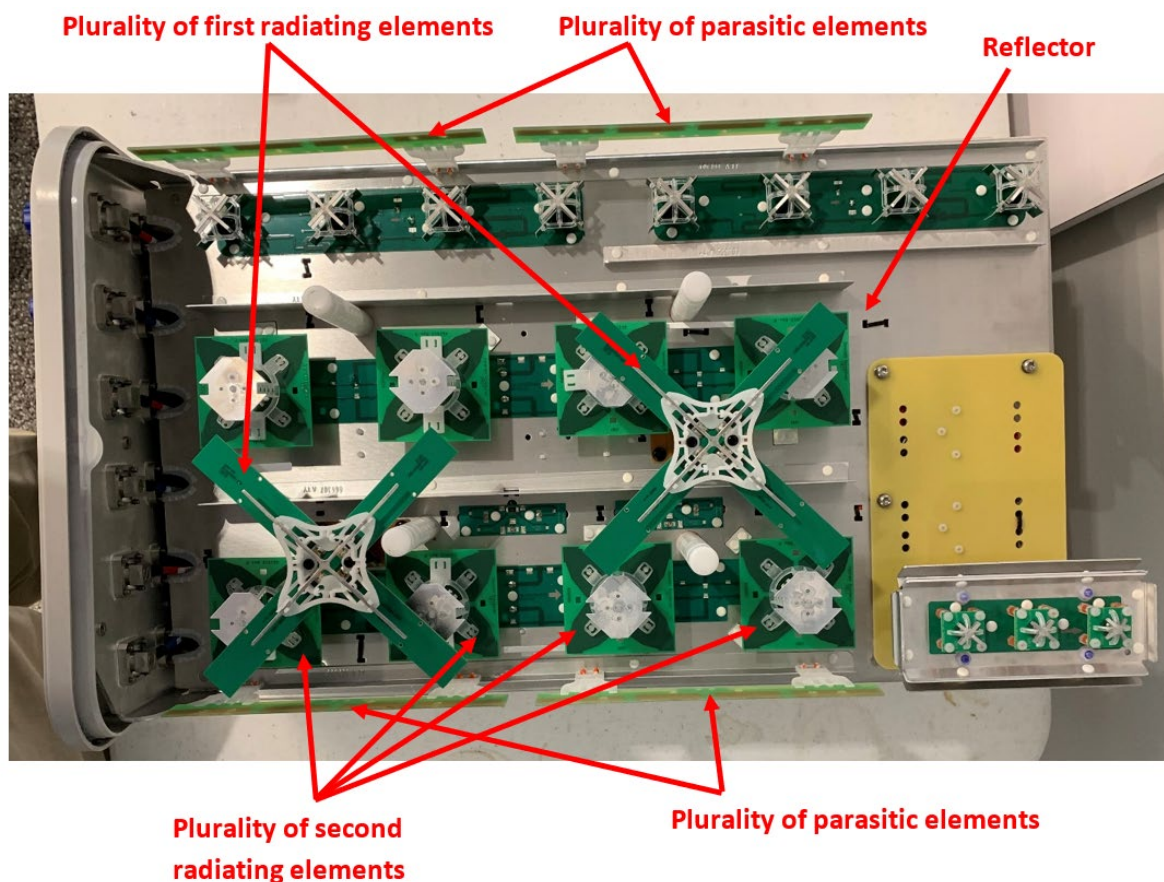
152. CommScope incorporates by reference each of the paragraphs above as if fully stated herein.

153. By its activities related to making, using, selling, offering for sale, and/or importing in or into the United States its base station antennas, including for example and without limitation its antenna model nos. BA-AIO3O3T3T3VFX65F-06, BA-AIO3O3T3T3VJX65F-06, BA-A5A54O7X65V-01, and MB-A64O9X65V-01, Rosenberger has infringed at least claim 10 of the '035 patent.

154. Claim 10 of the '035 patent is as follows:

10. A multiband antenna comprising: a reflector;
a plurality of first radiating elements that are configured to operate in a first frequency band and that extend forwardly from the reflector;
a plurality of second radiating elements that are configured to operate in a second frequency band that is higher than the first frequency band, the second radiating elements extending forwardly from the reflector; and
a plurality of parasitic elements that extend forwardly from the reflector, wherein a first of the plurality of parasitic elements comprises a plurality of elements that are configured to have a high impedance that attenuates current in the first of the plurality of parasitic elements in the second frequency band and have a low impedance that passes current in the first of the plurality of parasitic elements in the first frequency band.

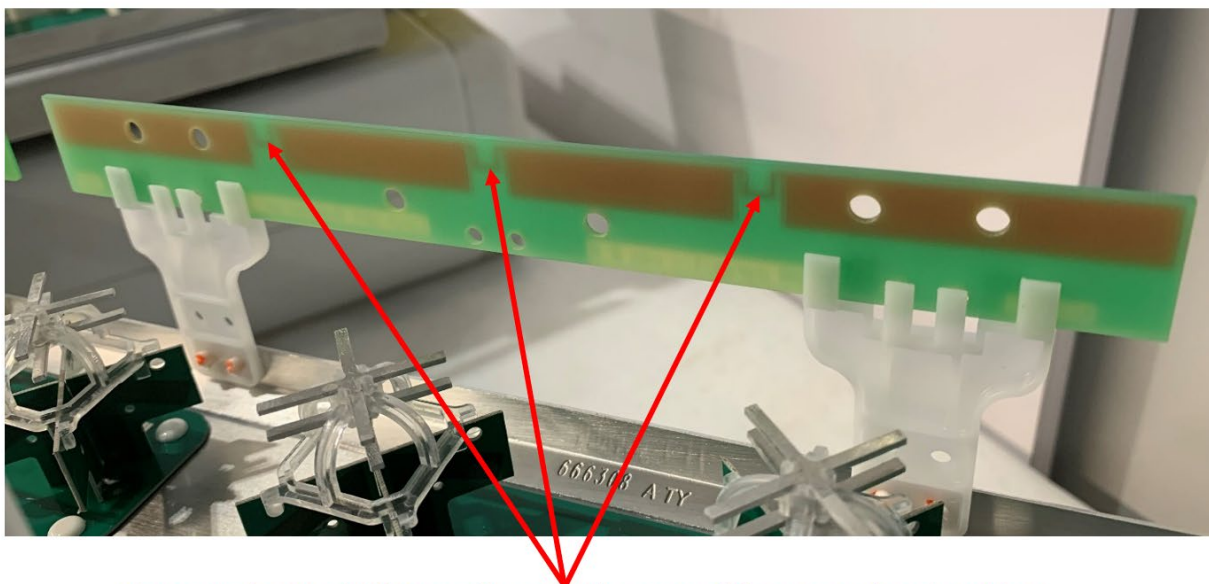
155. Shown below is an annotated photograph of interior components of Rosenberg antenna model no. BA-AIO3O3T3T3VFX65F-06.



156. Rosenberg antenna model no. BA-AIO3O3T3T3VJX65F-06 contains the same elements as those annotated above.

157. With respect to claim 10, as indicated above, Rosenberg antenna model nos. BA-AIO3O3T3T3VFX65F-06 and BA-AIO3O3T3T3VJX65F-06 are antennas comprising a reflector, a plurality of first radiating elements extending forwardly from the reflector, a plurality of second radiating elements configured to operate in a second frequency higher than the first frequency band, and that extend forwardly from the reflector, and a plurality of parasitic elements that extend forwardly from the reflector.

158. Shown below is another annotated photograph of interior components of Rosenberg antenna model no. BA-AIO3O3T3T3VFX65F-06.

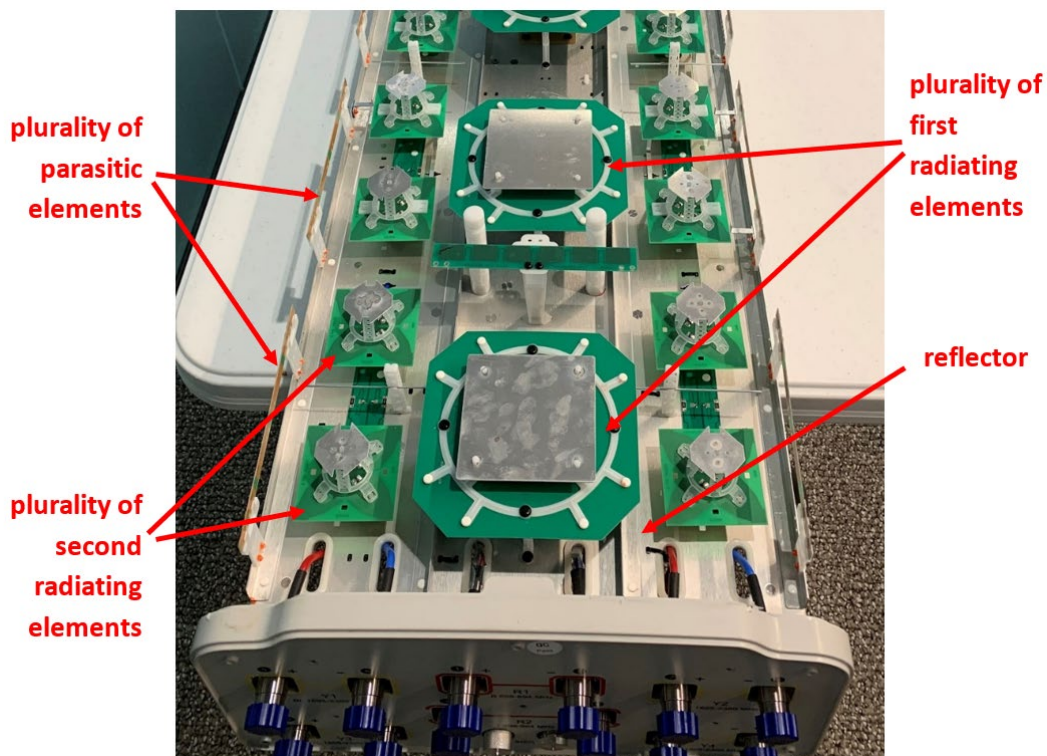


Elements having high impedance at the second frequency band and low impedance at the first frequency band

159. Rosenberg antenna model no. BA-AIO3O3T3T3VJX65F-06 contains the same elements as those annotated above.

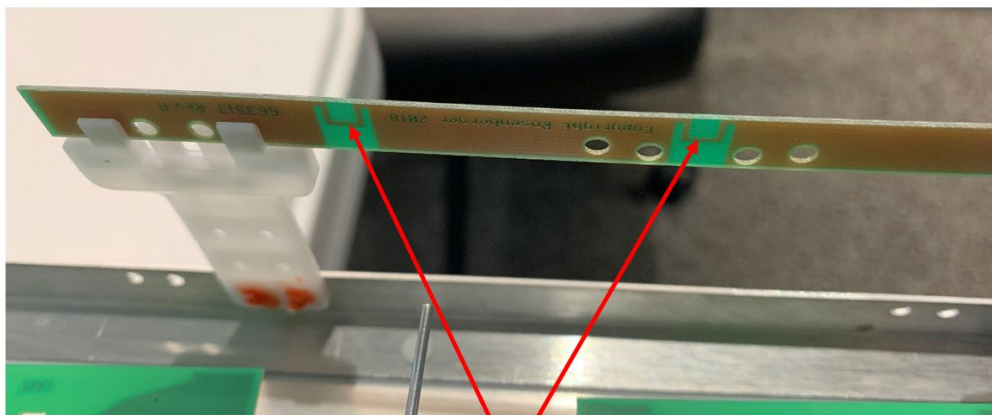
160. With respect to claim 10, as indicated above, Rosenberg antenna model nos. BA-AIO3O3T3T3VFX65F-06 and BA-AIO3O3T3T3VJX65F-06 are antennas that include elements that are configured to have a high impedance that attenuates current in the first of the plurality of parasitic elements in the second frequency band and have a low impedance that passes current in the first of the plurality of parasitic elements in the first frequency band.

161. Shown below is an annotated photograph of interior components of Rosenberg model no. BA-A5A54O7X65V-01.



162. With respect to claim 10, as indicated above, Rosenberg antenna model no. BA-A5A54O7X65V-01 comprises a reflector, a plurality of first radiating elements extending forwardly from the reflector, a plurality of second radiating elements configured to operate in a second frequency higher than the first frequency band, and that extend forwardly from the reflector, and a plurality of parasitic elements that extend forwardly from the reflector.

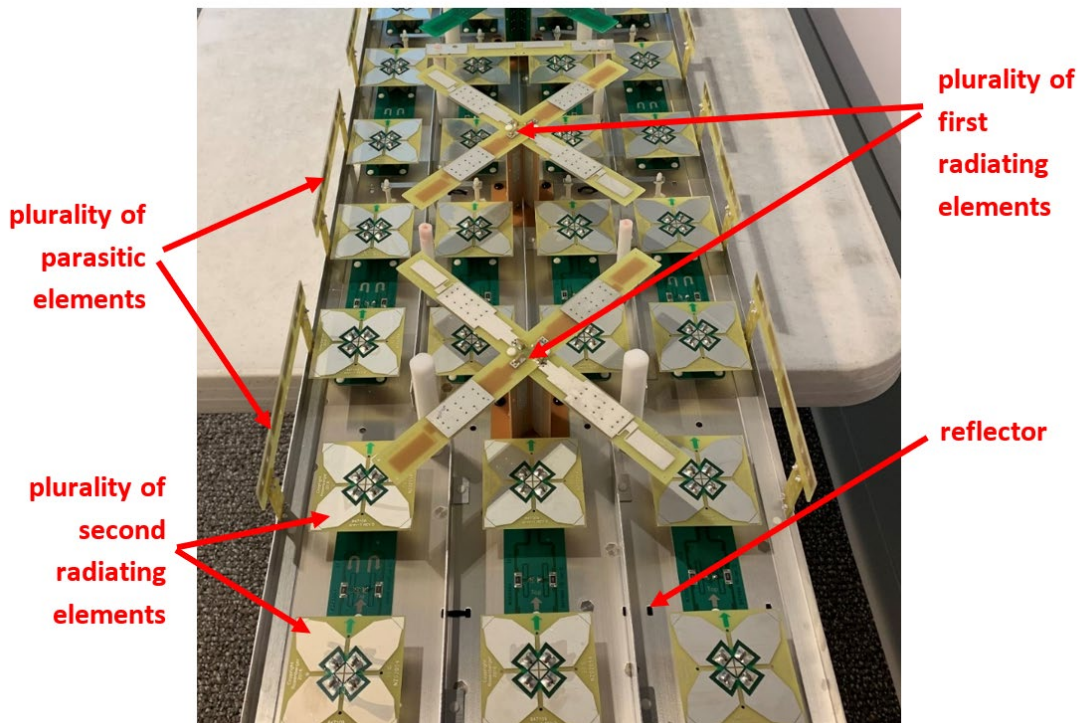
163. Shown below is another annotated photograph of interior components of Rosenberg antenna model no. BA-A5A54O7X65V-01.



Elements having high impedance at the second frequency band and low impedance at the first frequency band

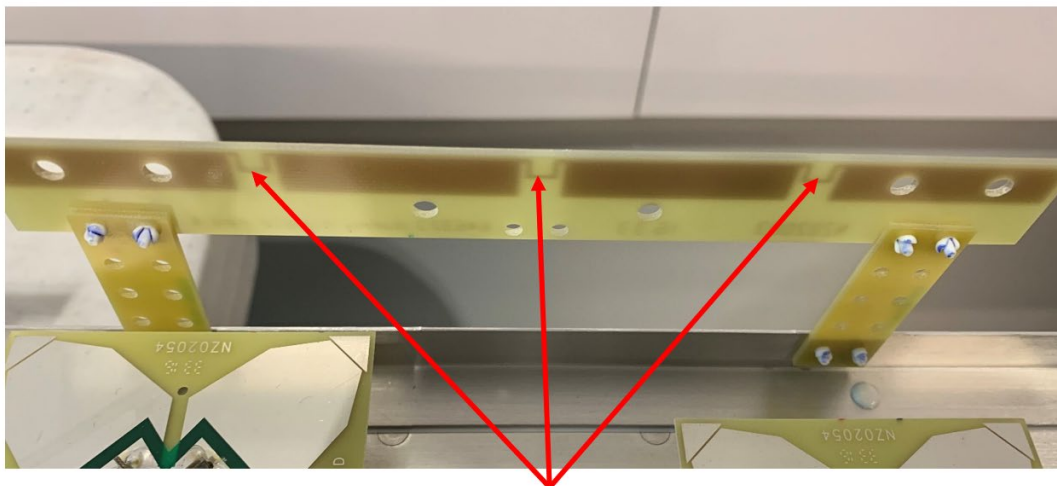
164. With respect to claim 10, as indicated above, Rosenberg antenna model no. BA-A5A54O7X65V-01 includes a first parasitic element that includes elements that are configured to have a high impedance that attenuates current in the first of the plurality of parasitic elements in the second frequency band and have a low impedance that passes current in the first of the plurality of parasitic elements in the first frequency band.

165. Shown below is an annotated photograph of interior components of Rosenberg antenna model no. MB-A64O9X65V-01.



166. With respect to claim 10, as indicated above, Rosenberger antenna model no. MB-A64O9X65V-01 comprises a reflector, a plurality of first radiating elements extending forwardly from the reflector, a plurality of second radiating elements configured to operate in a second frequency higher than the first frequency band, and that extend forwardly from the reflector, and a plurality of parasitic elements that extend forwardly from the reflector.

167. Shown below is another annotated photograph of interior components of Rosenberger antenna model no. MB-A64O9X65V-01.



Elements having high impedance at the second frequency band and low impedance at the first frequency band

168. With respect to claim 10, as indicated above, Rosenberger antenna model no. MB-A64O9X65V-01 includes a first parasitic element that includes elements that are configured to have a high impedance that attenuates current in the first of the plurality of parasitic elements in the second frequency band and have a low impedance that passes current in the first of the plurality of parasitic elements in the first frequency band.

169. Therefore, Rosenberger directly infringes, literally and under the doctrine of equivalents, claims of the '035 patent, including, for example and without limitation, claim 10, through its making, using, selling, offering for sale, and/or importing of, for example and without limitation, its antenna model nos. BA-AIO3O3T3T3VFX65F-06, BA-AIO3O3T3T3VJX65F-06, BA-A5A54O7X65V-01, and MB-A64O9X65V-01.

170. Rosenberger also indirectly infringes claims of the '035 patent, including, for example, and without limitation, claim 10. Operators of Rosenberger antennas directly infringe at least some claims of the '035 patent. At least as of the filing of this complaint, Rosenberger knows its products are especially made or especially adapted for use in an infringement.

171. Rosenberger products include features that are not staple articles of commerce suitable for substantial non-infringing uses. For example, there is no substantial use for the antennas that does not infringe the '035 patent. The intended, normal use of Rosenberger antennas results in infringement. Rosenberger products are a material part of the invention of the '035 patent.

172. CommScope has been damaged by Rosenberger's infringement of the '035 patent and will continue to be damaged in the future unless Rosenberger is enjoined from infringing the '035 patent.

173. CommScope has satisfied the notice and/or marking provisions of 35 U.S.C. § 287.

Count 7

Claim for Patent Infringement of U.S. Patent No. 10,547,110

174. CommScope incorporates by reference each of the paragraphs above as if fully stated herein.

175. By its activities related to making, using, selling, offering for sale, and/or importing in or into the United States its base station antennas, including for example and without limitation its antenna model nos. BA-A5A54O7X65V-01, and MB-A64O9X65V-01, Rosenberger has infringed at least claim 1 of the '110 patent.

176. Claim 1 of the '110 patent is as follows:

1. A multiband antenna comprising:
 - a reflector that has a longitudinal axis;
 - a first column of high band radiating elements that are configured to operate in a first operational frequency band mounted on the reflector, the first column of high band radiating elements extending in parallel to the longitudinal axis of the reflector;
 - a second column of high band radiating elements that are configured to operate in the first operational frequency band mounted on the reflector, the

second column of high band radiating elements extending in parallel to the longitudinal axis of the reflector;

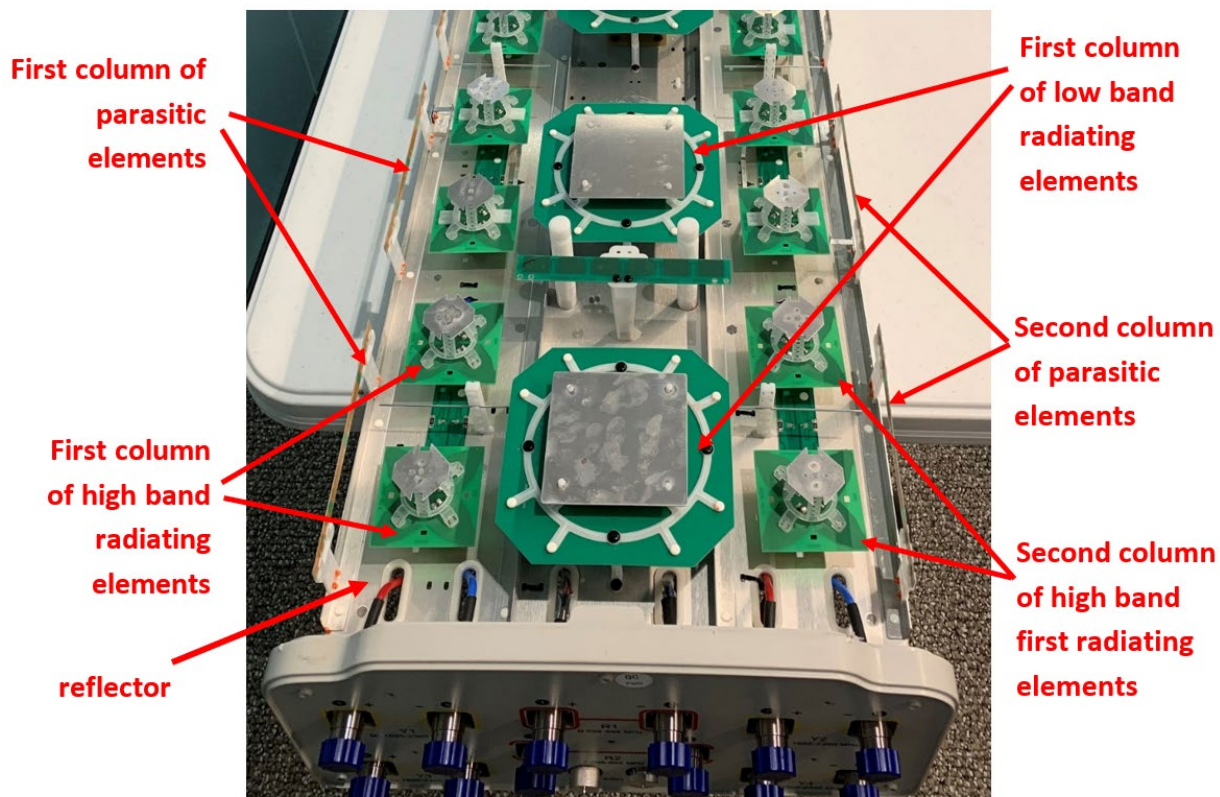
a first column of low band radiating elements that are configured to operate in a second operational frequency band mounted on the reflector, the second operational frequency band being at frequencies that are lower than frequencies of the first operational frequency band, the first column of low band radiating elements extending in parallel to the longitudinal axis of the reflector between the first column of high band radiating elements and the second column of high band radiating elements;

a first column of parasitic elements extending in parallel to the longitudinal axis of the reflector such that the first column of high band radiating elements is between the first column of parasitic elements and the first column of low band radiating elements, and

a second column of parasitic elements extending in parallel to the longitudinal axis of the reflector such that the second column of high band radiating elements is between the second column of parasitic elements and the first column of low band radiating elements.

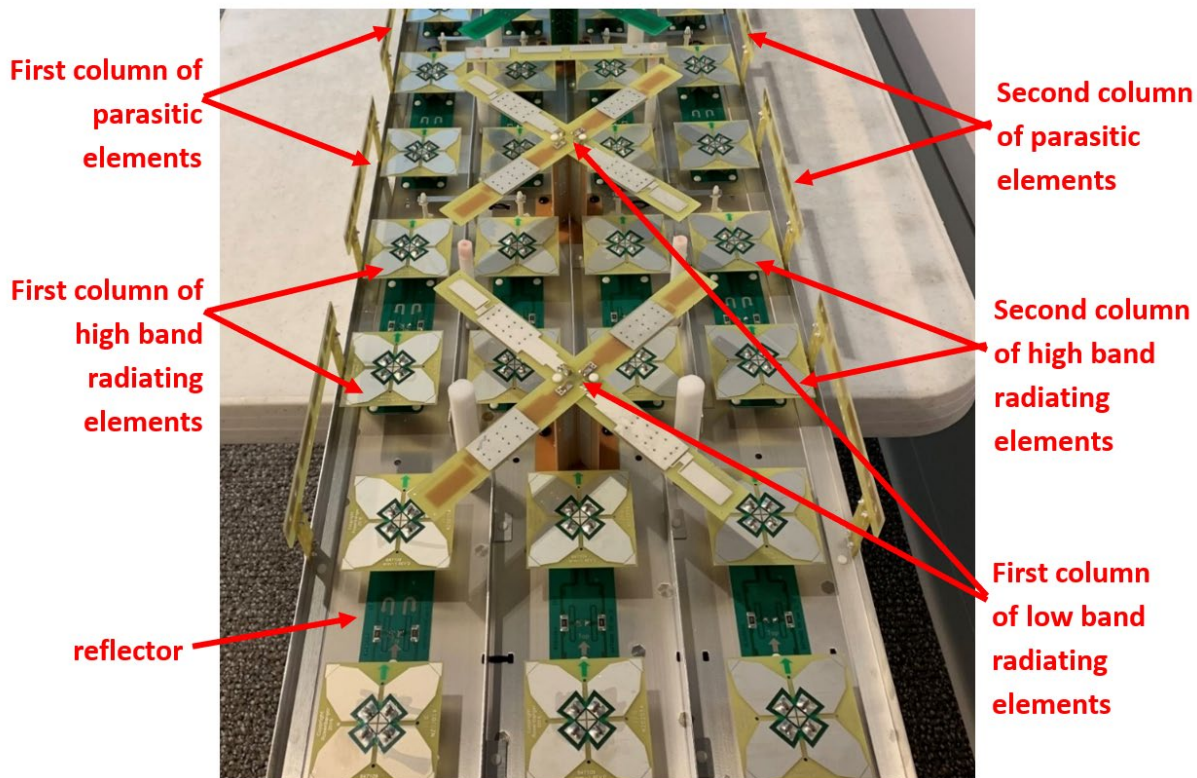
177.

178. Shown below is an annotated photograph of interior components of Rosenberger antenna model no. BA-A5A54O7X65V-01.



179. With respect to claim 1, as indicated above, Rosenberg antenna model no. BA-A5A5407X65V-01 comprises a reflector, a first column of high band radiating elements configured to operate in a first operational frequency band, a second column of high band radiating elements configured to operate in a first operational frequency band, a first column of low band radiating elements configured to operate in a second operational frequency band, a first column of parasitic elements with the first column of high band radiating elements between the first column of parasitic elements and the first column of low band radiating elements, and a second column of parasitic elements with the second column of high band radiating elements between the second column of parasitic elements and the first column of low band radiating elements.

180. Shown below is an annotated photograph of interior components of Rosenberg antenna model MB-A6409X65V-01.



181. With respect to claim 1, as indicated above, Rosenberger antenna model no. MB-A64O9X65V-01 comprises a reflector, a first column of high band radiating elements configured to operate in a first operational frequency band, a second column of high band radiating elements configured to operate in a first operational frequency band, a first column of low band radiating elements configured to operate in a second operational frequency band, a first column of parasitic elements with the first column of high band radiating elements between the first column of parasitic elements and the first column of low band radiating elements, and a second column of parasitic elements with the second column of high band radiating elements between the second column of parasitic elements and the first column of low band radiating elements.

182. Therefore, Rosenberger directly infringes, literally and under the doctrine of equivalents, claims of the '110 patent, including, for example and without limitation, claim 1,

through its making, using, selling, offering for sale, and/or importing of, for example and without limitation, its antenna model nos. BA-A5A54O7X65V-01, and MB-A64O9X65V-01.

183. Rosenberg also indirectly infringes claims of the '110 patent, including, for example, and without limitation, claim 1. Operators of Rosenberg antennas directly infringe at least some claims of the '110 patent. At least as of the filing of this complaint, Rosenberg knows its products are especially made or especially adapted for use in an infringement.

184. Rosenberg products include features that are not staple articles of commerce suitable for substantial non-infringing uses. For example, there is no substantial use for the antennas that does not infringe the '110 patent. The intended, normal use of Rosenberg antennas results in infringement. Rosenberg products are a material part of the invention of the '110 patent.

185. CommScope has been damaged by Rosenberg's infringement of the '110 patent and will continue to be damaged in the future unless Rosenberg is enjoined from infringing the '110 patent.

186. CommScope has satisfied the notice and/or marking provisions of 35 U.S.C. § 287.

Count 8

Claim for Patent Infringement of U.S. Patent No. 10,777,885

187. CommScope incorporates by reference each of the paragraphs above as if fully stated herein.

188. By its activities related to making, using, selling, offering for sale, and/or importing in or into the United States its base station antennas, including for example and

without limitation its antenna model no. MB-A64O9X65V-01, Rosenberger has infringed at least claim 1 of the '885 patent.

189. Claim 1 of the '885 patent recites:

A multi-beam cellular communication antenna, comprising:

an antenna array having a plurality of rows of radiating elements, wherein a first of the rows includes at least three radiating elements, and

wherein a second of the rows includes at least four radiating elements and has a larger number of radiating elements than the first of the rows, and

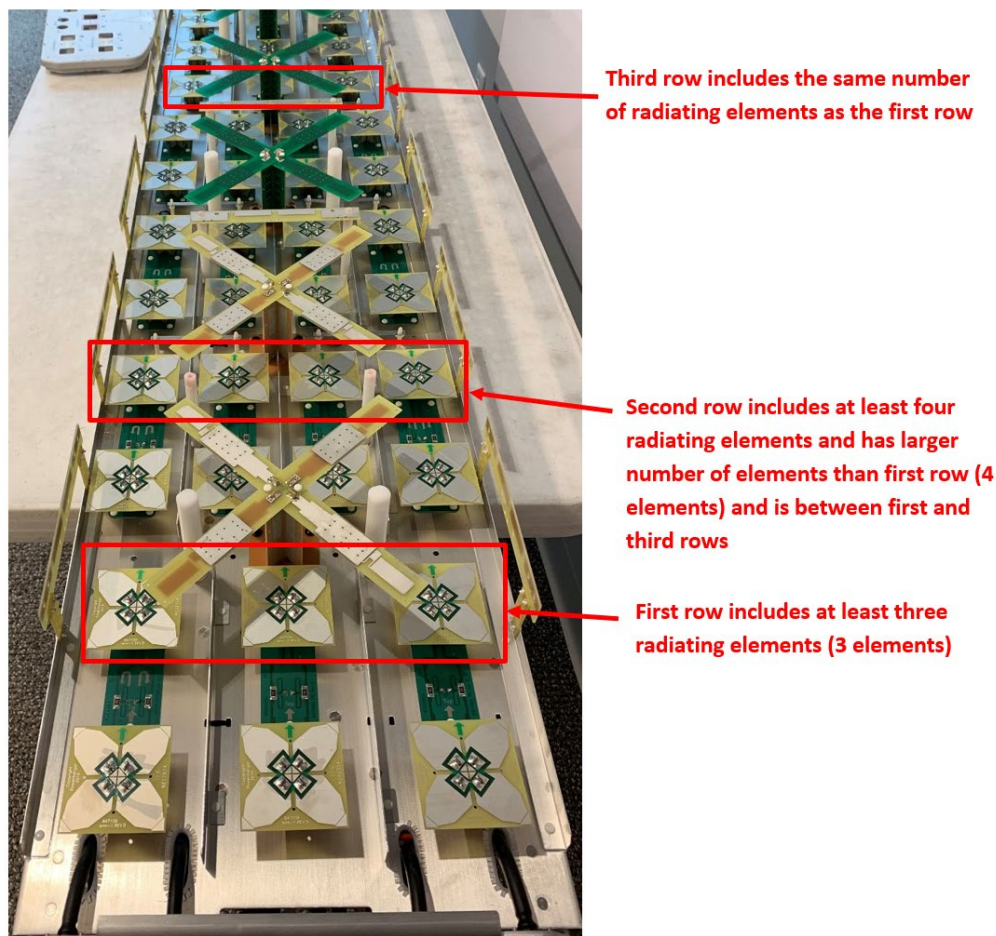
wherein a third of the rows includes the same number of radiating elements as the first of the rows,

wherein the second row is between the first and third rows;

an antenna feed network that is configured to couple at least a first input signal and a second input signal to all of the radiating elements in the first, second, and third rows of the antenna array; and

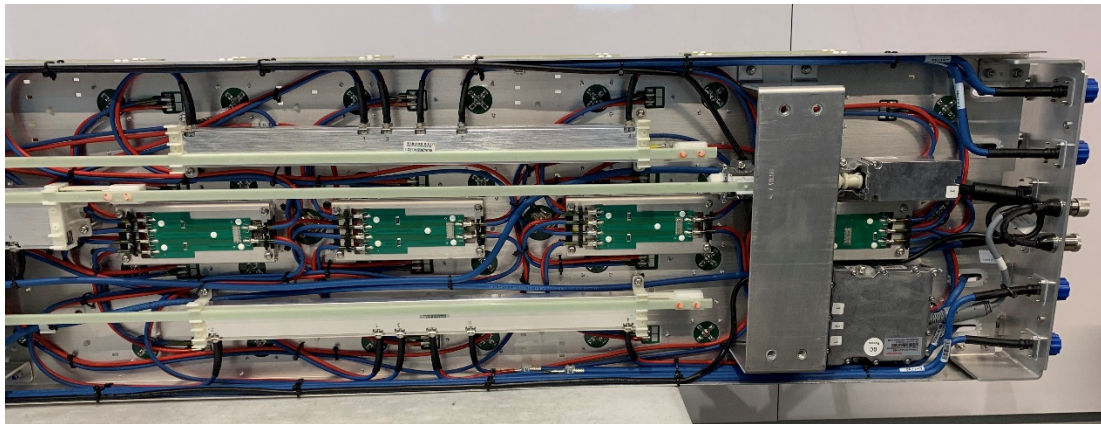
wherein the antenna array is configured to generate a first beam that points in a first direction responsive to the first input signal and to generate a second beam that points in a second direction responsive to the second input signal.

190. Shown below is an annotated photograph of interior components of Rosenberger antenna model no. MB-A64O9X65V-01:



191. With respect to claim 1, as indicated above, Rosenberger model no. MB-A64O9X65V-01 is a multi-beam cellular communication antenna that includes an antenna array having a plurality of rows of radiating elements. As indicated above, in Rosenberger antenna model no. MB-A64O9X65V-01 a first of the rows includes at least three radiating elements (indicated as having three elements in photo above), a second of the rows includes at least four radiating elements and has a larger number of radiating elements than the first of the rows (indicated as having four elements in the photo above), and a third of the rows includes the same number of radiating elements as the first row (three radiating elements) and wherein the second row is between the first and third rows.

192. Shown below is another photograph of interior components of Rosenberger antenna model no. MB-A64O9X65V-01, showing feed network components generally arranged on the underside of the reflector.



193. With respect to claim 1, as indicated above, Rosenberger antenna model no. MB-A64O9X65V-01 also comprises an antenna feed network that is configured to couple at least a first input signal and a second input signal to all of the radiating elements in the first, second, and third rows of the antenna array.

194. With respect to claim 1, Rosenberger antenna model no. MB-A64O9X65V-01 is configured to generate a first beam that points in a first direction responsive to the first input signal and a second beam that points in a second direction responsive to the second input signal.

195. Therefore, Rosenberger directly infringes, literally and under the doctrine of equivalents, claims of the '885 patent, including, for example, and without limitation, claim 1, through its making, using, selling, offering for sale, and/or importing of, for example and without limitation, its antenna model no. MB-A64O9X65V-01.

196. Rosenberg also indirectly infringes claims of the '885 patent, including, for example, and without limitation, claim 1. Operators of Rosenberg antennas directly infringe at least some claims of the '885 patent. Upon information and belief, at least as of the filing of this complaint, Rosenberg knows its products are especially made or especially adapted for use in an infringement.

197. Rosenberg products include features that are not staple articles of commerce suitable for substantial non-infringing uses. For example, there is no substantial use for the antennas that does not infringe the '885 patent. The intended, normal use of Rosenberg antennas results in infringement. Rosenberg products are a material part of the invention of the '885 patent.

198. CommScope has been damaged by Rosenberg's infringement of the '885 patent and will continue to be damaged in the future unless Rosenberg is enjoined from infringing the '885 patent.

199. CommScope has satisfied the notice and/or marking provisions of 35 U.S.C. § 287.

Count 9

Claim for Patent Infringement of U.S. Patent No. 8,164,536

200. CommScope incorporates by reference each of the paragraphs above as if fully stated herein.

201. By its activities related to making, using, selling, offering for sale, and/or importing in or into the United States its base station antennas, including for example and without limitation at least its antenna model nos. BA-AIO3O3T3T3VFX65F-06, BA-

AIO3O3T3T3VJX65F-06, and BA-O3O3T3T3VFX65F-06, Rosenberger has infringed at least claim 15 of the '885 patent.

202. Claim 15 of the '885 patent recites:

An antenna, comprising:

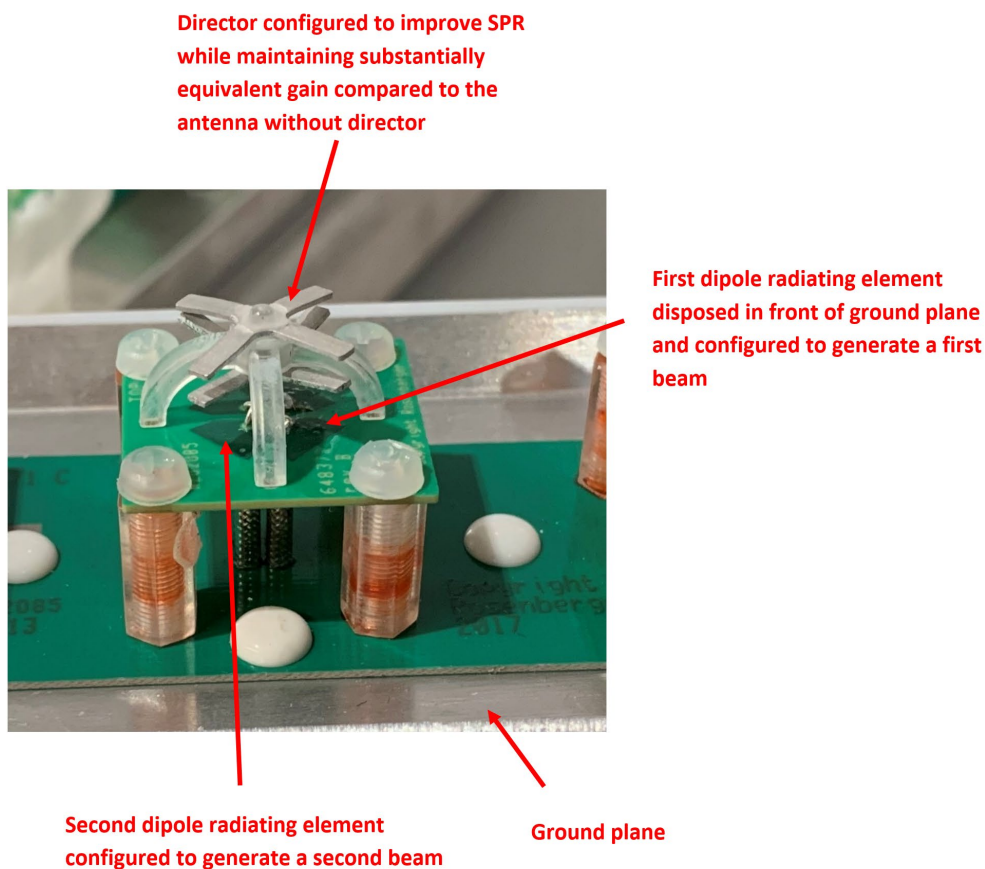
a ground plane;

a first dipole radiating element disposed in front of the ground plane and configured to generate a first beam and a second dipole radiating element configured to generate a second beam; and

a director disposed in front of the first and second dipole radiating elements configured to direct the first and second beams,

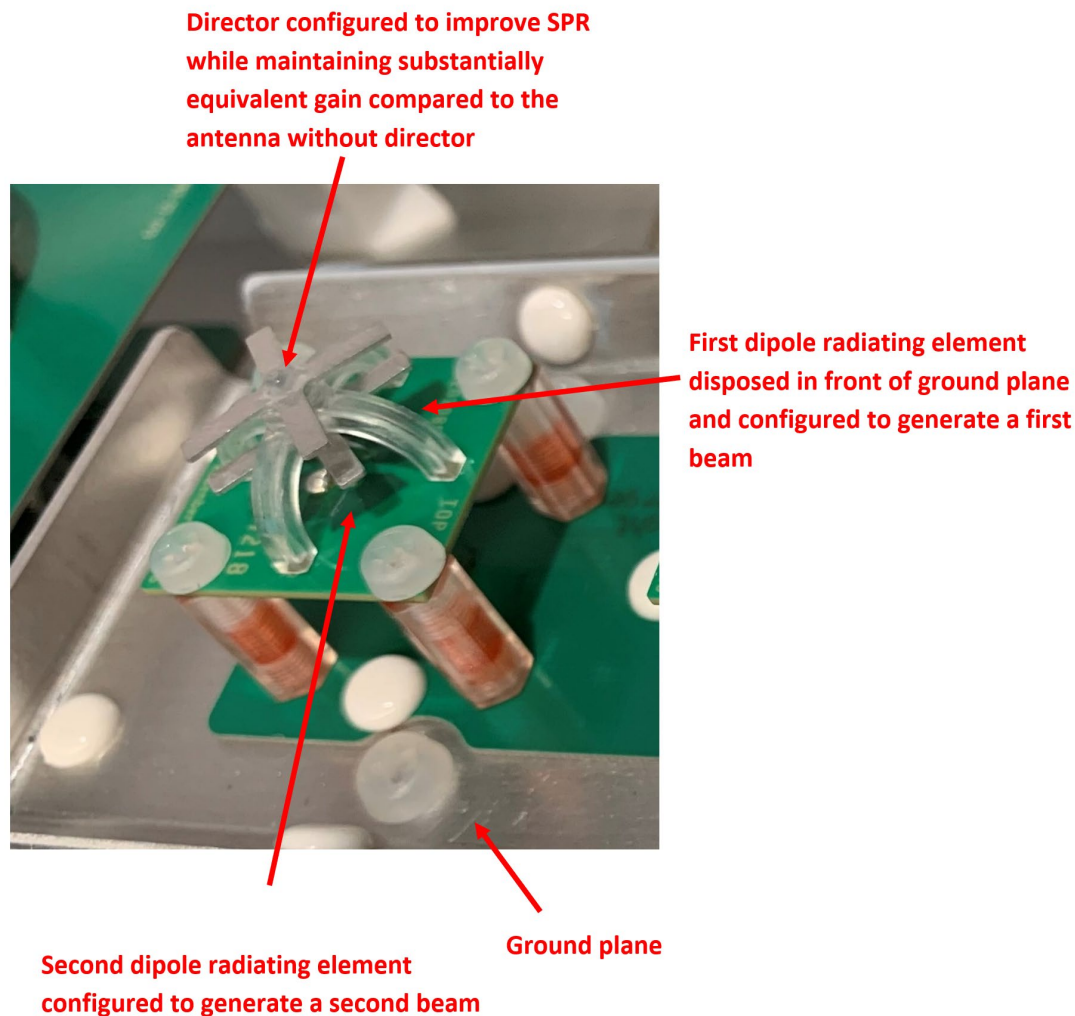
wherein the director is configured to improve a Sector Power Ratio (SPR) of the beams while maintaining a substantially equivalent gain as compared to the antenna without the director.

203. Shown below is an annotated photograph of interior components of Rosenberger antenna model no. BA-AIO3O3T3T3VFX65F-06:



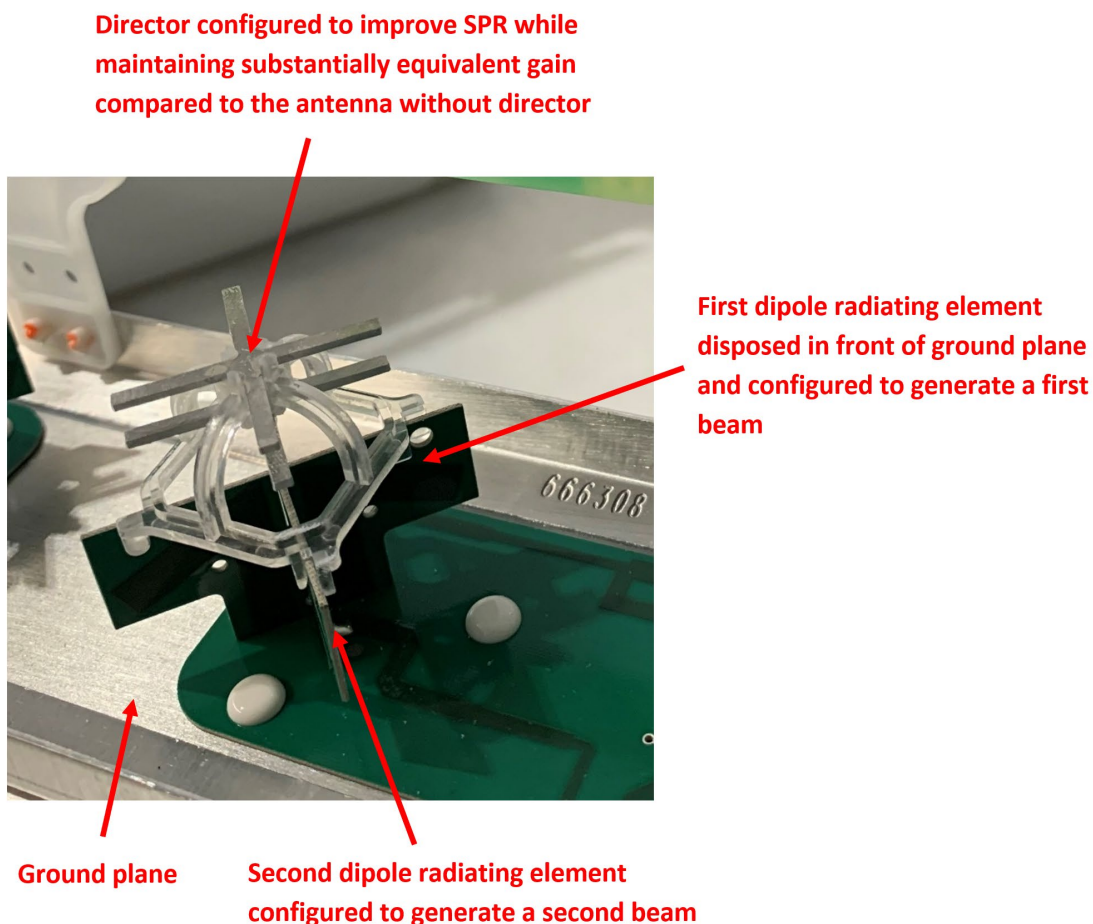
204. With respect to claim 15, as indicated above, Rosenberger model no. BA-AIO3O3T3T3VFX65F-06 is an antenna that includes an antenna array having a ground plane, and a first dipole radiating element disposed in front of the ground plane and configured to generate a first beam and a second dipole radiating element configured to generate a second beam. Rosenberger antenna model no. BA-AIO3O3T3T3VFX65F-06 also comprises a director disposed in front of the first and second dipole radiating elements configured to direct the first and second beams, wherein the director is configured to improve a Sector Power Ratio (SPR) of the beams while maintaining a substantially equivalent gain as compared to the antenna without the director.

205. Shown below is an annotated photograph of interior components of Rosenberger antenna model no. BA-AIO3O3T3T3VJX65F-06:



206. With respect to claim 15, as indicated above, Rosenberger model no. BA-AIO3O3T3T3VJX65F-06 is an antenna that includes an antenna array having a ground plane, and a first dipole radiating element disposed in front of the ground plane and configured to generate a first beam and a second dipole radiating element configured to generate a second beam. Rosenberger antenna model no. BA-AIO3O3T3T3VJX65F-06 also comprises a director disposed in front of the first and second dipole radiating elements configured to direct the first and second beams, wherein the director is configured to improve a Sector Power Ratio (SPR) of the beams while maintaining a substantially equivalent gain as compared to the antenna without the director.

207. Shown below is an annotated photograph of interior components of Rosenberger antenna model no. BA-O3O3T3T3VJX65F-06:



208. With respect to claim 15, as indicated above, Rosenberger model no. BA-O3O3T3T3VJX65F-06 is an antenna that includes an antenna array having a ground plane, and a first dipole radiating element disposed in front of the ground plane and configured to generate a first beam and a second dipole radiating element configured to generate a second beam. Rosenberger antenna model no. BA-O3O3T3T3VJX65F-06 also comprises a director disposed in front of the first and second dipole radiating elements configured to direct the first and second beams, wherein the director is configured to improve a Sector Power Ratio (SPR) of the beams

while maintaining a substantially equivalent gain as compared to the antenna without the director.

209. Therefore, Rosenberger directly infringes, literally and under the doctrine of equivalents, claims of the '536 patent, including, for example, and without limitation, claim 15, through its making, using, selling, offering for sale, and/or importing of, for example and without limitation, at least its antenna model nos. BA-AIO3O3T3T3VFX65F-06, BA-AIO3O3T3T3VJX65F-06, and BA-O3O3T3T3VFX65F-06.

210. Rosenberger also indirectly infringes claims of the '536 patent, including, for example, and without limitation, claim 15. Operators of Rosenberger antennas directly infringe at least some claims of the '536 patent. Upon information and belief, at least as of the filing of this complaint, Rosenberger knows its products are especially made or especially adapted for use in an infringement.

211. Rosenberger products include features that are not staple articles of commerce suitable for substantial non-infringing uses. For example, there is no substantial use for the antennas that does not infringe the '536 patent. The intended, normal use of Rosenberger antennas results in infringement. Rosenberger products are a material part of the invention of the '536 patent.

212. CommScope has been damaged by Rosenberger's infringement of the '536 patent and will continue to be damaged in the future unless Rosenberger is enjoined from infringing the '536 patent.

213. CommScope has satisfied the notice and/or marking provisions of 35 U.S.C. § 287.

Willful Infringement

214. CommScope incorporates by reference each of the paragraphs above as if fully stated herein.

215. Rosenberger is aware of CommScope's patents and has at least been willfully blind to infringement of the patents-in-suit.

216. Over the period starting around 2014 to present day, Rosenberger has engaged in a campaign of hiring CommScope's employees, and has successfully hired away more than a dozen of CommScope's employees who worked on CommScope's BSAs. The CommScope ex-employees include managers, supervisors and the former lead R&D manager of CommScope's Chinese business unit with responsibility for BSAs. They include mechanical engineers and radio frequency (RF) engineers, all of whom were familiar with all aspects of CommScope's BSAs, including design files and engineering drawings. They were also familiar with CommScope's intellectual property, including the patents CommScope had obtained to protect the designs of its BSAs. In the U.S., Rosenberger SSL has also employed former CommScope employees in leadership roles.

217. Rosenberger developed and marketed its infringing products after hiring away these CommScope employees who were intimately familiar with CommScope's BSA products and BSA innovations. Upon information and belief, these ex-CommScope employees knew that CommScope protects such products and innovations through patent protection.

218. Rosenberger's concerted campaign of hiring CommScope's employees to gain access to CommScope's antenna designs has resulted in Rosenberger producing antennas that include many features copied from CommScope, including patented features.

219. Upon information and belief, Rosenberger improperly used the knowledge of CommScope's ex-employees to develop key aspects of its BSA products, including the features

identified as infringing the patents-in-suit, with full knowledge or willful blindness that CommScope's products are patent-protected and that copying CommScope's products would result in patent infringement.

220. Rosenberger's infringement occurred with knowledge and/or objective recklessness and this has been and will continue to be willful and deliberate. Rosenberger's willful and deliberate infringement entitles CommScope to enhanced damages under 35 U.S.C. § 285.

Prayer for Relief

CommScope respectfully requests the following relief:

A. a judgment that Rosenberger has infringed the '922 patent, '430 patent, the '486 patent, the '548 patent, the '285 patent, the '035 patent, the '110 patent, the '885 patent, and the '536 patent;

B. a judgment that infringement of the '922 patent, '430 patent, the '486 patent, the '548 patent, the '285 patent, the '035 patent, the '110 patent, the '885 patent has been willful; and/or the '536 patent has been willful;

C. a permanent injunction enjoining and restraining Defendant Rosenberger, its officers, directors, agents, servants, employees, attorneys and all persons in active concert or participation with them from infringing the '922 patent, '430 patent, the '486 patent, the '548 patent, the '285 patent, the '035 patent, the '110 patent, the '885 patent, and the '536 patent;

D. a judgment and order requiring Rosenberger to pay all appropriate damages under 35 U.S.C. §284, including prejudgment and post-judgment interest, and including increased damages;

E. a judgment and order requiring Rosenberger to pay all costs of this action, including all disbursements and attorney fees, if this case is found to be exceptional as provided by 35 U.S.C. §285; and

F. such other and further relief that this Court may deem just and equitable.

Demand for a Jury Trial

Pursuant to Rule 38 of the Federal Rules of Civil Procedure, CommScope demands a trial by jury of all issues so triable.

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Dated: March 9, 2021