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

DALI WIRELESS, INC., Plaintiff, v. T-MOBILE US, INC., T-MOBILE USA, INC., COMMSCOPE HOLDING COMPANY, INC., COMMSCOPE INC., and COMMSCOPE TECHNOLOGIES LLC, Defendants.	Case No. 2:23-cv-00247 **JURY TRIAL DEMANDED**

COMPLAINT

Plaintiff Dali Wireless, Inc. ("Dali") files this Complaint against Defendants T-Mobile US, Inc. and T-Mobile USA, Inc. (collectively, "T-Mobile") and CommScope Holding Company, Inc., CommScope, Inc., and CommScope Technologies LLC (collectively, "CommScope").

NATURE OF THE CASE

1. This is an action for the infringement of United States Patent No. 9,820,171 (the "'171 patent" or "Patent-in-Suit").

2. T-Mobile and CommScope have been infringing the '171 patent in violation of 35 U.S.C. § 271 by deploying, operating, maintaining, testing, and using T-Mobile's LTE and 5G networks which include equipment relating to distributed antenna systems and/or small cell wireless solutions, such as CommScope's ION®-E/ERA platform[1] and CommScope's OneCell

[1] According to publicly available documents from CommScope, ION®-E and ERA share the same hardware modules, system software, and management systems: "ERA is an extension of the

product.

3. Plaintiff Dali seeks appropriate damages, injunctive relief, and prejudgment and post-judgment interest for Defendants' infringement of the Patent-in-Suit.

THE PARTIES

4. Plaintiff Dali is a Delaware corporation having its center of operations in Burnaby, British Columbia, Canada, where all its technical and financial employees, documents, engineering, and product development are based. It also has an address in Menlo Park, California for forwarding of domestic mail and telephone calls to its center of operations.

5. Founded in 2006, Dali began as a designer and manufacturer of power amplifiers used in radio frequency ("RF") communications. Dali is known within the industry as an innovator in providing end-to-end, software defined digital radio distribution solutions that can be implemented in Distributed Antenna Systems ("DAS") used for cellular, public safety, and other RF communications. Dali is a world-wide innovator in digital radio distribution systems and digital predistortion technology that revolutionized in-building and outdoor wireless coverage and capacity. Dali's groundbreaking products have been consistently recognized by industry publications. For example, Dali has been recognized as a "Hot Tech Innovator" by ABI Research and was ranked No. 1 in innovation in the ABI Research report, "In-Building Wireless, DAS Vendor Competitive Assessment." Dali's systems improve upon traditional DAS by allowing the dynamic allocation of wireless coverage and capacity.

6. Defendant T-Mobile US, Inc. is a Delaware corporation with its principal place of

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hardware and software architecture that CommScope originally introduced as ION-E. Going forward, all new systems are ERA. Since ION-E and ERA share the same hardware modules, system software and management systems, existing ION-E systems can be updated and expanded using ERA components." https://www.commscope.com/product-type/in-building-cellular-systems/distributed-antenna-systems-das/era/ (last visited May 25, 2023).

business at 12920 SE 38th Street, Bellevue, WA 98006.

7. Defendant T-Mobile USA, Inc. is a Delaware corporation with its principal place of business at 12920 SE 38th Street, Bellevue, WA 98006. On information and belief, T-Mobile USA, Inc. is a wholly owned subsidiary of T-Mobile US, Inc.

8. On information and belief, T-Mobile's operations in the Eastern District of Texas are substantial and varied.

9. T-Mobile operates one or more wireless telecommunications networks to provide wireless telecommunications services, including within the Eastern District of Texas, under brand names including "T-Mobile."

10. T-Mobile advertises that its 4G LTE and 5G Nationwide networks are available within the Eastern District of Texas. *See Coverage Check*, T-Mobile, https://www.t-mobile.com/coverage/coverage-map (last visited May 25, 2023).

11. T-Mobile maintains multiple facilities in the Eastern District of Texas, including at least T-Mobile retail stores located at 900 E. End Blvd N #100B, Marshall, TX 75670; and 1806 E. End Blvd. Ste. 100, Marshall, TX 75670. *See T-Mobile Store Locator*, T-Mobile, http://t-mobile.com/store-locator (last visited May 25, 2023).

12. On information and belief, T-Mobile USA, Inc. also maintains and operates research and development facilities at 7668 Warren Parkway, Frisco, TX 75034.

13. In other recent actions, T-Mobile 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 to First Amended Complaint, at 2-3, ¶¶ 7-10, *Fractus, S.A. v. T-Mobile Mobility LLC et al.*, No. 2:18-cv-00135-JRG (E.D. Tex. Dec. 13, 2018); Answer at 2, ¶¶ 4, 5, *Preferential Networks IP, LLC v. T-Mobile US, Inc. et al.*, No. 2:17-cv-00626 (E.D. Tex. Nov. 01, 2017), ECF No. 17;

Answer ¶¶ 4, 5, *Traxcell Techs., LLC v. T-Mobile, USA, Inc.*, No. 2:17-cv-00720 (E.D. Tex. Jan. 23, 2018), ECF No. 8; Answer ¶¶ 5, 6, *Kevique Tech., LLC v. T-Mobile USA, Inc.*, No. 2:17-cv-00095 (E.D. Tex. Apr. 11, 2017), ECF No. 10. Defendant T-Mobile USA, Inc. has also admitted or failed to contest that it has transacted business in this district. *See Preferential Networks* at Answer at 2, ¶ 4; *Traxcell Techs.* at Answer ¶ 2; *Kevique Tech.* at Answer ¶¶ 5, 6. *See also Answer* ¶¶ *19, 20, Mobile Synergy Sols., LLC v. T-Mobile US, Inc. et al.,* No. 6:16-cv-01223 (E.D. Tex. Feb. 13, 2017), ECF No. 47.

14. By registering to conduct business in Texas and by maintaining facilities in at least the cities of Marshall and Frisco, T-Mobile has multiple regular and established places of business within the Eastern District of Texas.

15. Defendant CommScope Holding Company, Inc. is a corporation organized and existing under the laws of the State of Delaware, with a place of business at 1100 CommScope Place, SE, Hickory, North Carolina 28602, and can be served through its registered agent, Corporation Service Company, 251 Little Falls Drive, Wilmington, DE 19808.

16. Defendant CommScope Technologies LLC is a limited liability company organized and existing under the laws of the State of Delaware with a principal place of business at 1100 CommScope Place SE, Hickory, North Carolina, 28602. On information and belief, CommScope Technologies LLC is a wholly owned subsidiary of CommScope Holding Company.

17. Defendant CommScope Inc. is a corporation organized and existing under the laws of the State of Delaware, and can be served through its registered agent, United Agent Group Inc., 3411 Silverside Road Tatnall Building #104, Wilmington, DE 19810. On information and belief, CommScope Inc. is a wholly owned subsidiary of CommScope Holding Company.

18. On information and belief, CommScope Technologies LLC, CommScope Inc., and

CommScope Holding Company, Inc. operate in the ordinary course of business as a single combined "CommScope" company.

19. On information and belief, CommScope is doing business, either directly or through its agents, on an ongoing basis in this judicial district and has a regular and established place of business in this judicial district. For example, CommScope maintains and offers the CommScope web domain (www.commscope.com) that advertises the accused products and directs customers and/or potential customers in this district as to where to purchase those products.

20. CommScope has admitted in this Court that it "has a regular and established physical place of business in the Eastern District of Texas."[2] CommScope Inc. maintains a regular and established place of business at 2601 Telecom Parkway, Richardson, Texas 75082, located within this District, that contains employees and/or other individuals that the CommScope Defendants direct or control. This office is a physical place within the district and is CommScope's regular and established place of business.

21. On information and belief, CommScope also has major customers with locations in Texas and this District, including, for example, T-Mobile.

JURISDICTION AND VENUE

22. This is an action for patent infringement arising under the Patent Laws of the United States, Title 35 of the United States Code.

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[2] *See SIPCO, LLC v. CommScope Holding Co.*, No. 5:20-CV-00168-RWS-CMC, ECF No. 48 (Amended Complaint) ¶ 24 (E.D. Tex. May 21, 2021) ("Plaintiff is informed and believes, and on that basis alleges, that CommScope has a regular and established physical place of business in the Eastern District of Texas, including at 2601 Telecom Parkway, Richardson Texas 70852 . . . ."); *id.* ECF No. 50 (CommScope's Answer) ¶ 24 (E.D. Tex. June 7, 2021) ("Admitted."); *see also Barkan Wireless IP Holdings, L.P. v. Sprint Corp.*, No. 2:19-CV-00336-JRG, ECF No. 46 (Answer to Amended Complaint) ¶ 16 (E.D. Tex. Jan. 21, 2020) ("CommScope admits that it has a regular and established place of business in this judicial district at 2601 Telecom Parkway, Richardson, Texas 70852.").

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

24. This Court has personal jurisdiction over T-Mobile because, *inter alia*, T-Mobile has a continuous presence in, and systematic contact with, this District and has registered to conduct business in the state of Texas.

25. T-Mobile has committed and continues to commit acts of infringement of Dali's Patents-in-Suit in violation of the United States Patent Laws, and has used infringing products within this District. T-Mobile's infringement has caused substantial injury to Dali, including within this District.

26. This Court has personal jurisdiction over CommScope because, *inter alia,* CommScope has a continuous presence in, and systematic contact with, this District and has registered to conduct business in the state of Texas. Moreover, CommScope has also acceded to this Court's jurisdiction in prior patent cases.[3]

27. CommScope has committed and continues to commit acts of infringement of Dali's Patents-in-Suit in violation of the United States Patent Laws and has used and sold infringing products within this District. CommScope's infringement has caused substantial injury to Dali, including within this District.

28. Joinder of T-Mobile and CommScope in this action is proper under 35 U.S.C. § 299(a). Dali's right to relief against T-Mobile and CommScope for their infringement of the

[3] *See, e.g.*, *SIPCO, LLC v. CommScope Holding Co.*, No. 5:20-CV-00168-RWS-CMC, ECF No. 50 (Answer to First Amended Complaint) ¶ 24 (E.D. Tex. June 7, 2021) ("Defendants, for purposes of this case only, will not challenge personal jurisdiction in the Eastern District of Texas."); *see also, e.g., Barkan Wireless IP Holdings, L.P. v. Sprint Corp.*, No. 2:19-CV-00336-JRG, ECF No. 46 (Answer to Amended Complaint) ¶ 14 (E.D. Tex. Jan. 21, 2020) ("For the purposes of this action only, CommScope does not challenge the Court's personal jurisdiction over CommScope.").

Patent-in-Suit arises out of the same series of transactions or occurrences, namely their cooperation in planning, developing, testing, operating, and maintaining T-Mobile's Long Term Evolution ("LTE") and 5G networks. No claim is made in this complaint against CommScope in relation to its products or services sold to other wireless carriers.

29. Venue is proper in this judicial district. All of the relevant defendants reside in this judicial district within the meaning of 28 U.S.C. § 1400(b). T-Mobile and CommScope have committed acts of infringement within this district and have regular and established places of business here.

THE PATENT-IN-SUIT

30. The '171 patent is valid and enforceable under the United States Patent Laws.

31. The '171 patent is titled "Remotely Reconfigurable Distributed Antenna System and Methods" and was issued by the United States Patent and Trademark Office to inventors Paul Lemson, Shawn Patrick Stapleton, Sasa Trajkovic, and Albert S. Lee on November 14, 2017, and assigned to Dali.

32. Dali is the owner of all right, title, and interest in and to the '171 patent with the full and exclusive right to bring suit to enforce the '171 patent.

33. The '171 patent is valid and enforceable under the United States Patent Laws.

FIRST CAUSE OF ACTION
(PATENT INFRINGEMENT UNDER 35 U.S.C. § 271 OF THE '171 PATENT BY T-MOBILE AND COMMSCOPE)

34. Dali re-alleges and incorporates by reference all the foregoing paragraphs.

35. On information and belief, T-Mobile and CommScope have directly infringed and continue to directly infringe either literally or under the doctrine of equivalents, one or more claims, including at least claim 1 of the '171 patent, in violation of 35 U.S.C. § 271, et seq., by

deploying, operating, maintaining, testing, and using T-Mobile's LTE and 5G networks which include solutions for in-building wireless coverage, such as CommScope's ION®-E/ERA platform.[4]

36. Claim 1 of the '171 provides:

> [Preamble] A method for routing and switching signals comprising:
>
> [1A] providing a plurality of remote radio units, each remote radio unit configured to transmit one or more downlink signals and to receive one or more uplink signals
>
> [1B] providing at least one digital access unit configured to communicate with the plurality of remote radio units;
>
> [1C] translating the uplink and downlink signals between RF and base band;
>
> [1D] packetizing the uplink and downlink base band signals, wherein the packetized signals correspond to a plurality of carriers, each remote radio unit configured to receive or transmit a respective subset of the plurality of carriers;
>
> [1E] routing and switching the packetized signals among the plurality of remote radio units via the at least one digital access unit;
>
> [1F] reconfiguring at least one of the plurality of remote radio unit by increasing or decreasing the number of carriers in the respective subset of the plurality of carriers; and thereafter
>
> [1G] routing and switching the packetized signals among the plurality of remote radio units via the at least one digital access unit according to a result of the reconfiguring.

37. On information and belief, and to the extent the preamble is limiting, T-Mobile's LTE and 5G networks meet the preamble of claim 1 of the '171 patent because CommScope's

[4] *See e.g.,* https://howmobileworks.com/wp-content/uploads/2021/06/tmo-byoc-case-study-space-needle-110420.pdf (last visited May 25, 2023) ("T-Mobile designed a unified wireless infrastructure architecture, based on the CommScope ION-E solution, to streamline deployment and minimize equipment needs").

ION®-E/ERA platform routes and switches signals. For example, the central area node (CAN) in CommScope's ION®-E/ERA is "located at the campus or building head-end. It digitizes baseband RF signals, combines signals from different operators and distributes them throughout a building or campus."[5] Thus, the T-Mobile CommScope ION®-E/ERA is a system that when executing meets the preamble, "routing and switching signals."

38. On information and belief, T-Mobile's LTE and 5G networks, which include CommScope's ION®-E/ERA platform, meet claim element [1A] of claim 1 of the '171 patent which recites "providing a plurality of remote radio units, each remote radio unit configured to transmit one or more downlink signals and to receive one or more uplink signals".

39. T-Mobile's LTE and 5G networks include a plurality of remote radio units, each remote radio unit configured to transmit one or more downlink RF signals and to receive one or more uplink RF signals. For example, CommScope's ION®-E/ERA platform includes "[a] range of remote access points that convert the digital signal back to radio frequency (RF)."[6]

40. On information and belief, T-Mobile's LTE and 5G networks, which include CommScope's ION®-E/ERA platform, meet claim element [1B] of claim 1 of the '171 patent which recites "providing at least one digital access unit configured to communicate with the plurality of remote radio units."

41. T-Mobile's LTE and 5G networks provide at least one digital access unit configured to communicate with the plurality of remote radio units. For example, CommScope's ION®-E/ERA platform consists of Central Area Nodes, Transport Extension Nodes, and Access Points. The Central Area Node "digitizes baseband RF signals, combines signals from different

[5] https://www.commscope.com/product-type/in-building-cellular-systems/distributed-antenna-systems-das/era/ (last visited May 25, 2023).
[6] *Id.*

operators and distributes them throughout a building or campus."[7] The Transport Extension Nodes "distribute signals to access points throughout a floor or building,"[8] in addition to the "remote access points that convert the digital signal back to radio frequency (RF) for over-the-air transmission."[9]

42. On information and belief, T-Mobile's LTE and 5G networks, which include CommScope's ION®-E/ERA platform, meet claim element [1C] of claim 1 of the '171 patent which recites "translating the uplink and downlink signals between RF and base band."

43. On information and belief, T-Mobile's LTE and 5G networks translate the uplink and downlink signals between RF and base band. For example, CommScope's ION®-E/ERA platform "digitizes baseband RF signals"[10] while the Access Points convert between RF and digital signal in the uplink.[11]

44. On information and belief, T-Mobile's LTE and 5G networks, which include CommScope's ION®-E/ERA platform, meet claim element [1D] of claim 1 of the '171 patent which recites "packetizing the uplink and downlink base band signals, wherein the packetized signals correspond to a plurality of carriers, each remote radio unit configured to receive or transmit a respective subset of the plurality of carriers."

45. On information and belief, T-Mobile's LTE and 5G networks packetize the uplink and downlink base band signals, wherein the packetized signals correspond to a plurality of carriers, and each remote radio unit is configured to receive or transmit a respective subset of the

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[7] https://www.commscope.com/product-type/in-building-cellular-systems/distributed-antenna-systems-das/era/ (last visited May 25, 2023).
[8] *Id.*
[9] *Id.*
[10] https://www.commscope.com/globalassets/digizuite/2461-era-c-ran-antenna-system-br-112083-en.pdf (last visited May 25, 2023)
[11] *Id.*

plurality of carriers. For example, CommScope's ION®-E/ERA platform within T-Mobile's LTE and 5G networks packetize signals for transport over CAT6A and Fiber LAN cables to the Access Points.[12]

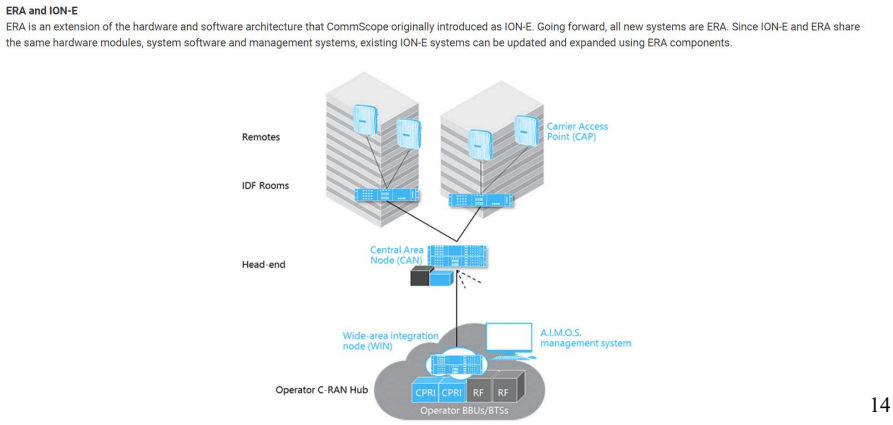
46. Furthermore, on information and belief, T-Mobile's LTE and 5G networks configure each remote radio unit to receive or transmit a respective subset of the plurality of carriers. For example, CommScope's ION®-E/ERA marketing materials explain: "[W]e can send any signals to any of the UAPs. … The UAP can have only one assigned signal set. So we create signal sets from Zone 3, Zone 2 and Zone 1, and the signals that … comprise[ ] the signal sets are different based on these operators. So this would be the way we do that. We, for example, create a new signal set called Zone 1 and then select which channels go to … that signal set. And we do Zone 2 and Zone 3. So we can have the same sectors, same signals in multiple signal sets but only one signal set can go to any of the UAPs. You can either send the Zone 1, Zone 2, Zone 3 signal set … directly to a TEN, then it will be automatically be distributed to all of the UAPs that are connected to that TEN. This is probably how you would do that in most cases where you have a zone driven by a TEN."[13] As a result, CommScope's ION®-E/ERA platform is configured to receive or transmit a respective subset of the plurality of carriers. Therefore, on information and belief, T-Mobile's LTE and 5G networks, which include CommScope's ION®-E/ERA platform, meet claim element [1D] of claim 1 of the '171 patent.

47. On information and belief, T-Mobile's LTE and 5G networks, which include CommScope's ION®-E/ERA platform, meet claim element [1E] of claim 1 of the '171 patent

[12] https://www.commscope.com/product-type/in-building-cellular-systems/distributed-antenna-systems-das/era/ (last visited May 25, 2023).
[13] *See, e.g.*, Webinar Introduction to ION-E, Telecom Knowledge Share, Published July 22, 2016, available at https://www.youtube.com/watch?v=Kmw2qMlgLrU ("Webinar Introduction to ION E").

which recites "routing and switching the packetized signals among the plurality of remote radio units via the at least one digital access unit."

48. On information and belief, T-Mobile's LTE and 5G networks route and switch the packetized signals among the plurality of remote radio units via the at least one digital access unit as explained above in paragraph 37. Specifically, upon information and belief, the CAN routes and switches the packetized signals – in the downlink it routes and switches packetized signals from the operator's network to the Access Points and in the uplink the CAN routes and switches packetized signals from the Access Points to the operator's network as shown in the figure below. Thus, on information and belief, CommScope's ION®-E/ERA platform meets claim element 1[E] of claim 1 of the '171 patent.



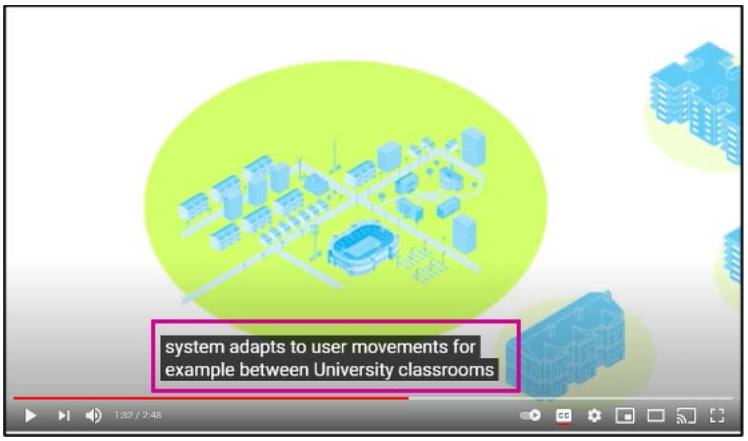
[14]

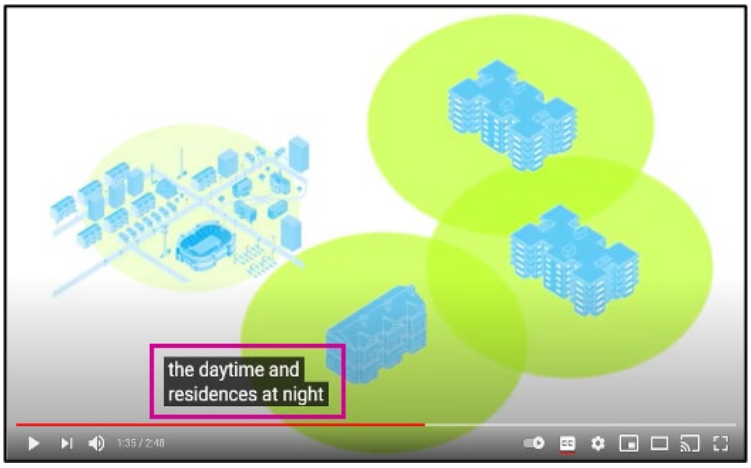
49. On information and belief, T-Mobile's LTE and 5G networks, which include CommScope's ION®-E/ERA platform, meet claim element [1F] of claim 1 of the '171 patent which recites "reconfiguring at least one of the plurality of remote radio units by increasing or decreasing the number of carriers in the respective subset of the plurality of carriers."

50. On information and belief, T-Mobile's LTE and 5G networks reconfigure each

[14] https://www.commscope.com/product-type/in-building-cellular-systems/distributed-antenna-systems-das/era/ (last visited May 25, 2023).

remote radio unit by increasing or decreasing the number of carriers in the respective subset of the plurality of carriers. For example, CommScope's ION®-E/ERA platform can dynamically adjust system resources to maintain efficiency. CommScope's marketing materials describe how radio resources can be assigned to radio access points when the majority of users move from one place, like a university classroom, to a second place, like university residences:[15]

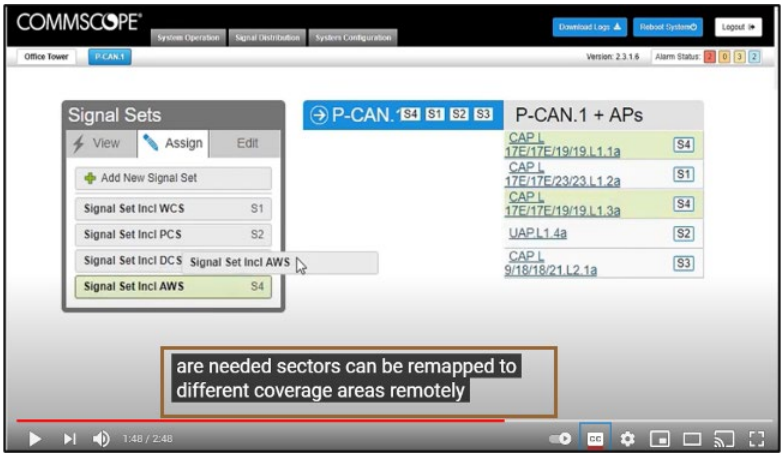




51. Moreover, the same marketing materials describe how sectors can be remapped

[15] *See,* "CommScope Era™ C-RAN Antenna System," https://www.youtube.com/watch?v=uBRDL7a8_8g (last visited May 25, 2023) (annotation added).

where radio resources are needed most:[16]



52. Consequently, on information and belief, CommScope's ION®-E/ERA platform reconfigures each remote radio unit by increasing or decreasing the number of carriers in the respective subset of the plurality of carriers.

53. On information and belief, T-Mobile's LTE and 5G networks, which include CommScope's ION®-E/ERA platform, meet claim element [1G] of claim 1 of the '171 patent which recites "routing and switching the packetized signals among the plurality of remote radio units via the at least one digital access unit according to a result of the reconfiguring."

54. On information and belief, T-Mobile's LTE and 5G networks route and switch the packetized signals among the plurality of remote radio units via the at least one digital access unit according to a result of the reconfiguring as described above for element [1-E]. Specifically, upon information and belief, the CAN routes and switches the packetized signals – in the downlink it routes and switches packetized signals from the operator's network to the Access Points and in the uplink the CAN routes and switches packetized signals from the Access Points to the operator's

[16] *Id* (annotation added).

network as shown in the figure above.[17]

55. Accordingly, on information and belief, T-Mobile's LTE and 5G networks, which include CommScope's ION®-E/ERA platform, meet all elements of, and therefore infringe at least claim 1 of the '171 patent.

56. On information and belief, T-Mobile and CommScope have directly infringed and continue to directly infringe either literally or under the doctrine of equivalents, one or more claims, including at least claim 15 of the '171 patent, in violation of 35 U.S.C. § 271, et seq., by deploying, operating, maintaining, testing, and using T-Mobile's LTE and 5G networks which include solutions for in-building wireless coverage, such as CommScope's OneCell product.

57. Claim 15 of the '171 provides:

> [Preamble] A system for transmitting signals, comprising:
>
> [1A] a plurality of remote radio units; and
>
> [1B] at least one digital access unit configured to communicate with the plurality of remote radio units, wherein the plurality of remote radio units are each configured to packetize uplink signals for transmission to the at least one digital access unit, and the at least one digital access unit is configured to packetize downlink signals for transmission to the plurality of remote radio units, wherein the packetized signals correspond to a plurality of carriers, and each of the plurality of remote radio units is configured to receive or transmit a respective subset of the plurality of carriers,
>
> [1C] wherein during a first time period, each of the plurality of remote radio units is configured to receive or transmit the respective subset of the plurality of carriers,
>
> [1D] wherein during a second time period, at least one remote radio unit of the plurality of remote radio units is reconfigured to increase or decrease the number of carriers in a first subset of the plurality of carriers, and the at least one remote radio unit is configured to receive or transmit the first subset of the plurality of

[17] https://www.commscope.com/globalassets/digizuite/939032-era-ordering-guide-nar-co-116299-en.pdf (last visited May 25, 2023).

carriers according to the reconfiguration.

58. On information and belief, T-Mobile's LTE and 5G networks, which include CommScope's OneCell product, satisfy each and every limitation recited in at least claim 15 of the '171 patent as stated below.

59. On information and belief, and to the extent the preamble is limiting, T-Mobile's LTE and 5G networks meet the preamble of claim 15 of the '171 patent which recites "A system for transmitting signals."[18] For example, CommScope OneCell documentation explain the "[r]adio points transmit and receive radio frequency (RF) signals". Thus, the T-Mobile CommScope OneCell meets the preamble.

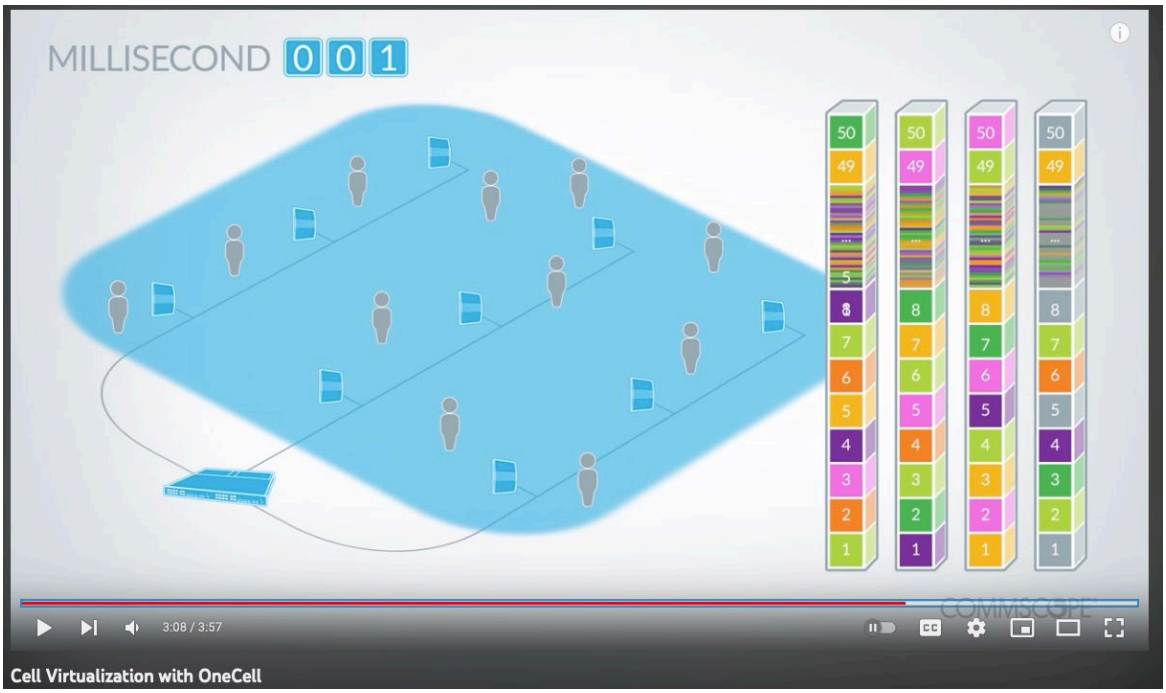
60. On information and belief, T-Mobile's LTE and 5G networks, which include CommScope's OneCell, meets claim element [15-A] of claim 15 of the '171 patent which recites "a plurality of remote radio units." For example, the CommScope OneCell has "[r]adio [p]oints" including the RP5000 Series and RP2000 Series.[19]

61. On information and belief, T-Mobile's LTE and 5G networks, which include CommScope's OneCell, meets claim element [15-B] of claim 15 of the '171 patent which recites "at least one digital access unit configured to communicate with the plurality of remote radio units, wherein the plurality of remote radio units are each configured to packetize uplink signals for transmission to the at least one digital access unit, and the at least one digital access unit is configured to packetize downlink signals for transmission to the plurality of remote radio units, wherein the packetized signals correspond to a plurality of carriers, and each of the plurality of remote radio units is configured to receive or transmit a respective subset of the plurality of

[18] https://www.commscope.com/product-type/in-building-cellular-systems/small-cells/onecell/
[19] *Id.*

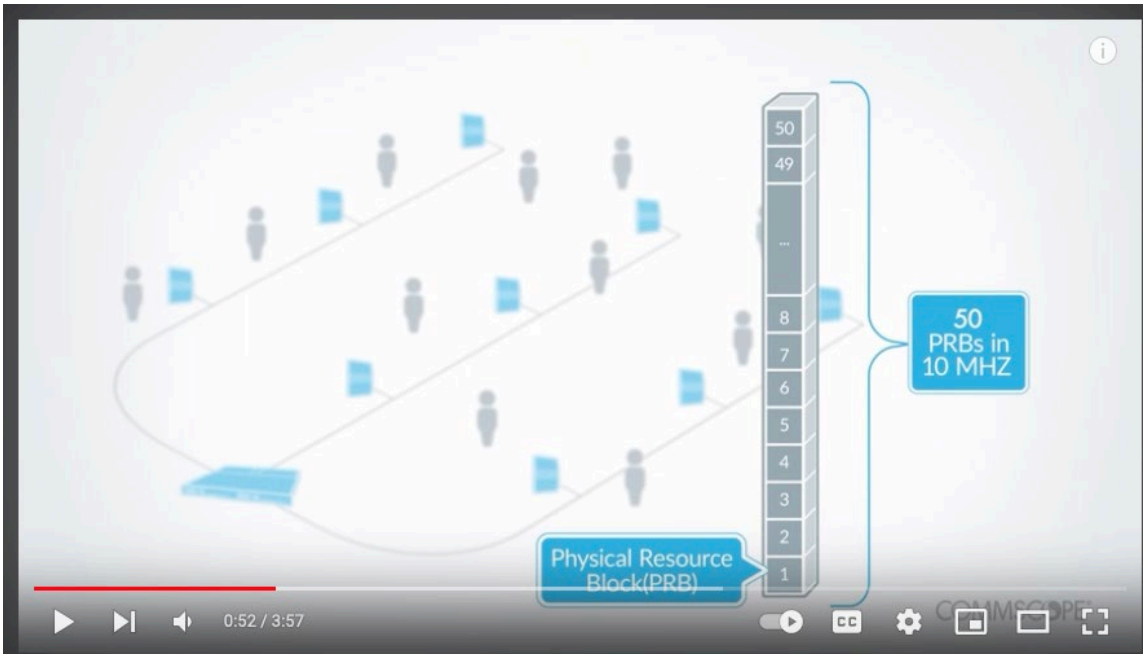
carriers."

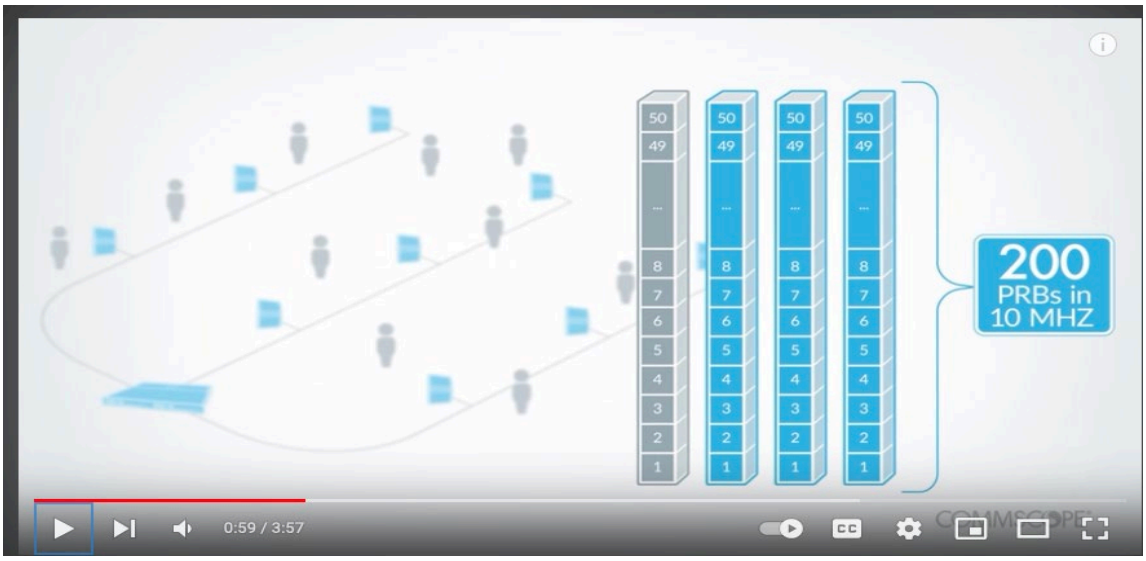
62. For example, the CommScope OneCell has a "baseband controller" that "perform[s] baseband processing and scheduling across all Radio Points."[20] Further, the communication between the baseband controller and radio points is "on standard Gigabit Ethernet links".[21] As shown below from T-Mobile / CommScope documentation, the packetized signals correspond to a plurality of carriers (e.g., an operator's carrier), and each of the plurality of remote radio units is configured to receive or transmit a respective subset (e.g., physical resource block) of the plurality of carriers[22]:



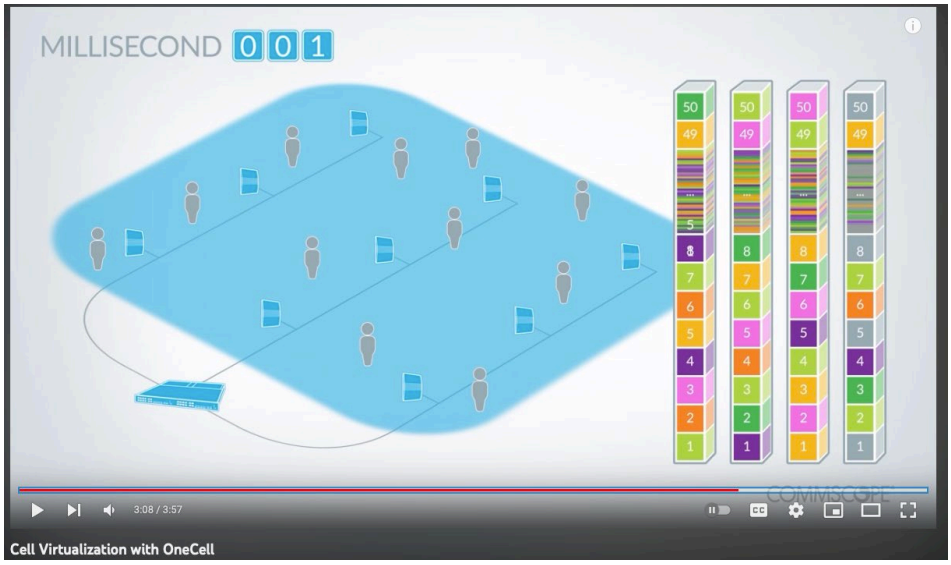
[20] *Id.*
[21] *Id.*
[22] "Cell Virtualization with OneCell" https://www.youtube.com/watch?v=vEsHetvkOVA


Physical Resource Block(PRB)
0:44 / 3:57


50
49
8
7
6
5
4
3
2
1
50 PRBs in 10 MHZ
Physical Resource Block(PRB)
0:52 / 3:57



63. Further, the T-Mobile / CommScope documentation shows that each of the plurality of remote radio units is configured to receive or transmit a respective subset of the plurality of carriers[23]:

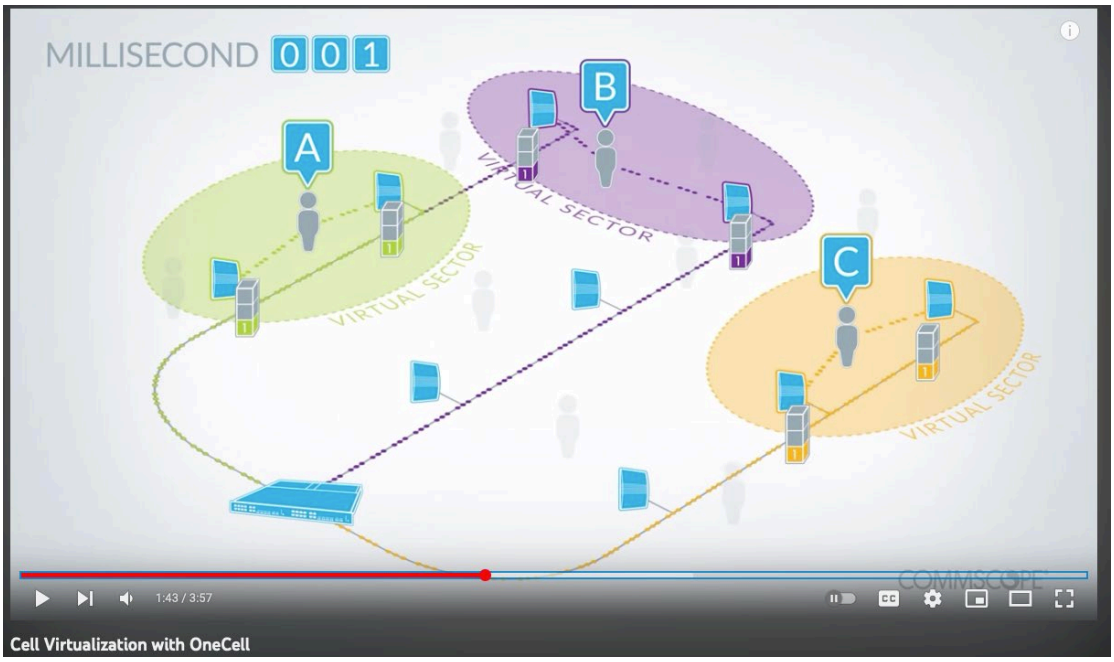


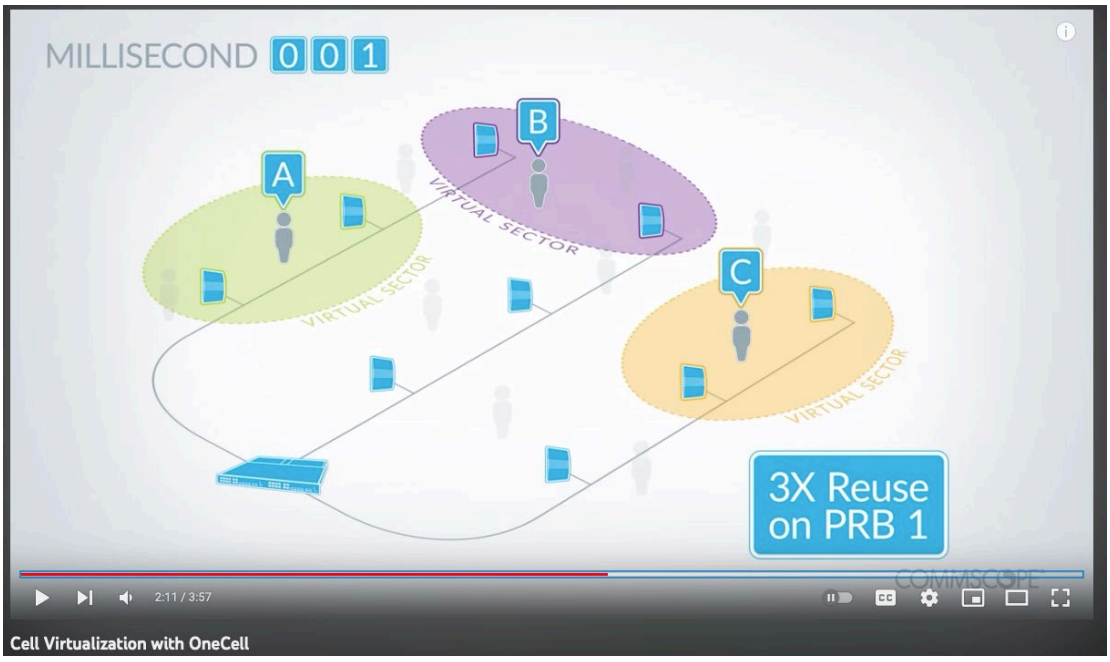
64. On information and belief, T-Mobile's LTE and 5G networks, which include CommScope's OneCell, meets claim element [15-C] of claim 15 of the '171 patent which recites "wherein during a first time period, each of the plurality of remote radio units is configured to

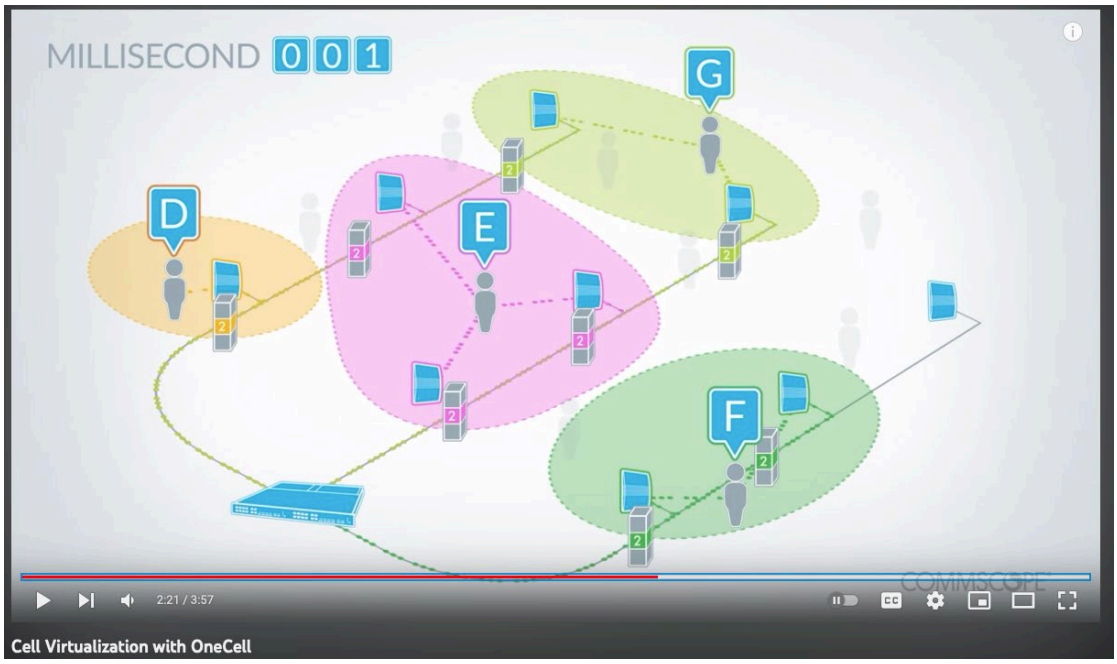
[23] *Id.*

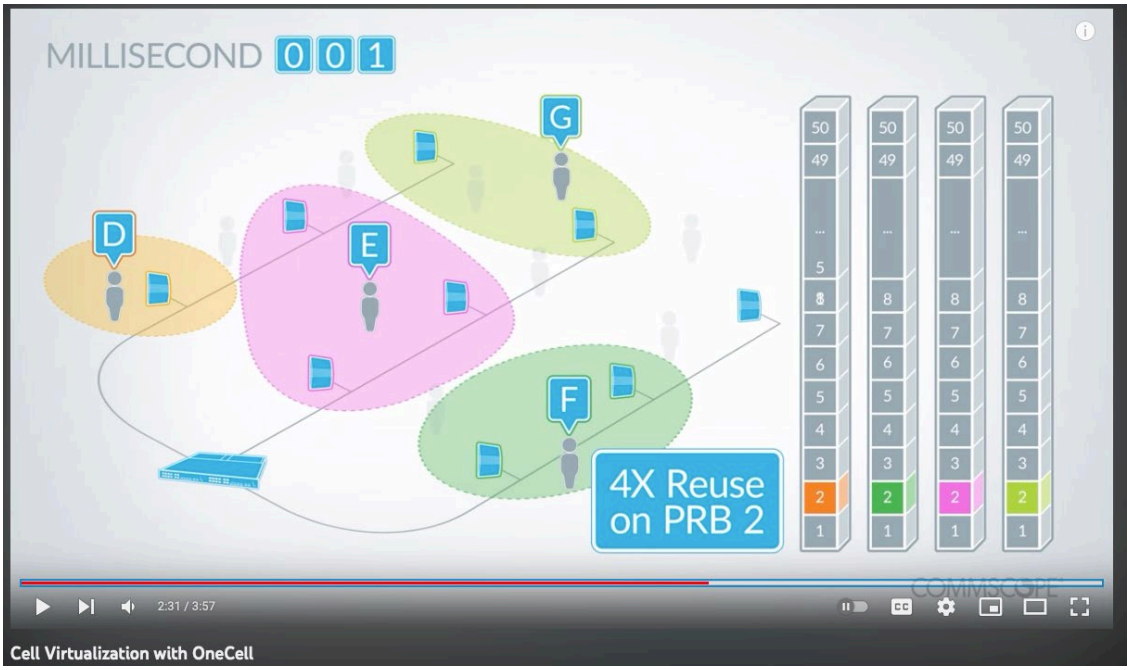
receive or transmit the respective subset of the plurality of carriers."

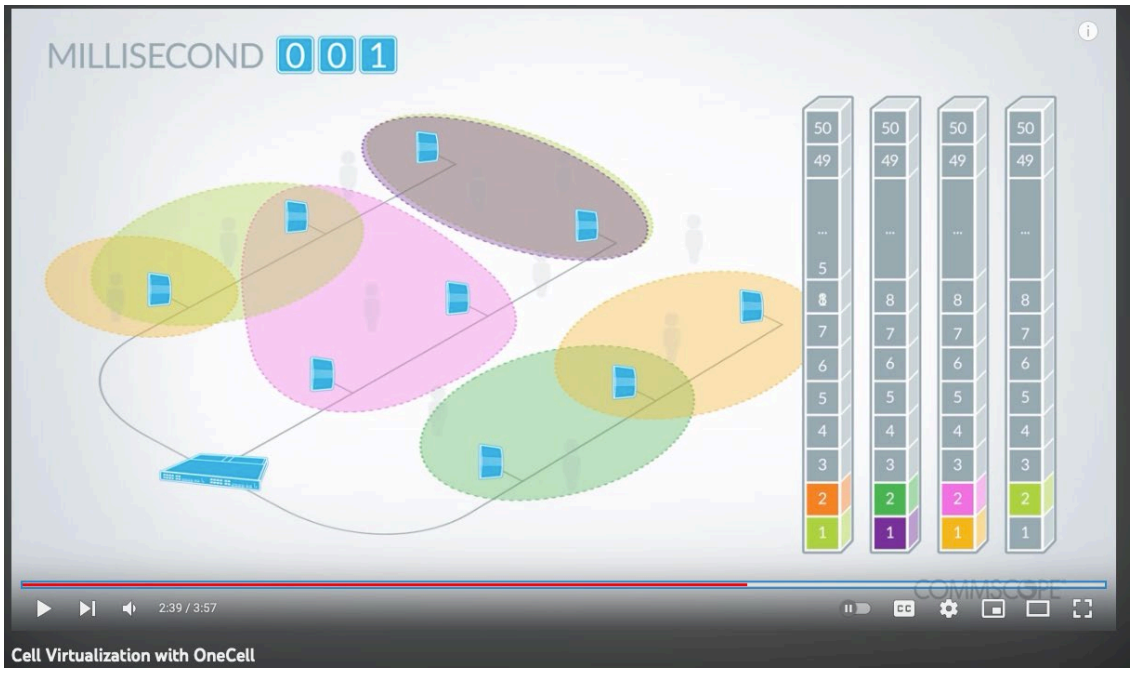
65. On information and belief, As shown below in the T-Mobile / CommScope documentation, during the first millisecond, the OneCell system configures each of the plurality of remote radio units to receive or transmit the respective subset (i.e. specific physical resource blocks) of the plurality of carriers:

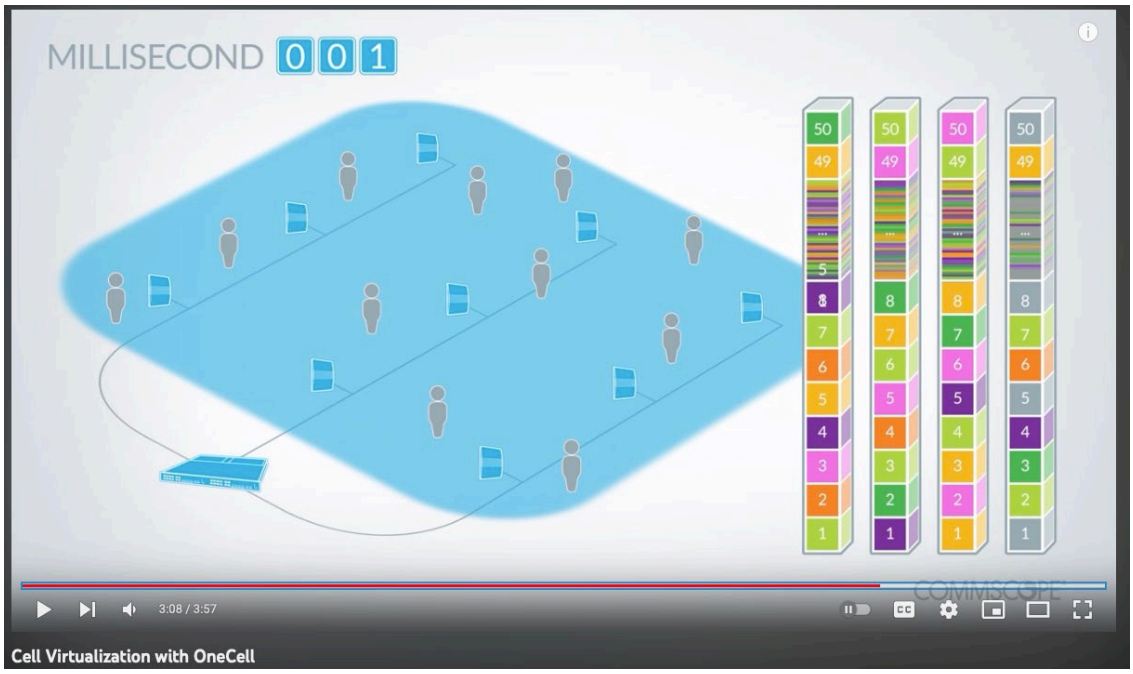





MILLISECOND 001
G
D
E
F
2:21 / 3:57
Cell Virtualization with OneCell


MILLISECOND 001
G
D
E
F
4X Reuse on PRB 2
2:31 / 3:57
Cell Virtualization with OneCell

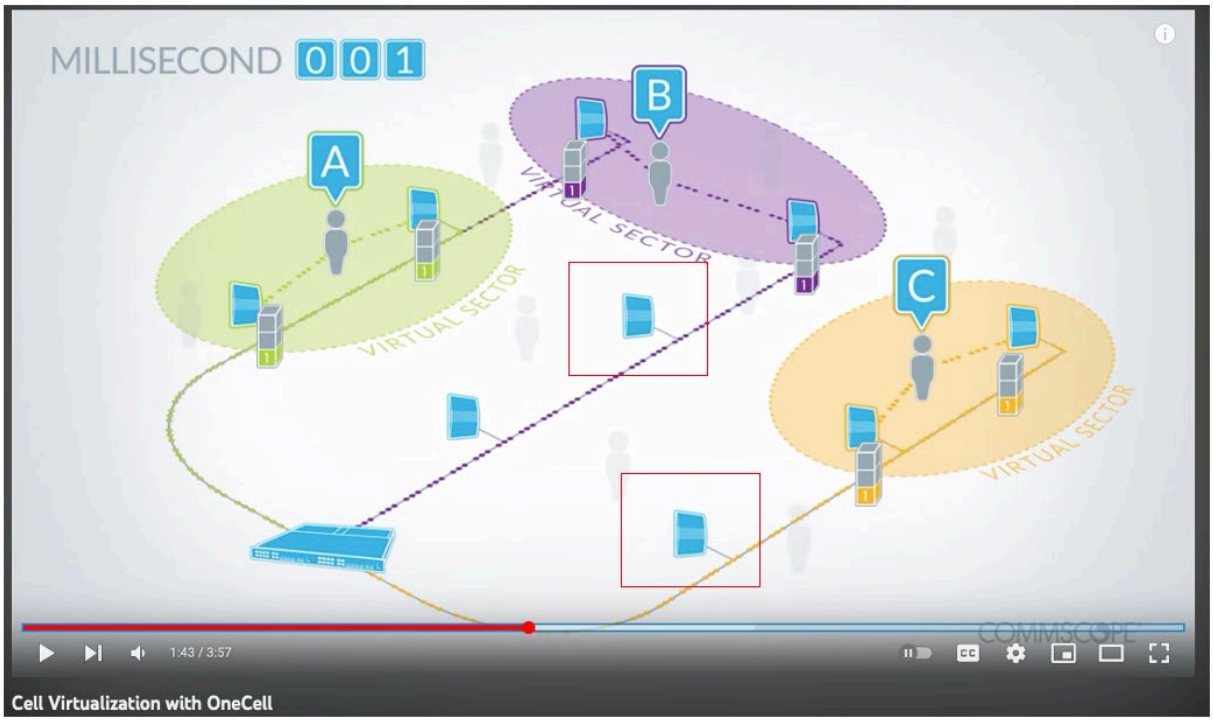




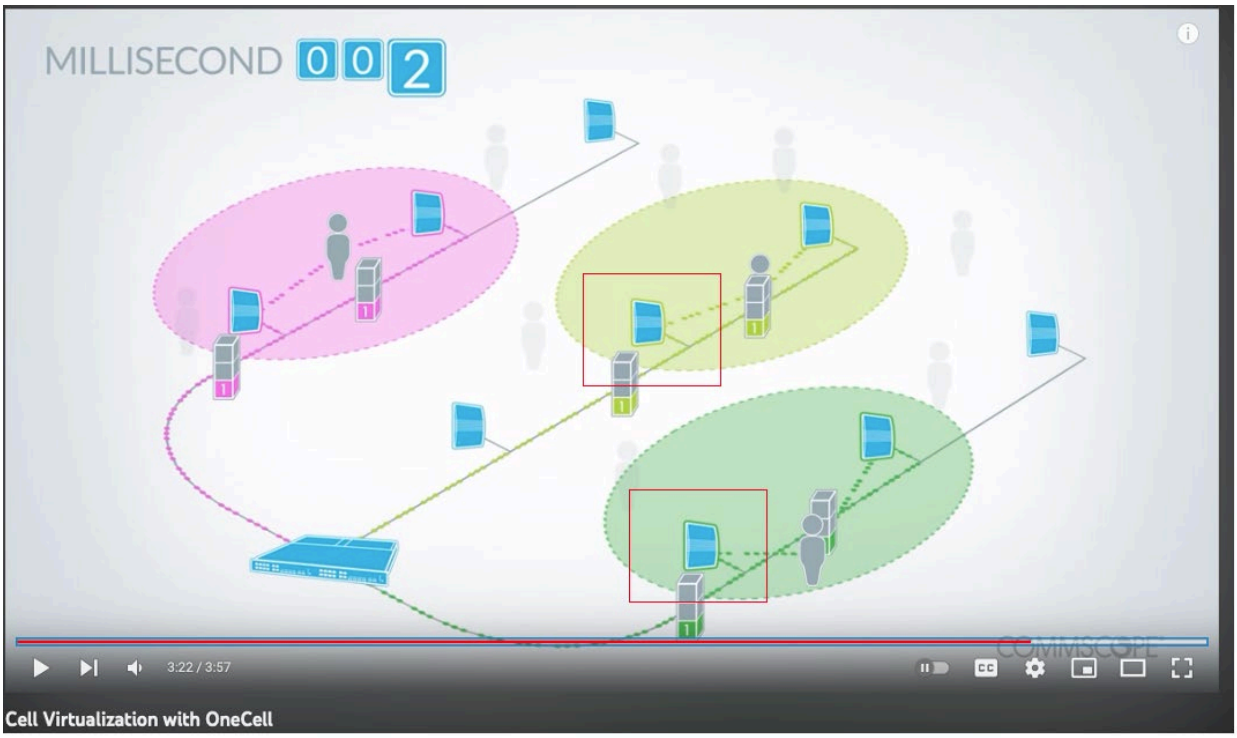
66. On information and belief, T-Mobile's LTE and 5G networks, which include CommScope's OneCell, meets claim element [15-D] of claim 15 of the '171 patent which recites "wherein during a second time period, at least one remote radio unit of the plurality of remote radio units is reconfigured to increase or decrease the number of carriers in a first subset of the

plurality of carriers, and the at least one remote radio unit is configured to receive or transmit the first subset of the plurality of carriers according to the reconfiguration."

67. For example, as shown below, the highlighted remote radio units have the number of carriers changed between millisecond 001 and millisecond 002 as it relates to physical resource block 1[24]:



[24] *Id.*



68. Accordingly, on information and belief, T-Mobile's LTE and 5G networks, which include CommScope's OneCell product, meet all elements of, and therefore infringe at least claim 15 of the '171 patent.

69. On information and belief, CommScope has induced infringement of at least claim 1 and/or claim 15 of the '171 patent by T-Mobile pursuant to 35 U.S.C. § 271(b), and committed contributory infringement of at least claim 1 and/or claim 15 of the '171 patent pursuant to 35 U.S.C. § 271(c), by providing the hardware and software necessary for T-Mobile to perform the claimed method, along with instructions that induce T-Mobile to perform the claimed method.

70. On information and belief, CommScope takes active steps to induce infringement of at least claim 1 and/or claim 15 of the '171 patent by T-Mobile, knowing that those steps will induce, encourage, and facilitate direct infringement by T-Mobile in violation of 35 U.S.C. § 271(b). Such active steps include, but are not limited to, providing T-Mobile with instructions on the use of the above-described routing and switching feature, and participating in the installation,

configuration, operation, and maintenance of the OneCell and/or ION®-E/ERA platforms in T-Mobile's network specifically for the purpose of performing the infringing methods.

71. On information and belief, CommScope knew or should have known that such activities induce T-Mobile to infringe at least claim 1 and/or claim 15 of the '171 patent by using the accused systems from at least the date of the filing of this Complaint.

72. On information and belief, CommScope also contributes to the infringement of at least claim 1 and/or claim 15 of the '171 patent by T-Mobile in violation of 35 U.S.C. § 271(c). Acts by CommScope that contribute to the infringement of T-Mobile include providing ION®-E/ERA platform hardware and software modules and/or providing OneCell system hardware and software that comprise the above-described distributed antenna system. The accused hardware and software are especially adapted for use in the infringing distributed antenna system, and they have no substantial non-infringing uses. On information and belief, CommScope knows or should know that such activities contribute to T-Mobile's infringement of at least claim 1 and/or claim 15 of the '171 patent by using the accused system.

73. At least as early as of and by way of this Complaint, CommScope knows of the '171 patent and performs acts that it knows, or should know, induce and/or contribute to the direct infringement of claim 1 and/or claim 15 of the '171 patent by T-Mobile. Thus, CommScope is indirectly liable for infringement of at least claim 1 and/or claim 15 of the '171 patent pursuant to 35 U.S.C. §§ 271(b) and 271(c).

74. T-Mobile and CommScope undertook and continue their infringing actions despite an objectively high likelihood that such activities infringe the '171 Patent, which has been duly issued by the PTO and is presumed valid. Moreover, the PTAB has denied institution of at least

one petition for *inter partes* review of the '171 patent.[25] For example, since at least the filing of this Complaint, T-Mobile and CommScope have been aware of an objectively high likelihood that their actions constituted and continue to constitute infringement of the '171 Patent and that the '171 Patent is valid. On information and belief, T-Mobile and CommScope could not reasonably, subjectively believe that their actions do not constitute infringement of the '171 patent. Despite that knowledge and subjective belief, and the objectively high likelihood that their actions constitute infringement, T-Mobile and CommScope have continued their infringing activities. As such, T-Mobile and CommScope have willfully infringed and/or will continue to willfully infringe the '171 patent.

75. As a result of T-Mobile's and CommScope's infringement of the '171 patent, Dali has suffered and continues to suffer substantial injury and is entitled to recover all damages caused by T-Mobile's and CommScope's infringement to the fullest extent permitted by the Patent Act, together with prejudgment interest and costs for T-Mobile's and CommScope's wrongful conduct.

76. Dali has no adequate remedy at law to prevent future infringement of the '171 patent. Dali suffers and continues to suffer irreparable harm as a result of T-Mobile's and CommScope's patent infringement and is, therefore, entitled to injunctive relief to enjoin T-Mobile's and CommScope's wrongful conduct.

PRAYER FOR RELIEF

WHEREFORE, Dali respectfully requests judgment against Defendants as follows:

A. that this Court adjudge that T-Mobile and CommScope, to the extent not enjoined, infringe the '171 patent;

[25] *See* IPR2020-01432, Paper No. 16 (decision denying institution).

B. that the Court enter an injunction prohibiting T-Mobile, CommScope, and their agents, officers, servants, employees and all persons in active concert or participation with T-Mobile or CommScope from deploying, operating, maintaining, testing, and using distributed antenna systems and/or small cell wireless solutions in T-Mobile's LTE and 5G Networks, including CommScope's OneCell and ION®-E/ERA products, and from otherwise infringing any of the Patent-in-Suit;

C. that this Court adjudge that T-Mobile and CommScope, to the extent not enjoined, willfully infringe the '171 patent and award treble damages;

D. that this Court ascertain and award Dali damages under 35 U.S.C. § 284 sufficient to compensate for Defendants' infringement, including but not limited to infringement occurring before the filing of this lawsuit;

E. that this Court ascertain and award Dali any post-judgment ongoing royalties under 35 U.S.C. § 284 as may be appropriate;

F. that this Court award Dali any applicable pre-judgment and post-judgment interest;

G. that this Court award Dali such other relief at law or in equity as the Court deems just and proper.

JURY DEMAND

Dali requests that all claims and causes of action raised in this Complaint against Defendants be tried to a jury to the fullest extent possible.

Date: May 30, 2023

Respectfully submitted,

FOLIO LAW GROUP PLLC

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