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10 Core Optical Technologies, LLC

11 UNITED STATES DISTRICT COURT  
12 CENTRAL DISTRICT OF CALIFORNIA  
13 SOUTHERN DIVISION

14 CORE OPTICAL TECHNOLOGIES,  
15 LLC,

16 Plaintiff,

17 v.

18 CHARTER COMMUNICATIONS,  
19 INC., a Delaware corporation,  
20 VERIZON COMMUNICATIONS,  
21 INC., a Delaware corporation,  
22 GOOGLE, LLC, a Delaware limited  
23 liability company, COMCAST  
24 CORPORATION, a Pennsylvania  
25 corporation, MICROSOFT  
26 CORPORATION, a Washington  
27 corporation, AT&T, INC., a Delaware  
28 corporation, and DOES 1-10,

Defendants.

CASE NO:

**COMPLAINT FOR PATENT  
INFRINGEMENT**

**JURY TRIAL DEMANDED**

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1 Plaintiff Core Optical Technologies, LLC (“Plaintiff” or “Core”), through its  
2 undersigned counsel, hereby files this Complaint against Defendants Charter  
3 Communications, Inc. (“Charter”), Verizon Communications, Inc. (“Verizon”),  
4 Google, LLC (“Google”), Comcast Corporation (“Comcast”), Microsoft Corporation  
5 (“Microsoft”), AT&T, Inc. (“AT&T”), and Does 1-10 (collectively, the  
6 “Defendants”). For its complaint, Core alleges as follows:

7 **THE PARTIES**

8 1. Core is a limited liability company organized and existing under the laws  
9 of the state of California. Core has a principal place of business at 18792 Via  
10 Palatino, Irvine, CA 92603.

11 2. Defendant Charter is a corporation organized and existing under the laws  
12 of the state of Delaware, with a principal place of business at 400 Atlantic Street, Fl.  
13 10, Stamford, CT 06901.

14 3. Defendant Verizon is a corporation organized and existing under the  
15 laws of the state of Delaware, with a principal place of business at 1095 Avenue of  
16 the Americas, New York, NY 10036.

17 4. Defendant Google is a limited liability company organized and existing  
18 under the laws of the state of Delaware, with a principal place of business at 1600  
19 Amphitheatre Parkway, Mountain View, CA 94043.

20 5. Defendant Comcast is a corporation organized and existing under the  
21 laws of the state of Pennsylvania, with a principal place of business at 1701 JFK  
22 Boulevard, Philadelphia, PA 19103.

23 6. Defendant Microsoft is a corporation organized and existing under the  
24 laws of the state of Washington, with a principal place of business at One Microsoft  
25 Way, Redmond, WA, 98052-6399.

26 7. Defendant AT&T is a corporation organized under the laws of the state  
27 of Delaware, with a principal place of business at 208 S. Akard St., Dallas, TX 75202.  
28

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1 8. Defendants DOES 1-10 are corporate affiliates of Charter, Verizon,  
2 Google, Comcast, Microsoft, and AT&T who participated in the infringing acts  
3 complained of herein. The identities of DOES 1-10 are currently unknown, because  
4 publicly-available information does not permit the identification of each affiliate who  
5 participated in the infringing acts. Core expects the identities of DOES to be revealed  
6 in discovery. Core reserves the right to amend this Complaint to name each DOE  
7 once their identities have been revealed.

### 8 JURISDICTION

9 9. This is an action for infringement of method claims, and *only* method  
10 claims, of U.S. Patent No. 6,782,211, entitled “Cross Polarization Interface [sic]  
11 Canceler,” which was duly issued by the United States Patent and Trademark Office  
12 on August 24, 2004 (“the ’211 patent”). The asserted claims in this case are *only*  
13 method claims 30, 32, 33, 35 and 37 of the ’211 patent (“the Asserted Claims”). A  
14 copy of the ’211 patent is attached as Exhibit 1 to this Complaint.

15 10. This Court has subject matter jurisdiction over this case under 28 U.S.C.  
16 §§ 1331 and 1338(a), because the claims arise under the patent laws of the United  
17 States, 35 U.S.C. §§ 1, *et seq.*

18 11. This Court has personal jurisdiction over each Defendant, because:

#### 19 Charter

20 12. This Court has general personal jurisdiction over Charter because  
21 Charter resides in California. Charter resides in California because Charter conducts  
22 systematic and regular business within the state of California. On information and  
23 belief, Charter has thousands of employees in California. Charter maintains dozens of  
24 facilities within California, including offices, service centers, retail stores, and other  
25 facilities. Charter also provides telecommunication services to millions of customers  
26 in California. On information and belief, Charter derives many millions of dollars in  
27 annual revenue from its business in California. Such systematic, large-scale, regular  
28 business subjects Charter to general personal jurisdiction in California.

1 13. This Court also has specific personal jurisdiction over Charter because,  
2 on information and belief, Charter has directly infringed the Asserted Claims by using  
3 the Accused Instrumentalities (as defined below) within California, including within  
4 this judicial district. On information and belief, Charter has used the Accused  
5 Instrumentalities to provide telecommunication and other services to individuals and  
6 businesses within California, and within this judicial district. For the reasons set forth  
7 below, such use directly infringes the Asserted Claims. Thus, Charter is subject to  
8 specific personal jurisdiction in this district, because it has committed acts of  
9 infringement in California, and because Core's claims arise out of such infringement.

10 Verizon

11 14. This Court has general personal jurisdiction over Verizon because  
12 Verizon conducts systematic and regular business within the state of California. On  
13 information and belief, Verizon has thousands of employees in California. Verizon  
14 maintains dozens of facilities within California, including offices, service centers,  
15 retail stores, and other facilities. Verizon also provides telecommunication services to  
16 tens of millions of customers in California. On information and belief, Verizon  
17 derives many millions of dollars in annual revenue from its business in California.  
18 Such systematic, large-scale, regular business subjects Verizon to general personal  
19 jurisdiction in California

20 15. This Court also has specific personal jurisdiction over Verizon because,  
21 on information and belief, Verizon has directly infringed the Asserted Claims by  
22 using the Accused Instrumentalities (as defined below) within California, including  
23 within this judicial district. On information and belief, Verizon has used the Accused  
24 Instrumentalities to provide telecommunication and other services to individuals and  
25 businesses within California, and within this judicial district. For the reasons set forth  
26 below, such use directly infringes the Asserted Claims. Thus, Verizon is subject to  
27 specific personal jurisdiction in this district, because it has committed acts of  
28 infringement in California, and because Core's claims arise out of such infringement.

1 Google

2 16. This Court has general personal jurisdiction over Google because Google  
3 resides in California, because it has its principal place of business in California, at  
4 1600 Amphitheatre Parkway, Mountain View, CA.

5 17. This Court also has specific personal jurisdiction over Google because,  
6 on information and belief, Google has directly infringed the Asserted Claims by using  
7 the Accused Instrumentalities (as defined below) within California, including within  
8 this judicial district. On information and belief, Google has used the Accused  
9 Instrumentalities to provide data and services to individuals and businesses within  
10 California, and within this judicial district. For the reasons set forth below, such use  
11 directly infringes the Asserted Claims. Thus, Google is subject to specific personal  
12 jurisdiction in this district, because it has committed acts of infringement in  
13 California, and because Core's claims arise out of such infringement.

14 Comcast

15 18. This Court has general personal jurisdiction over Comcast because  
16 Comcast conducts systematic and regular business within the state of California.  
17 Comcast employs over 5,000 people in California, and provides telecommunication  
18 services to millions of customers within California. *See*  
19 <https://california.comcast.com/about/#:~:text=Comcast%20is%20deeply%20committ>  
20 [ed%20to,smart%20home%E2%80%9D%20and%20phone%20service](https://california.comcast.com/about/#:~:text=Comcast%20is%20deeply%20committ) (“Comcast is  
21 deeply committed to California, where our nearly 5,000 employees serve more than 3  
22 million customers throughout the state.”) Comcast also maintains at least a dozen  
23 regular places of business within the state of California, including, on information and  
24 belief, corporate offices, service centers, and retail outlets. This systematic and  
25 regular business subjects Comcast to general personal jurisdiction in California.

26 19. This Court also has specific personal jurisdiction over Comcast because,  
27 on information and belief, Comcast has directly infringed the Asserted Claims by  
28 using the Accused Instrumentalities (as defined below) within California, and within

1 this judicial district. On information and belief, Comcast has used the Accused  
2 Instrumentalities to provide telecommunication and other services to individuals and  
3 businesses within California, and within this judicial district. For the reasons set forth  
4 below, such use constitutes infringement of the Asserted Claims. Thus, Comcast is  
5 subject to specific personal jurisdiction in this district, because it has committed acts  
6 of infringement in California, and Core's claims arise out of such infringement.

7 Microsoft

8 20. This Court has general personal jurisdiction over Microsoft because  
9 Microsoft conducts systematic and regular business within the state of California.  
10 Microsoft has thousands of employees in California. Microsoft maintains dozens of  
11 facilities within California, including offices, retail stores and other facilities. *See*  
12 <https://blogs.microsoft.com/bayarea/2020/01/21/california-bay-area-presence/>  
13 (“Microsoft started in the California Bay Area as a remote engineering site in  
14 Mountain View and a sales office in San Francisco. Now over 35 years later, the  
15 region is home to a vibrant community of Microsoft employees working across teams  
16 and products to drive forward innovation with impact. Today, Microsoft has offices  
17 across Berkeley, San Francisco, and Silicon Valley.”) Microsoft also provides cloud  
18 computing, data, telecommunication and retail services to millions of customers in  
19 California. On information and belief, Microsoft derives many millions of dollars in  
20 annual revenue from its business in California. Such systematic, large-scale, regular  
21 business subjects Amazon to general personal jurisdiction in California.

22 21. This Court also has specific personal jurisdiction over Microsoft  
23 because, on information and belief, Microsoft has directly infringed the Asserted  
24 Claims by using the Accused Instrumentalities (as defined below) within California,  
25 including within this judicial district. On information and belief, Microsoft has used  
26 the Accused Instrumentalities to provide data, cloud computing, telecommunications,  
27 and other services to individuals and businesses within California, and within this  
28 judicial district. For the reasons set forth below, such use directly infringes the

1 Asserted Claims. Thus, Microsoft is subject to specific personal jurisdiction in this  
2 district, because it has committed acts of infringement in California, and because  
3 Core’s claims arise out of such infringement.

#### 4 AT&T

5 22. This Court has general personal jurisdiction over AT&T because AT&T  
6 conducts systematic and regular business within the state of California. AT&T has  
7 tens of thousands of employees in California. *See*

8 <https://www.ocregister.com/2020/02/03/att-to-cut-another-200-technician-positions->

9 [in-california/](https://www.ocregister.com/2020/02/03/att-to-cut-another-200-technician-positions-) (“Frank Arce, a vice president with Communications Workers of

10 America, whose District 9 represents about 25,000 AT&T employees in

11 California...”). AT&T maintains dozens of facilities within California, including

12 offices, retail stores, and other facilities. AT&T also provides telecommunication and

13 retail services to tens of millions of customers in California. On information and

14 belief, AT&T derives many millions of dollars in annual revenue from its business in

15 California. Such systematic, large-scale, regular business subjects AT&T to general

16 personal jurisdiction in California.

17 23. This Court also has specific personal jurisdiction over AT&T because,

18 on information and belief, AT&T has directly infringed the Asserted Claims by using

19 the Accused Instrumentalities (as defined below) within California, including within

20 this judicial district. On information and belief, AT&T has used the Accused

21 Instrumentalities to provide data, telecommunications, and other services to

22 individuals and businesses within California, and within this judicial district. For the

23 reasons set forth below, such use directly infringes the Asserted Claims. Thus, AT&T

24 is subject to specific personal jurisdiction in this district, because it has committed

25 acts of infringement in California, and Core’s claims arise out of such infringement.

#### 26 VENUE

27 24. Venue is proper over each Defendant in this judicial district under 28

28 U.S.C. §§ 1391 and/or 1400(b), for at least the following reasons:

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1 Charter

2 25. Charter maintains regular and established places of business in this  
3 district, including at least its facilities at: (i) 100 N. La Cienega Blvd., Suite B-231, Los  
4 Angeles, CA 90048; (ii) 3650 W. Martin Luther King Jr. Blvd., Unit 153, Los Angeles,  
5 CA 90008; (iii) 4945 Eagle Rock Blvd., Suite A, Los Angeles, CA 90041; (iv) 6200  
6 West Hollywood Blvd., Suite 144, Los Angeles, CA 90028; and (v) 6806 S. La Tijera  
7 Blvd., Los Angeles, CA 90045.

8 26. On information and belief, Charter has committed acts of direct  
9 infringement within this district, including by using Accused Instrumentalities in  
10 connection with its provision of telecommunication and other services to customers in  
11 this district, and by using Accused Instrumentalities directly within this district.

12 27. Thus, venue is proper over Charter under 28 U.S.C. § 1400(b), because  
13 Charter has committed acts of infringement in this district, and because Charter has  
14 regular and established places of business in this district.

15 Verizon

16 28. Verizon maintains regular and established places of business in this  
17 district, including at least its facilities at: (i) 3250 W. Olympic Blvd., Los Angeles, CA  
18 90006; (ii) 100 N. La Cienega Blvd., Suite 233, Los Angeles, CA 90048; and (iii) 3458  
19 Wilshire Blvd., Suite 158, Los Angeles, CA 90010.

20 29. On information and belief, Verizon has committed acts of direct  
21 infringement in this district, including by using Accused Instrumentalities in  
22 connection with its provision of data and telecommunications services to customers in  
23 this district, and/or by using Accused Instrumentalities directly within this district.

24 30. Thus, venue is proper over Verizon under 28 U.S.C. § 1400(b), because  
25 Verizon has committed acts of infringement in this district, and because it has regular  
26 and established places of business in this district.

27 Google

28 31. Google maintains regular and established places of business in this district,



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1 including at least its facilities at: (i) 19510 Jamboree Road, Irvine, CA 92612; (ii) 340  
2 Main Street, Los Angeles, CA 90291; and (iii) 12422 W. Bluff Creek Drive, Playa  
3 Vista, CA 90094.

4 32. On information and belief, Google has committed acts of direct  
5 infringement in this district, including by using Accused Instrumentalities in  
6 connection with its provision of data, cloud and other services to customers in this  
7 district, and/or by using Accused Instrumentalities directly within this district.

8 33. Thus, venue is proper over Google under 28 U.S.C. § 1400(b), because  
9 Google has committed acts of infringement in this district, and because it has regular  
10 and established places of business in this district.

11 Comcast

12 34. Comcast maintains regular and established places of business in this  
13 district, including at least its facilities at: (i) 685 East Betteravia Rd, Santa Maria, CA  
14 93454; (ii) 1145 N H St Suite B, Lompoc, CA 93436; and (iii) 111 Universal  
15 Hollywood Dr., Los Angeles, CA 90068.

16 35. On information and belief, Comcast has committed acts of direct  
17 infringement within this district, including by using Accused Instrumentalities in  
18 connection with its provision of telecommunication and other services to customers in  
19 this district, and by using Accused Instrumentalities directly within this district.

20 36. Thus, venue is proper over Comcast under 28 U.S.C. § 1400(b), because  
21 Comcast has committed acts of infringement in this district, and because Comcast has  
22 regular and established places of business in this district.

23 Microsoft

24 37. Microsoft maintains regular and established places of business in this  
25 district, including at least its offices at: (i) 13031 W. Jefferson Blvd., Unit 200, Los  
26 Angeles, CA 90094; (ii) 3 Park Plaza, Suite 1600, Irvine, CA 92614; (iii) 10250 Santa  
27 Monica Blvd., Space #1045, Los Angeles, CA 90067; (iv) 3333 Bristol Street, Suite  
28 1249, Costa Mesa, CA 92626; (v) 578 The Shops at Mission Viejo, Mission Viejo, CA

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1 92691; and (vi) 331 Los Cerritos Center, Cerritos, CA 90703.

2 38. On information and belief, Microsoft has committed direct infringement  
3 within this district, including by using Accused Instrumentalities in connection with its  
4 provision of data, telecommunication and other services to customers in this district,  
5 and by using Accused Instrumentalities directly within this district.

6 39. Thus, venue is proper over Microsoft under 28 U.S.C. § 1400(b), because  
7 Microsoft has committed acts of infringement in this district, and because Microsoft  
8 has regular and established places of business in this district.

9 AT&T

10 40. AT&T maintains regular and established places of business in this district,  
11 including at least its facilities at: (i) 10250 Santa Monica Blvd., Space 2930, Los  
12 Angeles, CA 90067; (ii) 1605 Wilshire Blvd., Los Angeles, CA 90017; (iii) 2333 S.  
13 Sepulveda Blvd., Los Angeles, CA 90064; (iv) 3419 W. 6th Street, Los Angeles, CA  
14 90020; (v) 425 S. Broadway, Los Angeles, CA 90013; and (vi) 8471 Beverly Blvd.,  
15 Los Angeles, CA 90048.

16 41. On information and belief, AT&T has committed direct infringement in  
17 this district, including by using Accused Instrumentalities in connection with its  
18 provision of data, telecommunications, and other services to customers within this  
19 district, and/or by using Accused Instrumentalities directly within this district.

20 42. Thus, venue is proper over AT&T under 28 U.S.C. § 1400(b), because  
21 AT&T has committed acts of infringement in this district, and because it has regular  
22 and established places of business in this district.

23 THE ASSERTED PATENT

24 43. Mark Core, the sole named inventor of the '211 patent, earned his Ph.D.  
25 in electrical and computer engineering from the University of California, Irvine, and  
26 is the Manager of Core Optical Technologies, LLC. The pioneering technology set  
27 forth in the '211 patent greatly increases data transmission rates in fiber optic  
28 networks, by enabling two optical signals transmitted in the same frequency band, but

1 at generally orthogonal polarizations, to be recovered at a receiver. The patented  
2 technology that enables the recovery of these signals includes coherent optical  
3 receivers and related methods that mitigate cross-polarization interference associated  
4 with the transmission of the signals through the fiber optic network. The coherent  
5 receivers and their patented methods mitigate the effects of polarization dependent  
6 loss and dispersion effects that limit the performance of optical networks, greatly  
7 increasing the transmission distance and eliminating or reducing the need for a variety  
8 of conventional network equipment such as amplifiers, regenerators, and  
9 compensators. The patented technology set forth in the '211 patent has been adopted  
10 by Defendants in, at least, the packet-optical transport solutions described below.

11 44. On November 5, 1998, Mark Core filed with the United States Patent  
12 and Trademark Office ("USPTO") Provisional Patent Application No. 60/107,123  
13 ("the '123 application") directed to his inventions. On November 4, 1999, Mark Core  
14 filed with the USPTO a non-provisional patent application, U.S. Patent Application  
15 No. 09/434,213 ("the '213 application"), claiming priority to the '123 application. On  
16 August 24, 2004, the USPTO issued the '211 patent from the '213 application. The  
17 entire right, title, and interest in and to the '211 patent, including all rights to past  
18 damages, has been assigned to Core in an assignment recorded with the USPTO.

19 45. The Asserted Claims of the '211 patent are all method claims. One of  
20 these is claim 33, an independent method claim. Claim 33 is reproduced below, with  
21 parenthetical annotations to identify the different elements of the claim:

22 33. A method comprising:

23  
24 (33a) receiving an optical signal over a single fiber optic  
25 transmission medium,

26 (33a1) the optical signal being at least two  
27 polarized field components independently  
28 modulated with independent information bearing  
waveforms; and

1 (33b) mitigating cross polarization interference  
 2 associated with the at least two modulated polarized field  
 3 components to reconstruct the information bearing  
 4 waveforms

5 (33b1) using a plurality of matrix coefficients  
 6 being complex values to apply both amplitude  
 7 scaling and phase shifting to the at least two  
 8 modulated polarized field components.

### 9 **CORE'S LAWSUIT AGAINST CISCO**

10 46. On August 7, 2020, Core filed a complaint against Cisco Systems, Inc.  
 11 (“Cisco”), asserting infringement of the Asserted Claims, in the Central District of  
 12 California (the “Cisco Complaint”). The case was assigned Case No. 20-cv-01468 (the  
 13 “Cisco case”). A copy of the Cisco Complaint is attached as Exhibit 2.

14 47. In the Cisco Complaint, Core asserts that Cisco has infringed the Asserted  
 15 Claims, directly and/or indirectly, by making, selling, using, importing, offering for  
 16 sale, contributing to, and/or inducing its customers’ use of certain “Fiber Optic XPIC  
 17 Devices.” Ex. 2, ¶¶ 19-42, 48-81. The Fiber Optic XPIC Devices are defined as Cisco’s  
 18 “devices that can be configured to mitigate and/or cancel cross polarization interference  
 19 . . . [t]hese devices include, but are not limited to, (i) the Network Convergence System  
 20 (‘NCS’) 1000 Series, NCS 2000 Series, NCS 4000 Series, and ONS 15454 Series  
 21 optical networking platforms (the ‘Platforms’); (ii) the Cisco modules, line cards,  
 22 transponders, muxponders, and other equipment which are used with the Platforms to  
 23 perform optical communication with polarization-division multiplexing (‘PDM’) and  
 24 cross-polarization interference cancelling (‘XPIC’) (the ‘Modules’); and (iii) the  
 25 software and firmware used to control and operate the Platforms and the Modules to  
 26 perform optical communication with PDM and XPIC, including Cisco Transport  
 27 Controller (‘CTC’) and IOS-XR software (the ‘Software’).” *Id.*, ¶ 19.

28 48. In addition to the Platforms listed in the Cisco Complaint, Core has  
 discovered a number of other Cisco Platforms which are configured to infringe the

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1 Asserted Claims, including: the NCS 5500 Series Platform (“NCS 5500”), the ONS  
2 15454 Series Platform (“ONS 15454”), the ASR 9000 Series Platform (“ASR 9000”),  
3 and the CRS-1, CRS-3 and CRS-X Platforms (“CRS”). Additionally, Core has  
4 identified a number of specific line cards and modules that are used with the Platforms  
5 identified in Paragraphs 47-48 *supra* to perform infringing dual-polarization  
6 communication, including: (i) NCS 1002; (ii) NCS1K4 12x QSFP28 2 Trunk C-Band  
7 DWDM card; (iii) NCS1K4-1.2T-K9; (iv) NCS1K4-1.2T-L-K9; (v) NCS 2000 100-  
8 Gbps Coherent DWDM Trunk Card with CPAK Client Interface; (vi) NCS2K-100G-  
9 CK-C; (vii) NCS2K-100ME-CKC; (viii) ONS 15454 100-Gbps CP-DQPSK Full C-  
10 Band Tunable DWDM Trunk Card; (ix) 15454-M-100G-LC-C; (x) 15454-M-100G-  
11 ME-C; (xi) 15454-M-100GC-LIC; (xii) NCS 2000 200-Gbps Coherent DWDM Trunk  
12 Card with CPAK Client Interface; (xiii) NCS 2000 200-Gbps Multirate DWDM Line  
13 Card; (xiv) NCS2K-200G-CK-C; (xv) NCS2K-200G-CK-LIC; (xvi) NCS 2000 400  
14 Gbps XPonder Line Card; (xvii) NCS2K-400G-XP; (xviii) NCS2K-400GXP-L-K9;  
15 (xix) NCS2K-400GXP-SK; (xx) NCS2K-10X200XP-SK; (xxi) NCS2K-10XMP-SK;  
16 (xxii) 100G QPSK/200G 16-QAM - WDM CFP2 Pluggable; (xxiii) ONS-CFP2-  
17 WDM; (xxiv) ONS-CFP2-WDM-1KL; (xxv) ONS-CFP2-WDM-1KE; (xxvi) NCS  
18 4000 400 Gbps DWDM /OTN/Packet Universal Line Card; (xxvii) NCS4K-4H-OPW-  
19 QC2; (xxviii) NCS 4000 2x100G CP-DQPSK – Full C Band Tunable Line Card; (xxix)  
20 NCS4K-2H-W; (xxx) 1.2-Tbps IPoDWDM Modular Line Card Data Sheet; (xxxi)  
21 NC55-6X200-DWDM-S; (xxxii) NC55-6X2H-DWDM-BM; (xxxiii) ONS 15454 40  
22 Gbps CP-DQPSK Full C-Band Tunable Transponder Card; (xxxiv) 15454-40E-TXP-  
23 C; (xxxv) 15454-40EX-TXP-C; (xxxvi) 15454-40ME-TXP-C; (xxxvii) ONS 15454  
24 100-Gbps CP-DQPSK Full C-Band Tunable DWDM Trunk Card; (xxxviii) 15454-M-  
25 100G-LC-C; (xxxix) 15454-M-100G-ME-C; (xl) 15454-M-100GC-LIC; (xli) ASR  
26 9000 400-Gbps IPoDWDM Line Card; (xlii) A9K-400G-DWDM-TR; (xliii) Cisco  
27 CRS 1-Port 100 Gigabit Ethernet Coherent DWDM Interface Module; (xliv) 1-100GE-  
28 DWDM/C; (xlv) CO100TDL; (xlvi) CO200TDL; (xlvii) CO400TDL; and (xlviii)

1 NCS4K-4H-OPW-LO.

2 49. Herein, the term “Accused Instrumentalities” means all of the products  
3 identified in Paragraphs 47-48 *supra*.

4 50. As alleged in the Cisco Complaint, when the Accused Instrumentalities  
5 are used in their ordinary, intended fashion, such use constitutes direct infringement of  
6 the Asserted Claims of the ’211 patent. *See* Ex. 2, ¶¶ 19-42.

7 **THE DEFENDANTS’ INFRINGING USE**

8 51. On information and belief, Defendants Charter, Verizon, Google,  
9 Comcast, Microsoft, AT&T, and/or their affiliates (including some or all of DOES 1-  
10 10) have directly infringed each Asserted Claim of the ’211 patent, by using one or  
11 more of the Accused Instrumentalities within the United States, less than six years  
12 before the filing of this Complaint, and prior to the November 4, 2019 expiration date  
13 of the ’211 patent (the “Relevant Time Period”).

14 52. On information and belief, each Defendant purchased one or more of the  
15 Accused Instrumentalities from Cisco, and used such Accused Instrumentalities within  
16 the United States during the Relevant Time Period. For the reasons set forth in  
17 Paragraphs 19-42 of the Cisco Complaint, which are incorporated herein by reference  
18 in their entirety, such use constituted direct infringement of the Asserted Claims of the  
19 ’211 patent by the Defendants.

20 53. As for Charter, an article shows that Charter deployed CRS-3 and ASR  
21 9000 Series Platforms in 2011. *See* Exhibit 3 at 1. The article indicates that the deployed  
22 equipment provided “100 Gigabit Ethernet” capability. *Id.* at 2. On information and  
23 belief, this 100 Gigabit Ethernet capability was enabled by the use of Cisco line cards  
24 or modules that performed infringing dual-polarization communication. *See, e.g.,*  
25 Exhibit 4 (CableLabs June 29, 2018 P2P Coherent Optics Architecture Specification)  
26 at 51 (noting that “David Claussen, John Williams, Marek Hajduczenia, Kevin Kwasny,  
27 [and] Richard Zhou” of “Charter” were part of the “P2P Coherent Optics Working  
28 Group” that produced this document) and 21 (noting that coherent optics “us[e]

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1 amplitude and phase of light, *as well as two orthogonal polarizations*, to transmit  
 2 multiple bits per symbol across fiber . . . [t]his is known as polarization multiplexing”);  
 3 *see also* Exhibit 5 (LinkedIn page for Gary Lim, Charter’s “Principal Engineer II” from  
 4 December 2014 to March 2017) at 1-3 (indicating that Mr. Lim “Developed Metro Area  
 5 Network migration strategy from 10-Gig 40-Channel to **100-Gig** 40-Channel” for  
 6 Charter, and worked with “100G **DP**-QPSK, 200G **DP**-16QAM” equipment and “**DP**-  
 7 QPSK and **DP**-16QAM optical modulation.”) On information and belief, and based on  
 8 the foregoing information (including Mr. Lim’s LinkedIn page), Charter’s use of the  
 9 CRS-3, ASR 9000, and/or other Cisco Platforms to perform infringing dual-  
 10 polarization communication continued into the Relevant Time Period. Such use  
 11 constituted direct infringement of the Asserted Claims.

12 54. Additionally, the LinkedIn page for Charter’s Network Engineer Stuart  
 13 Robinson indicates that, while working for Charter from July 2016 to August 2020, Mr.  
 14 Robinson worked to deploy CRS Platforms and ASR 9000 Series Platforms. *See*  
 15 Exhibit 6 at 2. This confirms that Charter used the CRS and ASR platforms—two of  
 16 the Accused Instrumentalities—to perform infringing dual-polarization communication  
 17 within the United States during the Relevant Time Period.

18 55. Similarly, the LinkedIn page of Charter’s “Network Engineer III” Alnita  
 19 Miller (Exhibit 24) indicates that Ms. Miller has worked for Charter from August 2017  
 20 to the present. Ex. 24 at 1-2. Her LinkedIn page states that, during that period, the  
 21 Charter “Business Network” included “CISCO M6/M15, CISCO 15454  
 22 SONET/ROADM/SDH” devices, with speeds up to “100G” and “400G.” *Id.* at 1. On  
 23 information and belief, the only way the accused CISCO M6/M15 and ONS 15454  
 24 systems can achieve speeds of “100G” or “400G” is to use them with line cards that  
 25 perform infringing dual-polarization communication. Thus, Ms. Miller’s LinkedIn  
 26 page confirms that Charter used Accused Instrumentalities in the United states, during  
 27 the Relevant Time Period, to perform infringing dual-polarization communication.

28 56. Based on the foregoing information, and on information and belief,

1 Charter used Accused Instrumentalities in an infringing manner, during the Relevant  
2 Time Period, in the United States. On information and belief, Charter used the Accused  
3 Instrumentalities in providing “Spectrum” Internet, TV and telephone services to  
4 residential customers in the United States. On information and belief, Charter also used  
5 the Accused Instrumentalities in providing Spectrum Business Internet, TV, and  
6 telephone services to business customers in the United States. On information and  
7 belief, Charter also used the Accused Instrumentalities in providing cloud computing,  
8 cloud storage, and other data services to customers in the United States. On information  
9 and belief, Charter used the Accused Instrumentalities to operate fiberoptic networks  
10 in the United States for itself and for its customers.

11 57. As for Verizon, a February 2019 press release (which is during the  
12 Relevant Time Period) shows that Verizon worked with Cisco to use NCS 1000 and  
13 2000 Series Platforms in the U.S. *See* Exhibit 25 (press release). The press release states  
14 that Verizon used the “NCS 1004 in a real-world environment,” in “Verizon’s 80km  
15 Dallas loop” (within the United States). *Id.* at 2. Further, the press release states that the  
16 NCS 1004 used by Verizon was “powered by Acacia’s Pico Digital Signal Processor  
17 chip,” and that it “provides 8 coherent DWDM ports that operate from 100G to 600G.”  
18 *Id.* Acacia’s “Pico” chip is the chip used in Acacia’s AC1200 module. *See*  
19 <https://acacia-inc.com/product/ac1200/>. Publicly-available information indicates that  
20 the AC1200 chip performs dual-polarization (e.g., DP-QSPK) communication. *See*  
21 Exhibit 7 (datasheet for the Lumacron Kairos 11200) at 2 (indicating that the Acacia  
22 AC1200 uses “DP-8QAM” and “DP-QPSK” modulation). Thus, the press release,  
23 combined with other public information, demonstrates that Verizon used Accused  
24 Instrumentalities in the United States, during the Relevant Time Period, to perform  
25 infringing dual-polarization communication.

26 58. Additionally, a white paper produced by Cisco shows that Verizon  
27 deployed NCS 2000 and 4000 Series Platforms in the United States during the Relevant  
28 Time Period. *See* Exhibit 8 (Cisco white paper, “Network Modernization: A TDM to



1 IP Solution”) at 2 (indicating that the document describes a “case study of Verizon’s  
2 circuit-to-packet modernization”) and 7 (indicating that “Verizon is using the Cisco  
3 NCS 4200 today in edge offices as well as core central offices,” and that “[t]he NCS  
4 2000 and NCS 4000 platforms are also deployed.”) The document indicates that  
5 Verizon used these platforms to perform “100GE” (i.e., 100 Gigabit Ethernet)  
6 communication. *Id.* at 8. This confirms that Verizon used the NCS Series Platforms  
7 (which are Accused Instrumentalities) to perform infringing dual-polarization  
8 communication within the United States during the Relevant Time Period.

9       59. Based on the foregoing information, and on information and belief,  
10 Verizon used Accused Instrumentalities in an infringing manner, during the Relevant  
11 Time Period, in the United States. On information and belief, Verizon used Accused  
12 Instrumentalities to provide telecommunication, cloud computing, and data services to  
13 customers in the United States. On information and belief, Verizon used Accused  
14 Instrumentalities in connection with providing telecommunication services to  
15 customers in the United States, including Internet Service Provider (ISP), telephone,  
16 and television services. On information and belief, Verizon used Accused  
17 Instrumentalities in connection with providing Enterprise Business, Small Business,  
18 and Residential telecommunication services to customers in the U.S. On information  
19 and belief, Verizon used Accused Instrumentalities to operate fiberoptic networks in  
20 the United States for itself and for its customers.

21       60. As for Google, the LinkedIn page of Ravi Chandran (Exhibit 9) shows that  
22 Google used accused Cisco NCS 1002 and NCS 2006 systems during the Relevant  
23 Time Period. Mr. Chandran is a Senior Transmission Engineer with IT company Wipro  
24 Limited. Ex. 9 at 1. Mr. Chandran’s duties at Wipro, from January 2019 on (within the  
25 relevant time period), include “Providing Technical support to the Google Global  
26 Optical Network.” *Id.* According to Mr. Chandra, the “Google Global Optical  
27 Network” includes “Network Infrastructure comprising multi-vendor platforms  
28 (Alcatel 1830 PSS, BTI 7000Series, Ciena 6500, *Cisco NCS1002, CiscoNCS2006*)”.

1 *Id.* Because the Google **Global** Optical Network includes accused Cisco NCS 1002 and  
2 NCS 2006 Platforms, on information and belief, such Platforms are used in the United  
3 States (which is Google’s headquarters and primary place of business).

4 61. Similarly, the LinkedIn page of Adrian Pigott, “Optical Transport  
5 Engineer at Google,” confirms that the “Google Global Optical Network Infrastructure”  
6 includes “Cisco NCS1002” and “CiscoNCS2006” Platforms. Exhibit 10 (Pigott  
7 LinkedIn page) at 1-2. Because Google’s **Global** Optical Network includes Cisco NCS  
8 1002 and NCS 2006 Platforms, on information and belief, such Platforms are used in  
9 the United States (which is Google’s headquarters and primary place of business).

10 62. Finally, the LinkedIn page of Jeremy Ridley, Google’s Network  
11 Operations Engineer from August 2015 through July 2017, confirms that Google used  
12 the Cisco NCS 1002 and 2006 Platforms **in the United States** during the relevant time  
13 period. Exhibit 11 (Ridley LinkedIn page) at 2-3. Mr. Ridley worked at Google’s  
14 facility in “Thornton, CO,” within the United States. *Id.* While there, he worked on the  
15 “CiscoNCS1002” and “Cisco NCS 2006” systems. *Id.* This confirms that Google used  
16 Accused Instrumentalities in the United States, during the relevant time period, to  
17 perform infringing dual-polarization optical communication.

18 63. Based on the foregoing information, and on information and belief,  
19 Google used Accused Instrumentalities in an infringing manner, during the Relevant  
20 Time Period, in the United States. On information and belief, Google used Accused  
21 Instrumentalities in providing cloud computing and cloud storage services to customers  
22 in the United States. On information and belief, Google used Accused Instrumentalities  
23 in providing web search and advertising services to customers in the United States. On  
24 information and belief, Google used Accused Instrumentalities in providing Google  
25 Suite and Google Workspace products and services to customers in the United States.  
26 On information and belief, Google used Accused Instrumentalities in providing Gmail,  
27 Google Drive, Google Docs, Google Slides, Google Calendar, Google Chat, Google  
28 Contacts, and other Software as a Service (SaaS), Platform as a Service (PaaS), and

1 Infrastructure as a Service (IaaS) products and services to customers in the United  
2 States. On information and belief, Google used Accused Instrumentalities in providing  
3 Google App Engine and Google Compute Engine products and services to customers  
4 in the United States. On information and belief, Google used Accused Instrumentalities  
5 to provide Google Fiber and other telecommunication services to customers in the  
6 United States. On information and belief, Google used Accused Instrumentalities to  
7 operate fiberoptic networks in the United States for itself and for customers.

8 64. As for Comcast, the LinkedIn page of Comcast’s Colorado-based  
9 Engineer Michael Erickson indicates that, while working for Comcast from December  
10 2014 to May 2016, Mr. Erickson worked on network devices from the Cisco CRS and  
11 ASR 9000 Series Platforms. *See* Exhibit 12 (Erickson LinkedIn page) at 1-3. This  
12 confirms that Comcast used the CRS and ASR Series 9000 Platforms—which are  
13 Accused Instrumentalities—within the United States during the relevant time period.

14 65. Moreover, in June 2012, Comcast was sued by Telecommunications  
15 Research Laboratories (“TR Labs”) for infringement of various TR Labs patents. *See*  
16 Exhibit 13 (Second Amended Complaint, D. Co. Case No. 12-cv-00581). The  
17 Complaint alleges that “[t]he mesh telecommunications networks operated and/or  
18 employed by Comcast [in the United States] have deployed at least ***Cisco ONS 15454***  
19 ***Multiservice platforms***,” which are Accused Instrumentalities. *Id.* at 5. On information  
20 and belief, Comcast continued to employ the ONS 15454 Platforms in the United States  
21 during the Relevant Time Period, which constitutes infringement.

22 66. Furthermore, Comcast has posted a job listing for Mt. Laurel, New Jersey  
23 (in the United States) for an “Optical Transport Engineer.” *See* Exhibit 14 (Comcast  
24 job posting). The job listing is for an engineer proficient with the Cisco “ONS 15454  
25 M6 MSTP” and “ONS 15454 M12 MSTP,” which are Accused Instrumentalities.  
26 Comcast would not post a job listing for an engineer to work with these Accused  
27 Instrumentalities, in the United States, unless Comcast was actually using these  
28 Accused Instrumentalities in the United States. Thus, the listing confirms that Comcast

1 is using ONS 15454 Platforms in the United States—and on information and belief,  
2 such use stretches back into the Relevant Time Period. Meanwhile, the job listing states  
3 that the candidate must have experience with “DWDM, Next-Gen DWDM, [and]  
4 100G” communication. *Id.* This confirms that Comcast used the ONS 15454 systems  
5 to perform infringing dual-polarization communication during the Relevant Time  
6 Period in the United States, as the ONS 15454 system only achieves “100G” or greater  
7 speeds when it is used with dual-polarization line cards.

8 67. Finally, “Phil Miguelez, Phillip Chang, Robert Howald, and Venk  
9 Mutalik” of “Comcast” were part of the “P2P Coherent Optics Working Group” that  
10 produced the CableLabs document, Exhibit 4, which expressly discusses the use of  
11 polarization multiplexing in cable companies’ optical networks. Exhibit 4 at 21. This  
12 further confirms that Comcast use the Accused Instrumentalities to perform infringing  
13 dual-polarization communication in the U.S. during the Relevant Time Period.

14 68. Based on the foregoing information, and on information and belief,  
15 Comcast used Accused Instrumentalities in an infringing manner, during the Relevant  
16 Time Period, in the United States. On information and belief, Comcast used Accused  
17 Instrumentalities in providing “Xfinity” internet, TV and telephone services to  
18 residential customers in the United States. On information and belief, Comcast used  
19 Accused Instrumentalities in providing Comcast Business internet, TV, and telephone  
20 services to business customers in the United States. On information and belief, Comcast  
21 also used Accused Instrumentalities in providing cloud computing, cloud storage, and  
22 other data services to customers in the United States. On information and belief,  
23 Comcast used Accused Instrumentalities to operate fiberoptic networks in the United  
24 States for itself and for customers.

25 69. As for Microsoft, the LinkedIn page for Cisco’s High Touch Technical  
26 Support employee, Anil Kumar Samala, indicates that, while working for Cisco in  
27 North Carolina (which is within the United States) from December 2017 to present, Mr.  
28 Samala was assigned to the Microsoft account, and dealt with core infrastructure

1 support for the NCS 5500 Series and ASR 9000 Series Platforms. *See* Exhibit 15 (Anil  
2 Samala LinkedIn page) at 1. This confirms that Microsoft used the NCS 5500 and ASR  
3 9000 Series Platforms—which are Accused Instrumentalities—to perform dual-  
4 polarization communication within the United States during the Relevant Time Period.

5 70. Based on the foregoing information, and on information and belief,  
6 Microsoft used Accused Instrumentalities in an infringing manner, during the Relevant  
7 Time Period, in the United States. On information and belief, Microsoft used Accused  
8 Instrumentalities to provide cloud computing and/or data center services to customers  
9 in the United States. On information and belief, Microsoft used Accused  
10 Instrumentalities in connection with providing Microsoft Azure services to customers  
11 in the U.S. On information and belief, Microsoft used Accused Instrumentalities to  
12 operate fiberoptic networks in the U.S. for itself and for customers.

13 71. As for AT&T, the LinkedIn profile of AT&T’s Network Engineer  
14 Bhushan Saindre indicates that, while working for AT&T in New Jersey from  
15 September 2015 to the present, Mr. Saindre worked on the ASR 9000 Series and the  
16 NCS 5500 Series Platforms. *See* Exhibit 16 (Saindre LinkedIn Page) at 1-2. This  
17 confirms that AT&T used the ASR 9000 and NCS 5500 Series Platforms—which are  
18 Accused Instrumentalities—to perform infringing dual-polarization optical  
19 communication within the United States during the relevant time period.

20 72. AT&T further has posted, e.g., El Segundo, California job listings for  
21 engineers familiar with the NCS 5500 system. *See, e.g.,*  
22 <https://att.taleo.net/careersection/10161/jobdetail.ftl?job=2110109> (listing for El  
23 Segundo, California, requiring “Strong knowledge base in Cisco ASR, Nexus and NCS  
24 5500 series equipment”). On information and belief, AT&T required engineers with  
25 “strong knowledge” of the NCS 5500 in California because it was using such equipment  
26 in California. On information and belief, this use dates back into the Relevant Time  
27 Period, which constitutes infringing use of the accused methods.

28 73. Furthermore, according to an article in the industry publication

1 LightReading (Exhibit 17), in April 2011, AT&T began using Cisco’s “CRS-3”  
2 Platform (an Accused Instrumentality) to perform “100Gbit/s” communication. Exhibit  
3 17 at 1-2. On information and belief, this 100G CRS-3 installation used line cards that  
4 performed infringing dual-polarization communication, because that is how the CRS-3  
5 system can be used to perform 100G+ communication. On information and belief,  
6 AT&T continued this infringing use into the Relevant Time Period, which constitutes  
7 actionable infringement in this case.

8 74. Indeed, an article in the August 2010 issue of IEEE Communications  
9 Magazine confirms that AT&T has used Cisco equipment to perform dual-polarization  
10 communication. *See* Exhibit 18 (Article, “Coherent 100 Gb/2 PM-QPSK field trial”).  
11 The article describes a “field trial” conducted between “AT&T Labs” and Cisco. *Id.* at  
12 2. The field trial used Cisco equipment to perform “coherent 100G polarization  
13 multiplexed quadrature phase shift keyed (PM-QPSK)” communication. *Id.* at 2. This  
14 confirms that AT&T has used Cisco equipment to perform infringing dual-polarization  
15 communication, and on information and belief, that infringing use continued into the  
16 Relevant Time Period.

17 75. This is confirmed by a 2010 Cisco Presentation titled “IPoDWDM.” *See*  
18 Exhibit 19 (Cisco Presentation). The presentation states that Cisco chose “**one**  
19 **solution**” for 100G communication—“**PM-QPSK**,” or polarization-multiplexed  
20 QPSK. Ex. 19 at 56-57. The presentation further states that Cisco “launched the  
21 industry’s first 100GE interface” using PM-QPSK, which launched in “March 2010”  
22 using “100GigE on **CRS-3 – live [at] AT&T.**” *Id.* at 67. This confirms that AT&T began  
23 using the CRS-3 to perform infringing dual-polarization communication at least as  
24 early as March 2010. On information and belief, that infringing use continued into the  
25 Relevant Time Period, constituting actionable infringement.

26 76. That the infringing use continued into the Relevant Time Period is  
27 confirmed by an April 11, 2011 article in Multichannel News, titled “Comcast, AT&T  
28 Building 100-Gig Backbones with Cisco.” *See* Exhibit 20 (article). The article states

1 that AT&T was “deploying Cisco Systems’ CRS-3 core routers with standard 100  
2 Gigabit Ethernet interfaces” to build out its “backbone” 100G network. *Id.* at 1-2. As  
3 discussed above, the CRS-3 performs 100G communication by using line cards that  
4 perform dual-polarization optical communication. Thus, this article confirms that, by  
5 April 2011, AT&T’s 100G “backbone” included CRS-3 systems that perform dual-  
6 polarization communication. Since these are “backbone” systems, on information and  
7 belief, AT&T continued using them until the Relevant Time Period. Such use is  
8 actionable infringement in this case.

9       77. Based on the foregoing information, and on information and belief, AT&T  
10 used Accused Instrumentalities in an infringing manner, during the Relevant Time  
11 Period, in the United States. On information and belief, AT&T used Accused  
12 Instrumentalities to provide telecommunication services to customers in the U.S.,  
13 including Internet Service Provider (ISP), telephone, and television services. On  
14 information and belief, AT&T used Accused Instrumentalities in connection with  
15 providing Enterprise Business, Small Business, and Residential telecommunication  
16 services to customers in the U.S. On information and belief, AT&T used Accused  
17 Instrumentalities in connection with providing fiber-to-the-premises services in the  
18 United States. On information and belief, AT&T used Accused Instrumentalities in  
19 connection with providing cloud computing and/or data center services in the United  
20 States. On information and belief, AT&T used Accused Instrumentalities to operate  
21 fiberoptic networks in the United States for itself and for its customers.

22       78. Accordingly, each Defendant used Accused Instrumentalities in the  
23 United States during the Relevant Time Period. For the reasons set forth in Paragraphs  
24 19-42 of the Cisco Complaint—which are incorporated herein by reference—and the  
25 additional reasons set forth above, such use constituted direct infringement of the  
26 Asserted Claims. Thus, each Defendant committed direct infringement of the Asserted  
27 Claims during the Relevant Time Period.

28

## MARKING

1  
2 79. Core has never made, sold, used, offered to sell, or imported into the  
3 United States any article that practices any claim of the '211 Patent. Core has never  
4 sold, commercially performed, or offered to commercially perform any service that  
5 practices any claim of the '211 Patent.

6 80. Prior to October 21, 2014, Core had never authorized, licensed, or in any  
7 way permitted any third party to practice any claim of the '211 Patent.

8 81. Moreover, Core alleges that Defendants infringe *only* method claims of  
9 the '211 patent. Core does not allege that Defendants infringe any apparatus claims of  
10 the '211 patent. The marking requirement of 35 U.S.C. § 287(a) does not apply when  
11 a patentee only asserts infringement of method claims. *See Crown Packaging Tech.,*  
12 *Inc. v. Rexam Beverage Can Co.*, 559 F.3d 1308, 1316 (Fed. Cir. 2009); *Hanson v.*  
13 *Alpine Valley Ski Area, Inc.*, 718 F.2d 1075, 1082-83 (Fed. Cir. 1983).

14 82. Because Core has never directly marketed any product or service that  
15 practices any of the claimed inventions of the '211 Patent, and no third party was  
16 authorized to practice any claimed inventions of the '211 patent prior to October 21,  
17 2014, 35 U.S.C. § 287(a) cannot prevent or otherwise limit Core's entitlement to  
18 damages for acts of infringement that occurred prior to October 21, 2014.

19 83. Because Core alleges that Defendants infringe only method claims of the  
20 '211 patent, 35 U.S.C. § 287(a) does not apply, even for acts of infringement that  
21 occurred after October 21, 2014. Thus, 35 U.S.C. § 287(a) does not limit Core's  
22 entitlement to damages against Defendants, in any way, for any period of time.

23 84. In another pending case, *Core Optical Techs., LLC v. Nokia Corp. et al.*,  
24 C.D. Cal. Case No. 19-cv-02190 ("the *Nokia* case"), the court has ruled that the  
25 marking requirement does not apply, because Core is asserting only method claims  
26 against the *Nokia* Defendants. *See Nokia* case, Dkt. 61 at 5-7.

## DEFENDANTS' KNOWLEDGE OF THE '211 PATENT

27  
28 85. On information and belief, and for the reasons set forth below, each



1 Defendant knew of the existence and relevance of the '211 patent when they committed  
2 the infringing acts described in Paragraphs 51-78 above.

3 86. On information and belief, each Defendant knew of the '211 Patent's  
4 existence and relevance due to Core's filing of complaints for infringement of that  
5 patent in: (1) Central District of California Case No. SACV 12-1872 AG, styled *Core*  
6 *Optical Technologies, LLC v. Ciena Corporation, et al.* (filed October 29, 2012); (2)  
7 Central District of California Case No. SACV 16-0437 AG, styled *Core Optical*  
8 *Technologies, LLC v. Fujitsu Network Communications, Inc.* (filed March 7, 2016);  
9 and (3) Central District of California Case No. SACV 8:17-cv-00548AG, styled *Core*  
10 *Optical Technologies, LLC v. Infinera Corp.* (filed March 24, 2017).

11 87. On information and belief, as major participants in the optical  
12 networking industry, Defendants monitor patent lawsuits against other participants in  
13 the industry. On information and belief, through such monitoring, Defendants knew  
14 of—or were willfully blind to—the existence of the '211 Patent, due to Core's three  
15 prior lawsuits against other industry suppliers/manufacturers. Through such  
16 monitoring, Defendants knew—or were willfully blind—that normal use of the  
17 Accused Instrumentalities infringes the '211 patent.

18 88. Moreover, Defendants knew of the existence and relevance of the '211  
19 patent because Defendants are all Cisco customers for the Accused Instrumentalities,  
20 and Cisco knew of the '211 patent at least as early as July 7, 2016.

21 89. On February 5, 2021, Cisco served Supplemental Responses to  
22 Interrogatories in the *Cisco* case. Cisco's Supplemental Response to Interrogatory No.  
23 7 stated: "Cisco became aware of the existence of the '211 patent on or about July 7,  
24 2016 when informed by its customer Fujitsu of the lawsuit brought by Core Optical  
25 against Fujitsu." Thus, Cisco knew of the '211 patent—and knew that Core was  
26 asserting it against optical networking companies—by July 7, 2016 at the latest.

27 90. On information and belief, as a sophisticated company, Cisco reviewed  
28 the '211 patent after it learned about it from Fujitsu. On its face, it is clear that the '211

1 patent covers any optical systems that use dual-polarization modulation, because all  
2 such systems must have an “XPIC”—i.e., a mechanism that reconstructs the originally-  
3 transmitted signals from the received signals. Thus, on information and belief, when  
4 Cisco reviewed the ‘211 patent, it learned—or else it was willfully blind—that the  
5 Accused Instrumentalities perform dual-polarization communication in accordance  
6 with the Asserted Claims of the ‘211 patent.

7 91. On information and belief, as a sophisticated company—which may have  
8 had an obligation to indemnify its customers for patent infringement—Cisco informed  
9 its major customers for the Accused Instrumentalities of the ‘211 patent shortly after  
10 Cisco learned of it on July 7, 2016. On information and belief, shortly after July 7,  
11 2016, Cisco informed its major customers—including the Defendants—both of the  
12 existence of the ‘211 patent, and that there was a high risk that use of the Accused  
13 Instrumentalities infringes the Asserted Claims of the ‘211 patent.

14 92. Defendants persisted in their infringing use of the Accused  
15 Instrumentalities despite having learned, through Cisco or otherwise, of the ‘211 patent,  
16 and that use of the Accused Instrumentalities infringes that patent.

17 93. On information and belief, one or more of the Defendants were also  
18 notified of the ‘211 patent by Fujitsu, on or about July 7, 2016. On information and  
19 belief, many or all of the Defendants were also customers of Fujitsu, including being  
20 customers for the Fujitsu equipment accused of infringement in the *Fujitsu* case. Since  
21 Fujitsu notified Cisco of the ‘211 patent on or about July 7, 2016, on information and  
22 belief, Fujitsu also notified those of the Defendants who were Fujitsu customers on or  
23 about that date. Thus, by this additional means, one or more of the Defendants knew of  
24 the ‘211 patent, and knew that use of dual-polarization optical equipment likely  
25 infringes the Asserted Claims of that patent, by on or about July 7, 2016.

26 94. Because Defendants persisted in their infringing use of the Accused  
27 Instrumentalities despite knowing, by July 7, 2016 or earlier, that such use constituted  
28 infringement, Defendants’ infringement was willful.

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**JOINDER**

95. Joinder of all Defendants is proper under 35 U.S.C. § 299(a).

96. Core accuses all Defendants of infringing the Asserted Claims by using the Accused Instrumentalities in the United States. Thus, Core’s “right to relief” against all Defendants arises out of Defendants’ “using . . . [in] the United States . . . the *same accused product or process*,” as required by 35 U.S.C. § 299(a)(1).

97. Moreover, “questions of fact common to all defendants . . . will arise in the action,” as required by 35 U.S.C. § 299(a)(2). These include, at least: (i) questions as to whether use of the Accused Instrumentalities infringes the Asserted Claims; and (ii) questions relating to the value of the patented technology to those Instrumentalities.

98. Thus, joinder of all Defendants is proper under 35 U.S.C. § 299(a).

**COUNT I – DIRECT PATENT INFRINGEMENT**

99. Core repeats and realleges each and every allegation contained in Paragraphs 1-98 above as if fully set forth herein.

100. Each Defendant has committed direct infringement of each Asserted Claim of the ‘211 patent, in violation of 35 U.S.C. § 271(a), by performing all the steps of each Asserted Claim in the United States, during the Relevant Time Period.

101. As set forth in Paragraphs 51-78 *supra*, each Defendant used Accused Instrumentalities within the United States during the Relevant Time Period. For the reasons set forth in Paragraphs 19-42 of the Cisco Complaint, which are incorporated herein by reference, such use constitutes direct infringement of each Asserted Claim of the ‘211 patent. Thus, each Defendant has directly infringed each Asserted Claim of the ‘211 patent during the Relevant Time Period.

**REMEDIES, ENHANCED DAMAGES, EXCEPTIONAL CASE**

102. Core repeats and realleges each and every allegation contained in Paragraphs 1-101 *supra*, as if fully set forth herein.

103. Defendants’ direct infringement of the ‘211 patent has caused, and will continue to cause, significant damage to Core. As a result, Core is entitled to an award

1 of damages adequate to compensate it for Defendants’ infringement, but in no event  
2 less than a reasonable royalty pursuant to 35 U.S.C. § 284. Core is also entitled to  
3 recover prejudgment interest, post-judgment interest, and costs.

4 104. For at least the reasons set forth in Paragraphs 85-94 *supra*, during the  
5 Relevant Time Period, Defendants knew (or were willfully blind) that the Accused  
6 Instrumentalities are configured to infringe the Asserted Claims of the ’211 Patent  
7 during normal use. Despite this known, objectively-high risk that their actions  
8 constituted direct infringement, Defendants continued to directly infringe the ’211  
9 patent, up to the expiration of the ’211 patent on November 4, 2019. Accordingly,  
10 Defendants’ infringement has been willful.

11 105. In addition to being willful, Defendants’ conduct has been egregious.

12 106. As set forth in Paragraphs 85-94 *supra*, despite knowing of (or being  
13 willfully blind to) their infringement, Defendants continued to infringe, on a large  
14 scale, until the ’211 patent expired. Defendants are large companies with hundreds of  
15 millions, or billions, of dollars in annual revenue. Meanwhile, Plaintiff is a small  
16 company, owned by an individual inventor. On information and belief, Defendants  
17 persisted in their willful infringement, at least in part, because they believed they  
18 could use their superior resources to overwhelm Plaintiff in litigation. If proven, this  
19 would constitute “egregious” conduct, warranting enhanced damages.

20 107. Moreover, the validity of the ’211 patent has been thrice confirmed by  
21 the Patent Trial and Appeal Board (“PTAB”), in: (i) IPR2016-01618, filed by Fujitsu  
22 Network Communications, Inc.; (ii) IPR2018-01259, filed by Infinera Corporation;  
23 and (iii) IPR2020-01664, filed by Nokia and Juniper. In all three *Inter Partes* Review  
24 proceedings, the Petitioners—who were defendants in litigation—cited numerous  
25 prior art references, to attempt to establish that claims of the ’211 patent, including  
26 the Asserted Claims, were invalid. Yet, in all three cases, the PTAB *denied*  
27 institution, finding that the Petitioners had failed to establish a “reasonable  
28 likelihood” that *any* claim of the ’211 patent was invalid. *See* Ex. 21 (decision

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1 denying review in IPR2016-01618); Ex. 22 (decision denying review in IPR2018-  
2 01259); Ex. 23 (decision denying review in IPR2020-01664). Because the PTAB has  
3 already rejected three extensive invalidity challenges to the '211 patent, Defendants  
4 cannot reasonably believe that they have a viable invalidity defense. Defendants'  
5 decision to persist in known, clearly-infringing conduct, despite the lack of any viable  
6 invalidity defense, is further evidence of "egregiousness."

7 108. For at least the foregoing reasons, Defendants' conduct has been willful  
8 and egregious. Accordingly, under 35 U.S.C. § 284, the Court should enhance Core's  
9 damages in this case by up to three times the amount found or assessed.

10 109. For at least the foregoing reasons, this case is an "exceptional" case  
11 within the meaning of 35 U.S.C. § 285. Accordingly, Core is entitled to an award of  
12 attorneys' fees and costs, and the Court should award such fees and costs.

13 **PRAYER FOR RELIEF**

14 WHEREFORE, Core prays for relief as follows:

- 15 1. That judgment be entered in favor of Core, and against Defendants;
- 16 2. That Core be awarded damages adequate to compensate it for  
17 Defendants' infringement of the Asserted Claims of the '211 Patent, in an amount to  
18 be determined at trial, as well as interest thereon;
- 19 3. That Core be awarded the costs of suit;
- 20 4. That Defendants' infringement be declared willful and egregious;
- 21 5. That the Court increase Core's damages up to three times the amount  
22 assessed under 35 U.S.C. § 284;
- 23 6. That the Court declare this an exceptional case under 35 U.S.C. § 285,  
24 and award Core its attorneys' fees and costs incurred in this action; and
- 25 7. That the Court grant such further relief as it deems just and proper.

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**JURY TRIAL DEMAND**

Core demands a jury trial on all issues so triable.

DATED: April 26, 2021

GLASER WEIL FINK HOWARD  
AVCHEN & SHAPIRO LLP

By: /s/Lawrence M. Hadley

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