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Plaintiff Core Optical Technologies, LLC ("Plaintiff" or "Core"), by and through its undersigned counsel, hereby files this Complaint against Defendants Amazon.com, Inc. ("Amazon"), CenturyLink, Inc. ("CenturyLink"), and DOES 1-10 (collectively, "Defendants"). For its complaint, Core alleges as follows:

THE PARTIES

- 1. Core is a limited liability company organized and existing under the laws of the state of California. Core has a principal place of business at 18792 Via Palatino, Irvine, California 92603.
- 2. Defendant Amazon is a corporation organized and existing under the laws of the state of Delaware, with a principal place of business at 410 Terry Ave. North, Seattle, WA, 98109-5210.
- Defendant CenturyLink (d/b/a "Lumen Technologies") is a corporation 3. organized and existing under the laws of the state of Louisiana, with a principal place of business at 100 CenturyLink Drive, Monroe, LA 71203.
- 4. Defendants DOES 1-10 are corporate affiliates of Amazon and/or CenturyLink who participated in the infringing acts complained of herein. The identities of DOES 1-10 are currently unknown, because publicly-available information does not permit an identification of the specific affiliates of Defendants who participated in the infringing acts. Core expects the identities of DOES to be revealed in discovery. Core reserves the right to amend this Complaint to name the DOE Defendants once their identities have been revealed.

JURISDICTION

5. This is an action for infringement of method claims, and *only* method claims, of U.S. Patent No. 6,782,211, entitled "Cross Polarization Interface [sic] Canceler," which was duly issued by the United States Patent and Trademark Office on August 24, 2004 ("the '211 patent"). The asserted claims in this case are only method claims 30, 32, 33, 35 and 37 of the '211 patent ("the Asserted Claims"). A

copy of the '211 patent is attached as Exhibit 1 to this Complaint.

- 6. This Court has subject matter jurisdiction over this case under 28 U.S.C. §§ 1331 and 1338(a), because the claims arise under the patent laws of the United States, 35 U.S.C. §§ 1, *et seq*.
 - 7. This Court has personal jurisdiction over each Defendant, because:

Amazon

- 8. This Court has general personal jurisdiction over Amazon because Amazon conducts systematic and regular business within the state of California. Amazon has tens of thousands of employees in California. Amazon maintains dozens of facilities within California, including offices, fulfillment centers, retail stores (including Whole Foods stores), and other facilities. Amazon also provides cloud computing, data, telecommunication and retail services to tens of millions of customers in California. On information and belief, Amazon derives billions of dollars in annual revenue from its business in California. Such systematic, large-scale, regular business subjects Amazon to general personal jurisdiction in California.
- 9. This Court also has specific personal jurisdiction over Amazon because, on information and belief, Amazon has directly infringed the Asserted Claims by using the Accused Instrumentalities (as defined below) within California, and within this judicial district. On information and belief, Amazon has used the Accused Instrumentalities to provide cloud computing, data, and other services to individuals and businesses within California, and within this judicial district. For the reasons set forth below, such use constitutes infringement of the Asserted Claims. Thus, Amazon is subject to specific personal jurisdiction in this district, because it has committed acts of infringement in California, and Core's claims arise out of such infringement.

CenturyLink

10. This Court has general personal jurisdiction over CenturyLink because CenturyLink conducts regular and systematic business within the state of California. On information and belief, CenturyLink owns and operates multiple commercial data

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- centers within California, including in Burbank, Irvine, Log Angeles, Sacramento, 1 San Diego, San Francisco, Santa Clara, and Sunnyvale, CA. CenturyLink also 2 maintains regular and established places of business at, at least, the following 3 locations within California: (i) 14452 Franklin Ave, Tustin, CA 92780; (ii) 7 Mason, 4 Irvine, CA 92618; (iii) 1550 Marlborough Ave #100, Riverside, CA 92507; (iv) 2461 5 W La Palma Ave, Anaheim, CA 92801; (v) 818 7th St #510, Los Angeles, CA 90017; 6 (vi) 7576 N Del Mar Ave, Fresno, CA 93711; (vii) 305 W Napa Ave, Fresno, CA 7 93706; (viii) 1340 Treat Blvd #100, Walnut Creek, CA 94597; (ix) 1 California St 8 #250, San Francisco, CA 94111; (x) 23965 Connecticut St, Hayward, CA 94545; and 10 (xi) 2953 Bunker Hill Ln #202, Santa Clara, CA 95054. CenturyLink's regular and systematic business in California, including its operation of the foregoing places of 11 business and data centers, subjects it to general personal jurisdiction here. 12
 - 11. This Court also has specific personal jurisdiction over CenturyLink because, on information and belief, CenturyLink has directly infringed the Asserted Claims by using the Accused Instrumentalities (as defined below) within California, and within this judicial district. On information and belief, CenturyLink has used the Accused Instrumentalities to provide fiberoptic telecommunication services to individuals and businesses within California, and within this judicial district, including at the facilities listed above. For the reasons set forth below, such use constitutes direct infringement of the Asserted Claims. Thus, CenturyLink is subject to specific personal jurisdiction in this district, because it has committed acts of infringement in California, and because Core's claims arise out of such infringement.

VENUE

12. Venue is proper over each Defendant in this judicial district under 28 U.S.C. §§ 1391 and/or 1400(b), for at least the following reasons:

Amazon

13. Amazon maintains regular and established places of business in this district, including at least its offices at: (i) 40 Pacifica STE 100, Irvine, CA 92618; (ii)

- centers, and other logistical facilities within this district. Thus, Amazon maintains regular and established places of business in this district.
- 14. On information and belief, Amazon has committed acts of direct infringement within this district, including by using Accused Instrumentalities in connection with its provision of cloud computing, data and other services to customers in this district, and by using Accused Instrumentalities within this district.
- 15. Thus, venue is proper over Amazon under 28 U.S.C. § 1400(b), because Amazon has committed acts of infringement in this district, and because Amazon has regular and established places of business in this district.

<u>CenturyLink</u>

- 16. CenturyLink maintains regular and established places of business in this district, including at least its facilities at: (i) 14452 Franklin Ave, Tustin, CA 92780; (ii) 7 Mason, Irvine, CA 92618; 92507; (iii) 2461 W La Palma Ave, Anaheim, CA 92801; and (iv) 818 7th St #510, Los Angeles, CA 90017.
- 17. On information and belief, CenturyLink has committed acts of direct infringement in this district, including by using Accused Instrumentalities in connection with its provision of telecommunication and/or data center services to retail and business customers within this district, and/or by using Accused Instrumentalities directly within this district.
- 18. Thus, venue is proper over CenturyLink under 28 U.S.C. § 1400(b), because CenturyLink has committed acts of infringement in this district, and because it has regular and established places of business in this district.

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THE ASSERTED PATENT

- 19. Mark Core, the sole named inventor of the '211 patent, earned his Ph.D. in electrical and computer engineering from the University of California, Irvine, and is the Manager of Core Optical Technologies, LLC. The pioneering technology set forth in the '211 patent greatly increases data transmission rates in fiber optic networks, by enabling two optical signals transmitted in the same frequency band, but at generally orthogonal polarizations, to be recovered at a receiver. The patented technology that enables the recovery of these signals includes coherent optical receivers and related methods that mitigate cross-polarization interference associated with the transmission of the signals through the fiber optic network. The coherent receivers and their patented methods mitigate the effects of polarization dependent loss and dispersion effects that limit the performance of optical networks, greatly increasing the transmission distance and eliminating or reducing the need for a variety of conventional network equipment such as amplifiers, regenerators, and compensators. The patented technology set forth in the '211 patent has been adopted by Defendants in, at least, their packet-optical transport solutions described below.
- 20. On November 5, 1998, Mark Core filed with the United States Patent and Trademark Office ("USPTO") Provisional Patent Application No. 60/107,123 ("the '123 application") directed to his inventions. On November 4, 1999, Mark Core filed with the USPTO a non-provisional patent application, U.S. Patent Application No. 09/434,213 ("the '213 application"), claiming priority to the '123 application. On August 24, 2004, the USPTO issued the '211 patent from the '213 application. The entire right, title, and interest in and to the '211 patent, including all rights to past damages, has been assigned to Core in an assignment recorded with the USPTO.
- 21. The Asserted Claims of the '211 patent are all method claims. One of these is claim 33, an independent method claim. Claim 33 is reproduced below, with parenthetical annotations to identify the different elements of the claim:

33. A method comprising:

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

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

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

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

CORE'S LAWSUIT AGAINST ADVA

- 22. On August 8, 2020, Core filed a complaint against ADVA Optical Networking SE and ADVA Optical Networking North America, Inc. ("ADVA"), asserting infringement of the Asserted Claims of the '211 patent, in the Central District of California. The case was assigned No. 20-cv-01463 (the "ADVA case"). A copy of the complaint in the ADVA case is attached as Exhibit 2.
- 23. In the *ADVA* case, Core asserts that ADVA has infringed the Asserted Claims, directly and/or indirectly, by making, selling, using, importing, offering for sale, contributing to, and/or inducing its customers' use of certain "Fiber Optic XPIC Devices." Ex. 2, ¶¶ 21-42, 50-76. The Fiber Optic XPIC Devices are defined as ADVA's devices "that can be configured to mitigate and/or cancel cross polarization interference in received fiber optic signals . . . [t]hese devices include, but are not limited to: (i) the FSP 3000 Series Platforms, including the FSP 3000 AgileConnect, FSP 3000 CloudConnect, and FSP 3000 AccessConnect Platforms (the 'FSP 3000');

- (ii) the ADVA modules, line cards, transponders, muxponders, and other equipment which are used with the FSP 3000 to perform optical communication with polarization-division multiplexing ('PDM') and cross-polarization interference cancelling ('XPIC') (the 'Modules'); and (iii) the software and firmware used to control and operate the FSP 3000 and the Modules to perform optical communication with PDM and XPIC (the 'Software')" (the "Accused Instrumentalities").
- 24. As shown in the ADVA Complaint, when the Fiber Optic XPIC Devices are used in their ordinary, intended fashion, such use constitutes direct infringement of the Asserted Claims of the '211 patent. See Ex. 2, ¶¶ 21-42. Paragraphs 21-42 of the ADVA Complaint, which demonstrate that ordinary use of the Fiber Optic XPIC Devices infringes the Asserted Claims, are fully incorporated by reference herein.

DEFENDANTS' INFRINGING USE

- 25. On information and belief, Amazon, CenturyLink and/or their affiliates (including some or all of DOES 1-10) directly infringed each Asserted Claim of the '211 patent, by using one or more of the Fiber Optic XPIC Devices within the United States, less than six years before the filing of this Complaint, and prior to the November 4, 2019 expiration date of the '211 patent (the "Relevant Time Period").
- 26. On information and belief, each Defendant purchased one or more of the Fiber Optic XPIC Devices from ADVA, and used such Fiber Optic XPIC Devices within the United States, during the Relevant Time Period. For the reasons set forth in Paragraphs 21-42 of the *ADVA* Complaint, which are incorporated by reference herein in their entirety, such use constituted direct infringement of the Asserted Claims of the '211 patent by the Defendants.
- 27. As for Amazon, the LinkedIn page of Amazon's Hardware Networking Engineer Sophia Wilcox indicates that, while working for Amazon from March 2019-February 2020, Ms. Wilcox used "ADVA Optical FSP 3000 Systems." https://www.linkedin.com/in/sophia-wilcox-bb10a235/. This confirms that Amazon used the ADVA FSP 3000—one of the accused Fiber Optic XPIC Devices—within

the United States during the relevant time period.

- 28. On information and belief, Amazon uses the accused Fiber Optic XPIC Devices in connection with providing cloud data services, such as Amazon Web Services (AWS), Amazon Simple Storage Service (S3), and Amazon CloudFront, to customers in the United States. On information and belief, Amazon also uses the accused Fiber Optic XPIC Devices in connection with the provision of Amazon Prime Video services to customers in the United States. On information and belief, Amazon also uses the accused Fiber Optic XPIC Devices for internal data routing and management purposes within Amazon, within the United States.
- 29. As for CenturyLink, the LinkedIn page of CenturyLink's "Outside Plant Engineer" Jason Kha indicates that, while working for CenturyLink from June 2013-Present, Mr. Kha "install[ed] and commission[ed] various type of transport equipment including *ADVA FSP 3000*." https://www.linkedin.com/in/jasonkha/. This confirms that CenturyLink used the ADVA FSP 3000—one of the accused Fiber Optic XPIC Devices—within the United States during the relevant time period.
- 30. On information and belief, CenturyLink uses the accused Fiber Optic XPIC Devices in connection with providing telecommunication services to customers in the United States, including Internet Service Provider (ISP), telephone, and television services. On information and belief, CenturyLink uses the accused Fiber Optic XPIC Devices in connection with providing Enterprise Business, Small Business, and Residential telecommunication services in the U.S. On information and belief, CenturyLink also uses the accused Fiber Optic XPIC Devices in connection with providing fiber-to-the-premises services in the United States, including Quantum Fiber and Gigabit Fiber services. On information and belief, CenturyLink also uses the accused Fiber Optic XPIC Devices in connection with providing cloud computing and/or data center services to customers in the United States.

MARKING

31. Core has never made, sold, used, offered to sell, or imported into the

- United States any article that practices any claim of the '211 Patent. Core has never sold, commercially performed, or offered to commercially perform any service that practices any claim of the '211 Patent.
- 32. Prior to October 21, 2014, Core had never authorized, licensed, or in any way permitted any third party to practice any claim of the '211 Patent.
- 33. Moreover, Core alleges that Defendants infringe *only* method claims of the '211 patent. Core does not allege that Defendants infringe any apparatus claims of the '211 patent. The marking requirement of 35 U.S.C. § 287(a) does not apply when a patentee only asserts infringement of method claims. *See Crown Packaging Tech.*, *Inc. v. Rexam Beverage Can Co.*, 559 F.3d 1308, 1316 (Fed. Cir. 2009); *Hanson v. Alpine Valley Ski Area, Inc.*, 718 F.2d 1075, 1082-83 (Fed.Cir.1983).
- 34. Because Core has never directly marketed any product or service that practices any of the claimed inventions of the '211 Patent, and no third party was authorized to practice any claimed inventions of the '211 patent prior to October 21, 2014, 35 U.S.C. § 287(a) cannot prevent or otherwise limit Core's entitlement to damages for acts of infringement that occurred prior to October 21, 2014.
- 35. Because Core alleges that Defendants infringe only method claims of the '211 patent, 35 U.S.C. § 287(a) does not apply, even for acts of infringement that occurred after October 21, 2014. Thus, 35 U.S.C. § 287(a) does not limit Core's entitlement to damages against Defendants, in any way, for any period of time.
- 36. In *Core Optical Techs., LLC v. Nokia Corp. et al.*, C.D. Cal. Case No. 19-cv-02190 (the "*Nokia* case"), the Court has ruled that the marking statute does not apply, because Core is asserting only method claims. *Nokia*, Dkt. 61 at 5-7.

DEFENDANTS' KNOWLEDGE OF THE '211 PATENT

- 37. On information and belief, and for the reasons set forth below, each Defendant knew of the existence and relevance of the '211 patent when they committed the infringing acts described in Paragraphs 25-30 above.
 - 38. On information and belief, each Defendant knew of the '211 Patent's

Optical Technologies, LLC v. Infinera Corp. (filed March 24, 2017).

- existence and relevance due to Core's filing of complaints for infringement of that
 patent in: (1) Central District of California Case No. SACV 12-1872 AG, styled *Core*Optical Technologies, LLC v. Ciena Corporation, et al. (filed October 29, 2012); (2)

 Central District of California Case No. SACV 16-0437 AG, styled Core Optical

 Technologies, LLC v. Fujitsu Network Communications, Inc. (filed March 7, 2016);
 and (3) Central District of California Case No. SACV 8:17-cv-00548AG, styled Core
 - 39. On information and belief, as major participants in the optical networking industry, Defendants monitor patent lawsuits against other participants in the industry. On information and belief, through such monitoring, Defendants knew of—or were willfully blind to—the existence of the '211 Patent, due to Core's three prior lawsuits against other industry suppliers/manufacturers. Through such monitoring, Defendants knew—or were willfully blind—that normal use of the Fiber Optic XPIC Devices infringes the '211 patent.
 - 40. Moreover, Defendants knew of the existence and relevance of the '211 patent because they are major ADVA customers for the Fiber Optic XPIC Devices.
 - 41. As shown in Paragraphs 60-65 of the *ADVA* Complaint (Ex. 2), which are incorporated by reference herein in their entirety, ADVA knew of the existence and relevance of the '211 patent throughout the Relevant Time Period. On information and belief, as major ADVA customers, Defendants were made aware, through ADVA, of the existence and relevance of the '211 patent during the Relevant Time Period. Accordingly, on information and belief, each Defendant committed infringing acts while: (i) being aware of the '211 patent; and (ii) knowing that normal use of the Fiber Optic XPIC Devices infringes the Asserted Claims.
 - 42. On information and belief, ADVA apprised Defendants of the existence and relevance of the '211 patent prior to, or during, the Relevant Time Period. Thus, on information and belief, all Defendants committed infringing acts with knowledge of the '211 patent's existence and relevance.

JOINDER

- 43. Joinder of all Defendants is proper under 35 U.S.C. § 299(a).
- 44. Core accuses all Defendants of infringing the Asserted Claims by making, selling, using, offering for sale, or importing the Fiber Optic XPIC Devices. Thus, Core's "right to relief" against all Defendants arises out of Defendants' "making, using, importing into the United States, offering for sale, or selling of the same accused product or process," as required by 35 U.S.C. § 299(a)(1).
- 45. 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 Fiber Optic XPIC Devices infringes the Asserted Claims; and (ii) questions relating to the value of the patented technology to those Devices.
 - 46. Thus, joinder of all Defendants is proper under 35 U.S.C. § 299(a).

COUNT I – DIRECT PATENT INFRINGEMENT

- 47. Core repeats and realleges each and every allegation contained in Paragraphs 1-46 above as if fully set forth herein.
- 48. 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 of the steps of each Asserted Claim in the U.S., during the Relevant Time Period.
- 49. As set forth in Paragraphs 25-30 above, each Defendant used Fiber Optic XPIC Devices within the United States during the Relevant Time Period. For the reasons set forth in Paragraphs 21-42 of the *ADVA* Complaint, which are incorporated herein by reference in their entirety, such use constitutes direct infringement of each Asserted Claim of the '211 patent. Thus, each Defendant directly infringed each Asserted Claim of the '211 patent during the Relevant Time Period.

REMEDIES, ENHANCED DAMAGES, EXCEPTIONAL CASE

- 50. Core repeats and realleges each and every allegation contained in Paragraphs 1-49 *supra*, as if fully set forth herein.
 - 51. Defendants' direct infringement (Count I) of the '211 patent has caused,

- and will continue to cause, significant damage to Core. As a result, Core is entitled to an award of damages adequate to compensate it for Defendants' infringement, but in no event less than a reasonable royalty pursuant to 35 U.S.C. § 284. Core is also entitled to recover prejudgment interest, post-judgment interest, and costs.
- 52. For at least the reasons set forth in Paragraphs 37-42 *supra*, prior to the filing of this Complaint, Defendants knew (or were willfully blind) that the Fiber Optic XPIC Devices are configured to infringe the Asserted Claims of the '211 Patent during normal use. Despite this known, objectively-high risk that their actions constituted infringement, Defendants continued to infringe the '211 patent, up to the filing of this Complaint. Thus, Defendants' infringement has been willful.
 - 53. In addition to being willful, Defendants' conduct has been egregious.
- 54. As set forth in Paragraphs 25-30 *supra*, despite knowing of (or being willfully blind to) their infringement, Defendants continued to infringe, on a large scale, until the '211 patent expired. Defendants are large companies with hundreds of millions, or billions, of dollars in annual revenue. Meanwhile, Plaintiff is a small company, owned by an individual inventor. On information and belief, Defendants persisted in their willful infringement, at least in part, because they believed they could use their superior resources to overwhelm Plaintiff in litigation. If proven, this would constitute "egregious" conduct, warranting enhanced damages.
- 55. Moreover, the validity of the '211 patent has been twice confirmed by the Patent Trial and Appeal Board ("PTAB"), in: (i) IPR2016-01618, filed by Fujitsu Network Communications, Inc.; and (ii) IPR2018-01259, filed by Infinera Corporation. In both *Inter Partes* Review proceedings, the Petitioners—who were defendants in prior litigations—cited numerous prior art references, to attempt to establish that claims of the '211 patent, including the Asserted Claims, were invalid. Yet, in both cases, the PTAB *denied* institution, finding that the Petitioners had failed to establish a "reasonable likelihood" that *any* claim of the '211 patent was invalid. *See* Ex. 3 (decision denying review in IPR2016-01618); Ex. 4 (decision denying

- review in IPR2018-01259). Because the PTAB has already rejected two extensive invalidity challenges to the '211 patent, Defendants cannot reasonably believe that they have a viable invalidity defense. Defendants' decision to persist in known, clearly-infringing conduct, despite the lack of any viable invalidity defense, is further evidence of "egregiousness," warranting an award of enhanced damages.
 - 56. For at least the foregoing reasons, Defendants' conduct has been willful and egregious. Accordingly, under 35 U.S.C. § 284, the Court should enhance Core's damages in this case by up to three times the amount found or assessed.
- 57. For at least the foregoing reasons, this case is an "exceptional" case within the meaning of 35 U.S.C. § 285. Accordingly, Core is entitled to an award of attorneys' fees and costs, and the Court should award such fees and costs.

PRAYER FOR RELIEF

WHEREFORE, Core prays for relief as follows:

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

JURY TRIAL DEMAND

Core demands a jury trial on all issues so triable.

