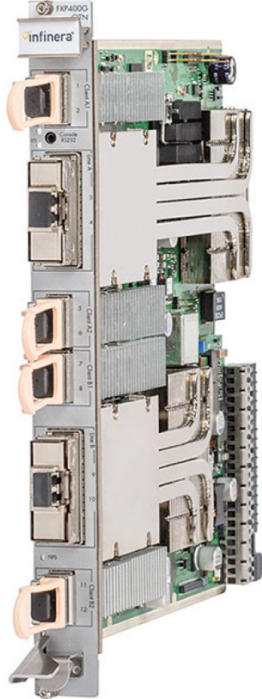


Exhibit I1
U.S. Patent No. 10,771,181
v.

DCO Devices Used in Infinera’s Platforms (“Exemplary Device”)

Claim Language	Selected Analysis and Evidence Regarding Exemplary Device
Claim 1	
[pre] A pluggable optical transceiver module comprising of:	The Exemplary Device is an optical transceiver module. For example, Infinera sells platforms that require optical transceiver modules, such as pluggables in CFP2-DCO, QSFP-DD and XR Optics form factors. <i>E.g.</i>, https://www.infinera.com/wp-content/uploads/Pluggables-Embeddeds-and-the-Three-Vectors-of-Coherent-Evolution-0287-WP-RevA-0421.pdf (describing various types of pluggables including form factors such as CFP2, QSFP-DD and OSFP as well as specifications such as 100ZR, 400ZR, XR optics, Open ROADM, and OpenZR+). An exemplary platform is Infinera’s XTM series. <i>See, e.g.</i>, https://www.bccshop.fi/downloads/products/f/fxp400gotn/EXP400GOTN.pdf (

Claim Language	Selected Analysis and Evidence Regarding Exemplary Device
	). The transceiver supports a number of optical pluggable transceiver modules as shown in the image above (showing six pluggables). <i>See also, e.g.,</i> https://www.bccshop.fi/downloads/products/f/fxp400gotn/FXP400GOTN.pdf (

Claim Language	Selected Analysis and Evidence Regarding Exemplary Device
	The FXP400GOTN can support various QSFP28 types on the client port. From release R29.1 the support is: • TOM-100GMR-Q-LR4, Multirate (100GbE-LAN/OTU4) LR4, 10km. • TOM-100GMR-Q-SR4, Multirate (100GbE-LAN/OTU4) SR4, 100m. With release R30.0 additional client QSFP28 types are supported: • TOM-100G-Q-LR4, Single rate (100GbE-LAN) LR4, 10km. • TOM-100G-Q-SR4, Single rate (100GbE-LAN) SR4, 100m. With release R30.1 additional client QSFP28 types are supported: • TOM-100G-Q-CWDM4, Single rate (100GbE-LAN) CWDM4, 2km. <i>The TOM-100G-Q-LR4 support is restricted to versions labeled 130-0333-002. These versions were introduced and started shipping in November 2017. Please pay attention if reusing units from stock or other locations.</i> The FXP400GOTN can support various CFP2 types on the line ports. From release R29.1 the support is: • TRX100269/TC, Multirate (QPSK/16QAM) CFP2 With release R30.0 additional CFP2 types are supported: • TRX100272/TC, Single rate (QPSK) CFP2); https://cfp-msa.org/wp-content/uploads/2022/10/CFP2_HW-Spec-rev1.0.pdf (This CFP Multi-Source Agreement (MSA) defines the CFP2 form factor of an optical transceiver to support 40Gbit/s and 100Gbit/s interfaces for Ethernet, Telecommunication and other applications. The members of the CFP MSA have authored this document to provide an industry standard form factor for new and emerging high speed communications interfaces. Specifications provided in this document are given as a "delta" to the CFP MSA Hardware Specification Rev. 1.4, June 7, 2010. 1.1 SCOPE This CFP Multi-Source Agreement (MSA) defines the CFP2 form factor of an optical transceiver which can support 10Gbit/s, 40Gbit/s, 100Gbit/s and 400Gbit/s interfaces for Ethernet, ITU-T OTN and other applications. Specifications provided in this document are given as a "delta" to the CFP MSA Hardware Specification Rev. 1.4 [1].); https://www.oiforum.com/wp-content/uploads/2019/01/OIF-CFP2-DCO-01.0.pdf at 8-9 (specification for CFP2-DCO:

Claim Language	Selected Analysis and Evidence Regarding Exemplary Device
	Figure 1: CFP2-DCO Module Basic Functional Block Diagram), 12 (describing electrical interface), 16 (describing LC connector), 23-25 (Fujitsu, Infinera, and Nokia belonged to OIF); https://www.infinera.com/blog/happy-star-wars-day-may-the-400g-be-with-you/tag/access-and-aggregation/?utm_source=FB&utm_medium=Blog&utm_campaign=400GBeWithYou (discussing use of CFP2-DCO and XR optics pluggables in XTM series and GX series platforms). Similarly, Infinera’s GX series (previously called the Cloud Xpress and Groove G30) supports DCO pluggables in form factors including CFP2, QSFP-DD, and XR Optics. <i>E.g.</i>, https://www.infinera.com/wp-content/uploads/Infinera-GX-Series-0243-BR-RevE-0222.pdf (Coherent Interfaces • 100G to 800G • XR optics including ZR+ • CFP2, QSFP-DD, embedded

Claim Language	Selected Analysis and Evidence Regarding Exemplary Device																																				
	); https://www.infinera.com/blog/happy-star-wars-day-may-the-400g-be-with-you/tag/access-and-aggregation/?utm_source=FB&utm_medium=Blog&utm_campaign=400GBeWithYou (discussing use of CFP2-DCO and XR optics pluggables in XTM series and GX series platforms). Similarly, Infinera’s 7100 series supports pluggables in form factors including CFP2-DCO. <i>E.g.</i>, https://www.infinera.com/wp-content/uploads/Infinera-7100-Series-0169-SN-RevB-0122.pdf (“The single-slot HGTM-S3 provides a QSFP28 client and a coherent CFP2-DCO line interface, while the single-slot HGTM-MS3 provides 10 x 8G/10G/16G SFP+ clients and a CFP2-DCO line.”). Similarly, Infinera’s mTera Universal Transport platform supports pluggables in form factors including CFP2-DCO. <i>E.g.</i>, https://www.infinera.com/wp-content/uploads/Infinera-mTera-Universal-Transport-Platform-0167-SN-RevC-0422.pdf (<table><tr><th>Module</th><th>Interfaces</th><th>Per-slot Capacity</th><th>Switching</th></tr><tr><td>OSM-1S</td><td>32 x SFP</td><td>40 Gb/s</td><td>OTN, MPLS-TP (including VPLS/H-VPLS), VLAN-XC, bridging</td></tr><tr><td>OSM-2S</td><td>20 x SFP+</td><td>200 Gb/s</td><td>OTN, MPLS-TP (including VPLS/H-VPLS), VLAN-XC, bridging</td></tr><tr><td>OSM-2C</td><td>2 x CFP</td><td>200 Gb/s</td><td>OTN, MPLS-TP (including VPLS/H-VPLS), VLAN-XC, bridging</td></tr><tr><td>OSM-4S</td><td>40 x SFP+</td><td>400 Gb/s</td><td>OTN, MPLS-TP (including VPLS/H-VPLS), VLAN-XC, bridging</td></tr><tr><td>OSM-4F</td><td>2 x 100G/150G/200G</td><td>400 Gb/s</td><td>OTN, MPLS-TP (including VPLS/H-VPLS), VLAN-XC, bridging</td></tr><tr><td>OSM-5C</td><td>5 x 100G/200G CFP2/CFP2-DCO</td><td>500 Gb/s</td><td>OTN, MPLS-TP (including VPLS/H-VPLS), VLAN-XC, bridging</td></tr><tr><td>OSM-5Q</td><td>5 x 100G QSFP28</td><td>500 Gb/s</td><td>OTN, MPLS-TP (including VPLS/H-VPLS), VLAN-XC, bridging</td></tr><tr><td>SSM-2S</td><td>6 x SFP+, 24 x SFP</td><td>120 Gb/s</td><td>SONET/SDH (with OTN/packet interworking)</td></tr></table> LEVERAGE COHERENT DWDM OPTICS The mTera UTP supports multiple options for coherent DWDM interfaces. The OSM-4F module provides two flexible-rate interfaces with support for 100G (QPSK), 150G (8QAM), and 200G (16QAM), enabling over 25 Tb/s per fiber pair and 100G terrestrial reach of up to 5,000 km. The OSM-5C provides the option of CFP2-DCO pluggables, enabling options for 100G (QPSK), 200G (8QAM), and 200G (16QAM). Additionally, the OSM-5Q leverages cost-effective QSFP28-based 100G interfaces for interconnections to compact modular platforms, such as the Infinera GX Series, for transport over 400G, 600G, and 800G wavelengths.). On information and belief, Infinera sells “solutions” that include, among other things, pluggables such as those described above. <i>See, e.g.</i>, https://www.infinera.com/solutions/metro-networks/ (“Solutions” website for “Metro Networks”);	Module	Interfaces	Per-slot Capacity	Switching	OSM-1S	32 x SFP	40 Gb/s	OTN, MPLS-TP (including VPLS/H-VPLS), VLAN-XC, bridging	OSM-2S	20 x SFP+	200 Gb/s	OTN, MPLS-TP (including VPLS/H-VPLS), VLAN-XC, bridging	OSM-2C	2 x CFP	200 Gb/s	OTN, MPLS-TP (including VPLS/H-VPLS), VLAN-XC, bridging	OSM-4S	40 x SFP+	400 Gb/s	OTN, MPLS-TP (including VPLS/H-VPLS), VLAN-XC, bridging	OSM-4F	2 x 100G/150G/200G	400 Gb/s	OTN, MPLS-TP (including VPLS/H-VPLS), VLAN-XC, bridging	OSM-5C	5 x 100G/200G CFP2/CFP2-DCO	500 Gb/s	OTN, MPLS-TP (including VPLS/H-VPLS), VLAN-XC, bridging	OSM-5Q	5 x 100G QSFP28	500 Gb/s	OTN, MPLS-TP (including VPLS/H-VPLS), VLAN-XC, bridging	SSM-2S	6 x SFP+, 24 x SFP	120 Gb/s	SONET/SDH (with OTN/packet interworking)
Module	Interfaces	Per-slot Capacity	Switching																																		
OSM-1S	32 x SFP	40 Gb/s	OTN, MPLS-TP (including VPLS/H-VPLS), VLAN-XC, bridging																																		
OSM-2S	20 x SFP+	200 Gb/s	OTN, MPLS-TP (including VPLS/H-VPLS), VLAN-XC, bridging																																		
OSM-2C	2 x CFP	200 Gb/s	OTN, MPLS-TP (including VPLS/H-VPLS), VLAN-XC, bridging																																		
OSM-4S	40 x SFP+	400 Gb/s	OTN, MPLS-TP (including VPLS/H-VPLS), VLAN-XC, bridging																																		
OSM-4F	2 x 100G/150G/200G	400 Gb/s	OTN, MPLS-TP (including VPLS/H-VPLS), VLAN-XC, bridging																																		
OSM-5C	5 x 100G/200G CFP2/CFP2-DCO	500 Gb/s	OTN, MPLS-TP (including VPLS/H-VPLS), VLAN-XC, bridging																																		
OSM-5Q	5 x 100G QSFP28	500 Gb/s	OTN, MPLS-TP (including VPLS/H-VPLS), VLAN-XC, bridging																																		
SSM-2S	6 x SFP+, 24 x SFP	120 Gb/s	SONET/SDH (with OTN/packet interworking)																																		

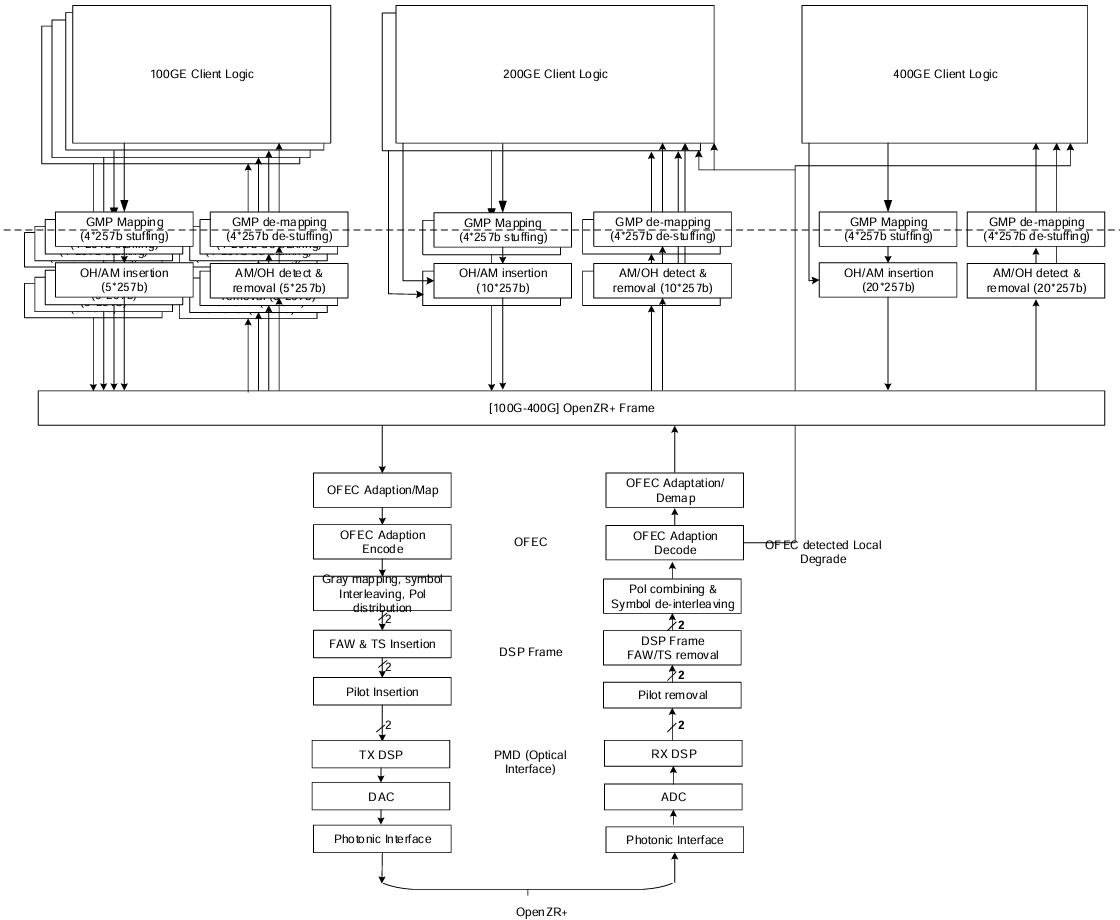
Claim Language	Selected Analysis and Evidence Regarding Exemplary Device
	pluggable-support-ships-800g (“Optical vendor Infinera upgraded its metro network portfolio with support for 400G pluggables on its XTM and GX platforms”). Investigation of both the patent and the Exemplary Device (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. NextGen reserves the right to update and amend its contentions, including adding additional claims, evidence and accused devices, as the litigation progresses and discovery is provided by the defendant.
[a] an electrical system interface for receiving a first electrical data signal and for transmitting a second electrical data signal;	The Exemplary Device comprises an electrical system interface for receiving a first electrical data signal and for transmitting a second electrical data signal. For example, some forms of the Exemplary Device conform to the CFP2 MSA specification. https://www.bccshop.fi/downloads/products/f/fxp400gotn/FXP400GOTN.pdf (The FXP400GOTN can support various CFP2 types on the line ports. From release R29.1 the support is: • TRX100269/TC, Multirate (QPSK/16QAM) CFP2 With release R30.0 additional CFP2 types are supported: • TRX100272/TC, Single rate (QPSK) CFP2). The CFP2 MSA specification describes the electrical system interface for electrical data signals that are received and transmitted. https://cfp-msa.org/wp-content/uploads/2022/10/CFP2_HW-Spec-rev1.0.pdf (

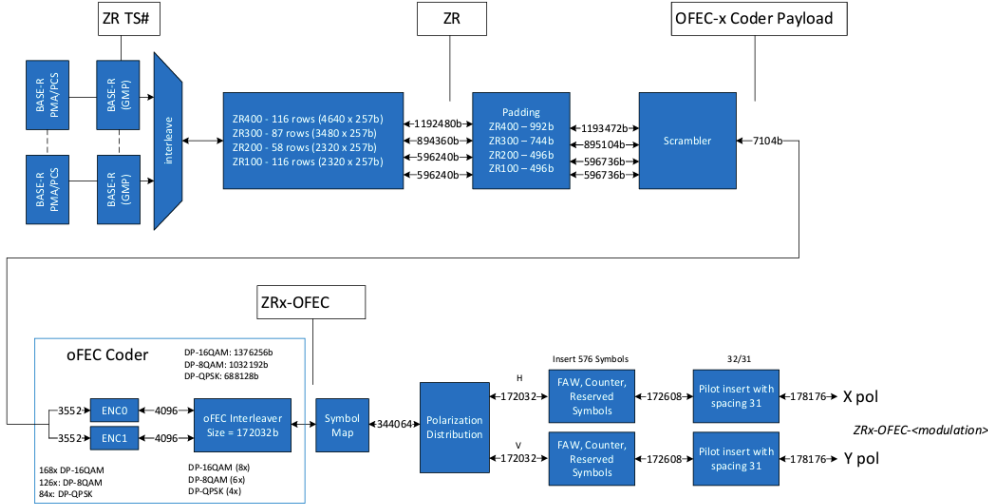
Claim Language	Selected Analysis and Evidence Regarding Exemplary Device
	4.4 HIGH SPEED ELECTRICAL CHARACTERISTICS The CFP2 Module high speed electrical interface supports the following configurations: 1) 4 tx lanes + 4 rx lanes, each at 25 Gbit/s; 2) 8 tx lanes + 8 rx lanes, each at 25 Gbit/s; 3) 10 tx lanes + 10 rx lanes, each at 10 Gbit/s. Following electrical interfaces may be supported in future. 4) 4 tx lanes + 4 rx lanes, each at 50 Gbit/s; 5) 8 tx lanes + 8 rx lanes, each at 50 Gbit/s; Figure 1-1: CFP2 Functional Block Diagram); https://www.oiforum.com/wp-content/uploads/2019/01/OIF-CFP2-DCO-01.0.pdf at 8-9 (specification for CFP2-DCO:

Claim Language	Selected Analysis and Evidence Regarding Exemplary Device
	Figure 1: CFP2-DCO Module Basic Functional Block Diagram), 12 (describing electrical interface), 16 (describing LC connector), 23-25 (Fujitsu, Infinera, and Nokia belonged to OIF). Other forms of the Exemplary Device conform to the OIF Implementation Agreement 400ZR and/or OpenZR+ MSA Specification. <i>See, e.g.,</i> https://www.infinera.com/wp-content/uploads/Infinera-GX-Series-0243-BR-RevE-0222.pdf. The OIF Implementation Agreement 400ZR and/or OpenZR+ MSA Specification describes the electrical data signals that are received and transmitted. <i>E.g.,</i> https://www.oiforum.com/wp-content/uploads/OIF-400ZR-01.0_reduced2.pdf at 18-19 (8.1 400G Host Side Interface The 400GbE data enters the transceiver using the 400GBASE-R PMA sublayer, where the electrical interface, for example, may be 400GAUI-8 C2M. The characteristic information of the adapted and mapped 400GBASE-R host interface signal consists of a scrambled sequence of 256b/257b encoded blocks with a nominal bit-rate of 425 000 000 kbit/s, ± 100 ppm. NOTE – 425 000 000 kbit/s is the nominal bit-rate of the aggregate 400GBASE-R PCS signal consisting of 16 PCS lanes with 256b/257b encoding and FEC at the PMA service interface.

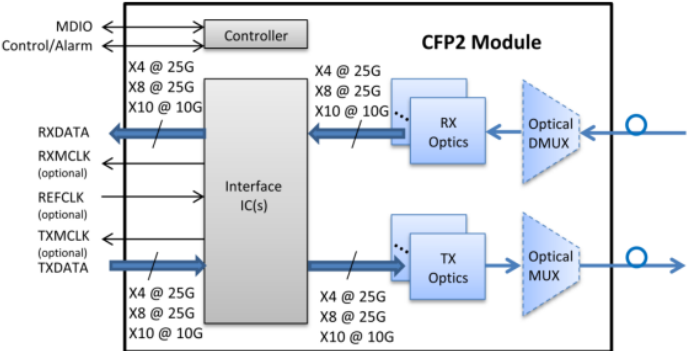
Figure 6 shows the functional blocks in the Tx and Rx data path.



Claim Language	Selected Analysis and Evidence Regarding Exemplary Device
	); https://openzrplus.org/site/assets/files/1091/openzrplus_2p0.pdf at 9, 16 (2 OpenZR+ Block Diagram  Figure 2-1 OpenZR+ Block Diagram

Claim Language	Selected Analysis and Evidence Regarding Exemplary Device
	 Figure 4-1: Digital port functions for a single ZRx-OFEC-mQAM signal). Investigation of both the patent and the Exemplary Device (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. NextGen reserves the right to update and amend its contentions, including adding additional claims, evidence and accused devices, as the litigation progresses and discovery is provided by the defendant.
[b] an m-ary modulator for increasing the number of bits per symbol in the first electrical data signal to produce a first m-ary modulation signal;	The Exemplary Device comprises an m-ary modulator for increasing the number of bits per symbol in the first electrical data signal to produce a first m-ary modulation signal. For example, the Exemplary Device supports the 16QAM modulation format. https://www.bccshop.fi/downloads/products/f/fxp400gotn/FXP400GOTN.pdf (

Claim Language	Selected Analysis and Evidence Regarding Exemplary Device																																																				
	The FXP400GOTN can support various CFP2 types on the line ports. From release R29.1 the support is: • TRX100269/TC, Multirate (QPSK/16QAM) CFP2 With release R30.0 additional CFP2 types are supported: • TRX100272/TC, Single rate (QPSK) CFP2 The multirate QPSK/16QAM CFP2 can be software reconfigurable to either 100Gbps QPSK or 200Gbps 16QAM. In 100Gbps QPSK the client service is mapped according to ITU-T G.709 OTN to an OTU4 line with additional proprietary SD-FEC wrapping. In 200Gbps the client services are multiplexed and mapped in line with ITU-T G.709 OTN to a proprietary OTUJ2 line with additional proprietary SD-FEC wrapping. The single rate QPSK CFP2 is applicable to OTU4 line only. <i>Table 5 Optical data. 100G DWDM CFP. TRX100269/TC.</i> <table> <tr> <th>Module type</th><th>Coherent 100G/200G CFP2</th></tr> <tr> <td>Product ID</td><td>TRX100269/TC</td></tr> <tr> <td>Signal Types:</td><td>100G QPSK: OTU4 + SD-FEC 200G 16QAM: OTUJ2 + SD-FEC</td></tr> <tr> <td>Connector type</td><td>LC</td></tr> <tr> <td>Input fiber type</td><td>SM</td></tr> <tr> <td>CD tolerance (disp limit)</td><td>40 000 ps/nm (OTU4) 20 000 ps/nm (OTUJ2)</td></tr> <tr> <td>PMD Tolerance</td><td>30 ps (OTU4) 15 ps (OTUJ2)</td></tr> <tr> <td>Tx wavelength</td><td>G.694.1 50GHz spacing C-band. ch9185 - ch958</td></tr> <tr> <td>Tx Output power</td><td>0dBm min +1dBm max</td></tr> <tr> <td>Rx sensitivity @10⁻¹² excl. Network Margin & excl. Disp. Penalty</td><td>-22dBm (16QAM) -29dBm (QPSK)</td></tr> <tr> <td>Rx overload</td><td>0dBm</td></tr> <tr> <td>Wavelength switching time</td><td>60 s</td></tr> <tr> <td>Transmitter cold startup time</td><td>90 s</td></tr> </table> <i>Table 6 Optical data. 100G DWDM CFP. TRX100272/TC.</i> <table> <tr> <th>Module type</th><th>Coherent 100G/200G CFP2</th></tr> <tr> <td>Product ID</td><td>TRX100272/TC</td></tr> <tr> <td>Signal Types:</td><td>100G QPSK: OTU4 + SD-FEC</td></tr> <tr> <td>Connector type</td><td>LC</td></tr> <tr> <td>Input fiber type</td><td>SM</td></tr> <tr> <td>CD tolerance (disp limit)</td><td>40 000 ps/nm (OTU4)</td></tr> <tr> <td>PMD Tolerance</td><td>30 ps (OTU4))</td></tr> <tr> <td>Tx wavelength</td><td>G.694.1 50GHz spacing C-band. ch9185 - ch958</td></tr> <tr> <td>Tx Output power</td><td>0dBm min +1dBm max</td></tr> <tr> <td>Rx sensitivity @10⁻¹² excl. Network Margin & excl. Disp. Penalty</td><td>-29dBm (QPSK)</td></tr> <tr> <td>Rx overload</td><td>0dBm</td></tr> <tr> <td>Wavelength switching time</td><td>60 s</td></tr> <tr> <td>Transmitter cold startup time</td><td>90 s</td></tr> </table>); https://www.oiforum.com/wp-content/uploads/OIF-400ZR-01.0_reduced2.pdf at 48-49 (section entitled “DP-16QAM Symbol mapping and polarization distribution”). The 16QAM modulation format is an m-ary modulation method. See ’181 patent at 10:20-31. M-ary is used “[t]o increase the number of bits per symbol transmitted” in optical systems. Additionally, on information and belief, the “Interface IC(s)”	Module type	Coherent 100G/200G CFP2	Product ID	TRX100269/TC	Signal Types:	100G QPSK: OTU4 + SD-FEC 200G 16QAM: OTUJ2 + SD-FEC	Connector type	LC	Input fiber type	SM	CD tolerance (disp limit)	40 000 ps/nm (OTU4) 20 000 ps/nm (OTUJ2)	PMD Tolerance	30 ps (OTU4) 15 ps (OTUJ2)	Tx wavelength	G.694.1 50GHz spacing C-band. ch9185 - ch958	Tx Output power	0dBm min +1dBm max	Rx sensitivity @10 ⁻¹² excl. Network Margin & excl. Disp. Penalty	-22dBm (16QAM) -29dBm (QPSK)	Rx overload	0dBm	Wavelength switching time	60 s	Transmitter cold startup time	90 s	Module type	Coherent 100G/200G CFP2	Product ID	TRX100272/TC	Signal Types:	100G QPSK: OTU4 + SD-FEC	Connector type	LC	Input fiber type	SM	CD tolerance (disp limit)	40 000 ps/nm (OTU4)	PMD Tolerance	30 ps (OTU4))	Tx wavelength	G.694.1 50GHz spacing C-band. ch9185 - ch958	Tx Output power	0dBm min +1dBm max	Rx sensitivity @10 ⁻¹² excl. Network Margin & excl. Disp. Penalty	-29dBm (QPSK)	Rx overload	0dBm	Wavelength switching time	60 s	Transmitter cold startup time	90 s
Module type	Coherent 100G/200G CFP2																																																				
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Wavelength switching time	60 s																																																				
Transmitter cold startup time	90 s																																																				

Claim Language	Selected Analysis and Evidence Regarding Exemplary Device
	defined in the CFP MSA specification includes an m-ary modulator, or its equivalent, or the DSP defined in the OIF Implementation Agreement 400ZR and/or OpenZR+ MSA Specification includes an m-ary modulator, or its equivalent. https://cfp-msa.org/wp-content/uploads/2022/10/CFP2_HW-Spec-rev1.0.pdf ( Figure 1-1: CFP2 Functional Block Diagram); https://www.oiforum.com/wp-content/uploads/2019/01/OIF-CFP2-DCO-01.0.pdf at 8-9 (specification for CFP2-DCO:

Claim Language	Selected Analysis and Evidence Regarding Exemplary Device
	Figure 1: CFP2-DCO Module Basic Functional Block Diagram), 12 (describing electrical interface), 16 (describing LC connector), 23-25 (Fujitsu, Infinera, and Nokia belonged to OIF); https://www.oiforum.com/wp-content/uploads/OIF-400ZR-01.0_reduced2.pdf at 14 (Figure 1: 400ZR reference diagram); https://openzrplus.org/site/assets/files/1091/openzrplus_2p0.pdf at 9, 16 (

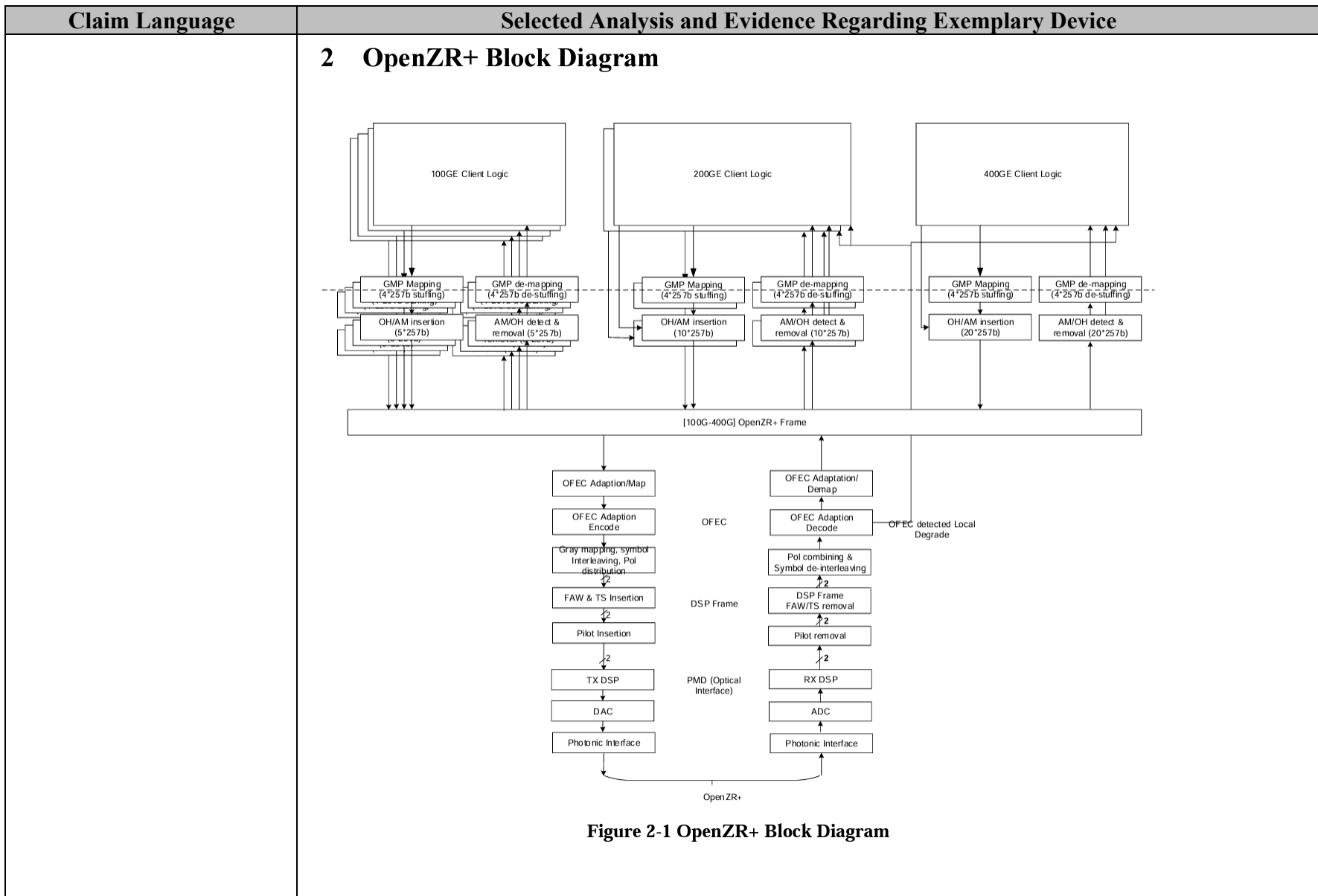


Figure 2-1 OpenZR+ Block Diagram

Claim Language	Selected Analysis and Evidence Regarding Exemplary Device
	Figure 4-1: Digital port functions for a single ZRx-OFEC-mQAM signal
[c] a digital to analog converter for converting the first m-ary modulation signal to a first electrical m-ary analog modulation signal;	The Exemplary Device comprises a digital to analog converter for converting the first m-ary modulation signal to a first electrical m-ary analog modulation signal. For example, the Exemplary Device includes functionality that converts the m-ary modulated signal to an electrical m-ary analog modulation signal (for example, along the optical connection). E.g.,

Claim Language	Selected Analysis and Evidence Regarding Exemplary Device
	https://www.bccshop.fi/downloads/products/f/fxp400gotn/FXP400GOTN.pdf ; https://www.oiforum.com/wp-content/uploads/OIF-400ZR-01.0_reduced2.pdf at 18 (

8 Host to 400ZR data path

Figure 6 shows the functional blocks in the Tx and Rx data path.

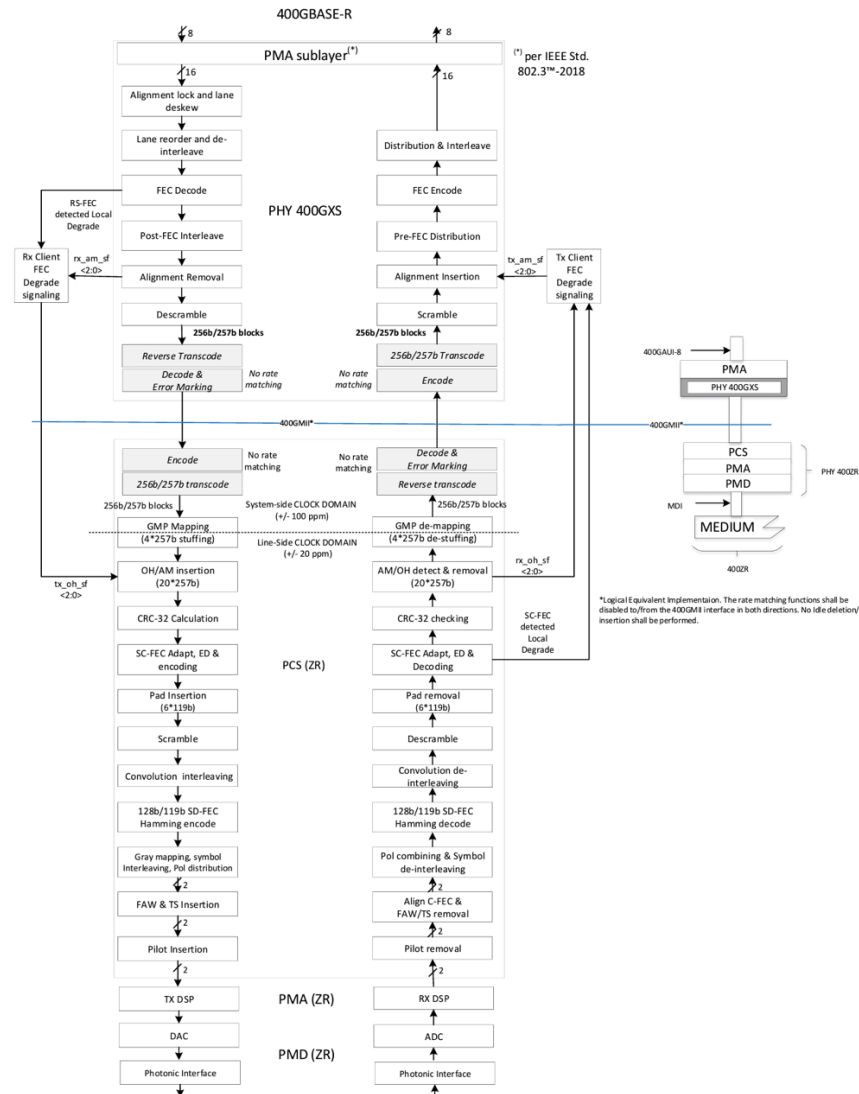
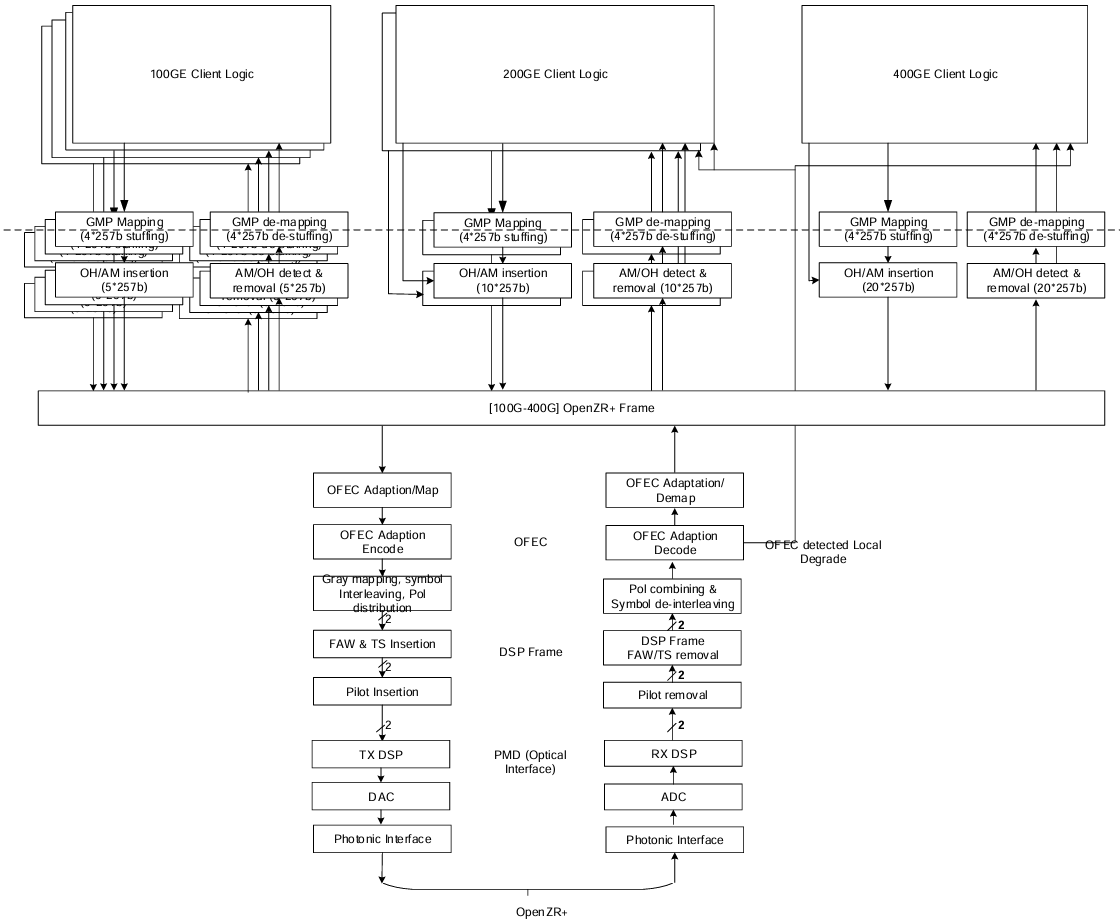


Figure 6: Data path detail

Claim Language	Selected Analysis and Evidence Regarding Exemplary Device
	); https://openzrplus.org/site/assets/files/1091/openzrplus_2p0.pdf at 9, 16 (2 OpenZR+ Block Diagram  Figure 2-1 OpenZR+ Block Diagram

Claim Language	Selected Analysis and Evidence Regarding Exemplary Device
	Figure 4-1: Digital port functions for a single ZRx-OFEC-mQAM signal On information and belief, the digital to analog converter, or its equivalent, can found in the “Interface IC(s)” or “TX Optics” defined in the CFP MSA specification, or in the DSP or Optics defined in the OIF Implementation Agreement 400ZR and/or OpenZR+ MSA Specification. https://cfp-msa.org/wp-content/uploads/2022/10/CFP2_HW-Spec-rev1.0.pdf (

Claim Language	Selected Analysis and Evidence Regarding Exemplary Device
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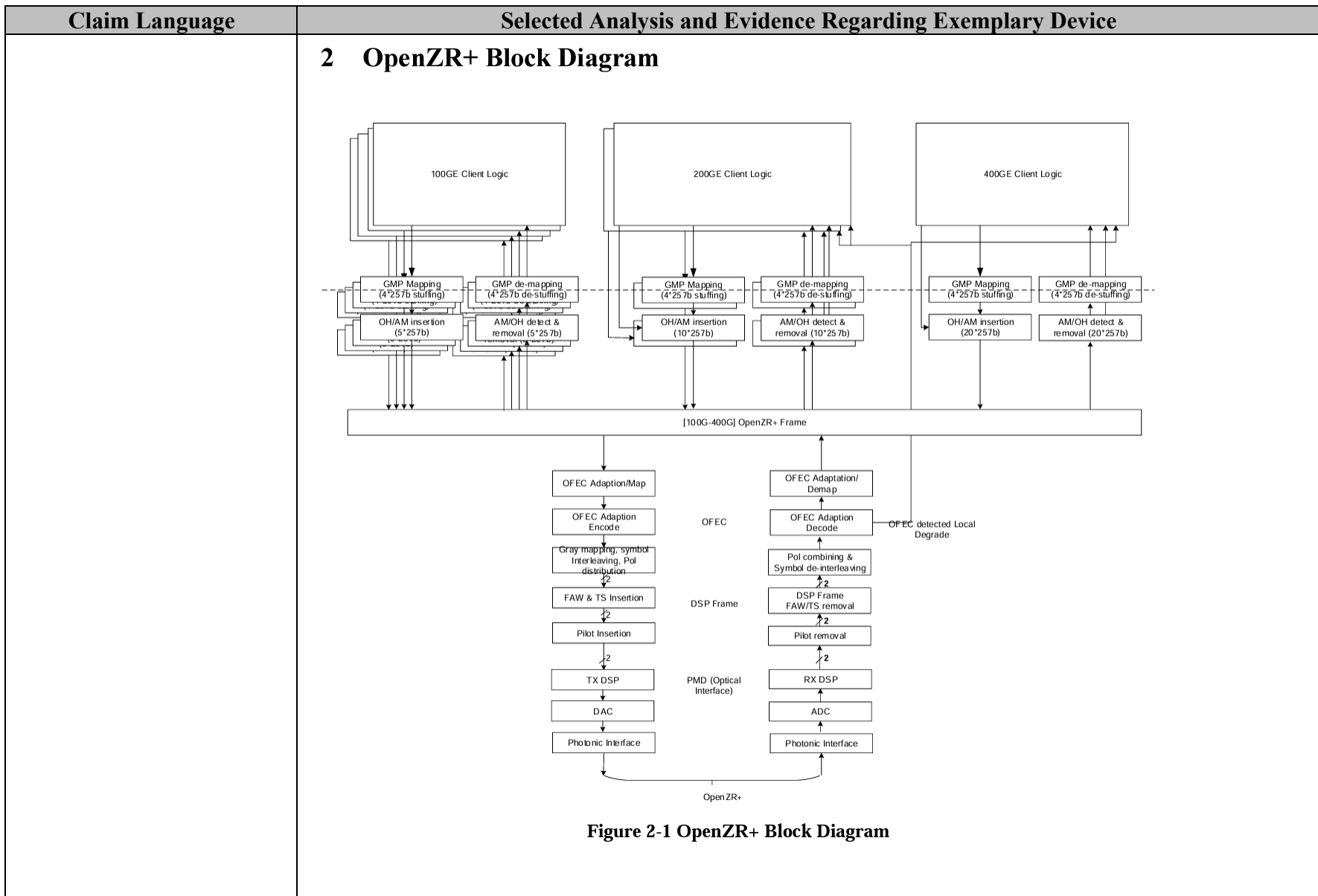
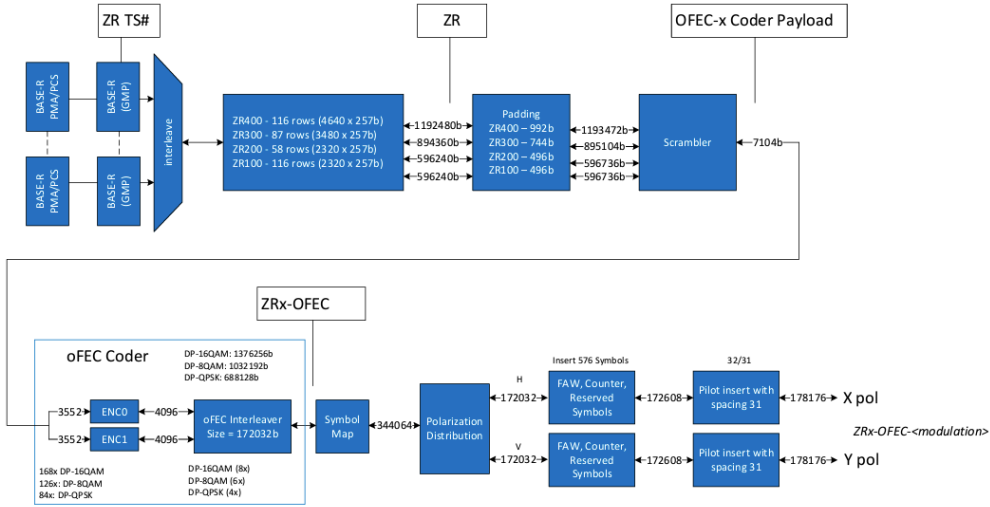


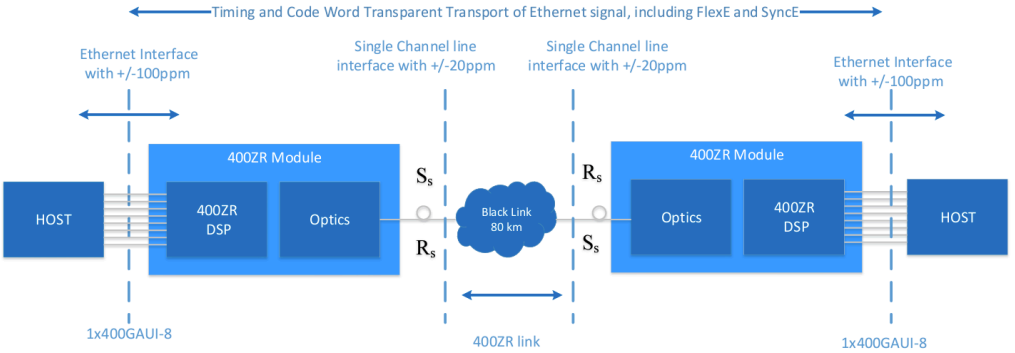
Figure 2-1 OpenZR+ Block Diagram

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[d] a driver for amplifying the first electrical m-ary analog modulation signal to an amplified first electrical m-ary analog modulation signal to drive an optical transmitter;	The Exemplary Device comprises a driver for amplifying the first electrical m-ary analog modulation signal to an amplified first electrical m-ary analog modulation signal to drive an optical transmitter. For example, the Exemplary Device contains one or more DWDM optical transmitters. <i>E.g.</i>, https://www.bccshop.fi/downloads/products/f/fxp400gotn/FXP400GOTN.pdf (

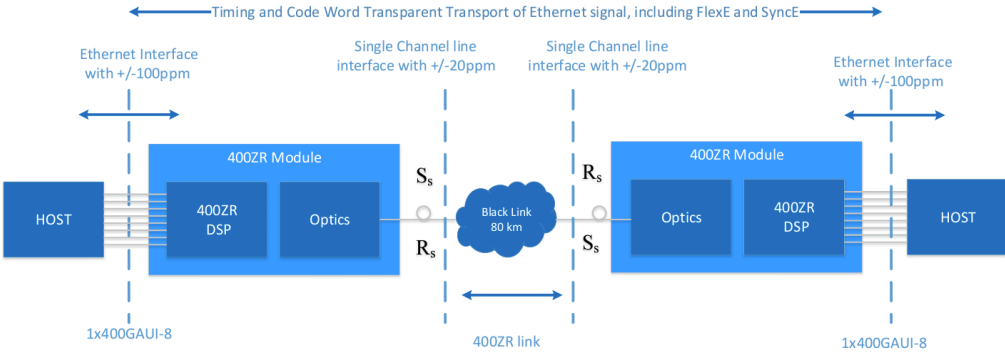
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	The FXP400GOTN can support various CFP2 types on the line ports. From release R29.1 the support is: • TRX100269/TC, Multirate (QPSK/16QAM) CFP2 With release R30.0 additional CFP2 types are supported: • TRX100272/TC, Single rate (QPSK) CFP2 The multirate QPSK/16QAM CFP2 can be software reconfigurable to either 100Gbps QPSK or 200Gbps 16QAM. In 100Gbps QPSK the client service is mapped according to ITU-T G.709 OTN to an OTU4 line with additional proprietary SD-FEC wrapping. In 200Gbps the client services are multiplexed and mapped in line with ITU-T G.709 OTN to a proprietary OTUJ2 line with additional proprietary SD-FEC wrapping. The single rate QPSK CFP2 is applicable to OTU4 line only. <i>Table 4 Supported Transceivers FXP400GOTN</i> <table><tr><th>Item code</th><th>Item name</th><th>Support code</th></tr><tr><td>TOM-100GMR-Q-SR4</td><td>QSFP28, 100GbE/OTU4, MM, 100m</td><td>C</td></tr><tr><td>TOM-100GMR-Q-LR4</td><td>QSFP28, 100GbE/OTU4, SM, 10km</td><td>C</td></tr><tr><td>TOM-100G-Q-LR4</td><td>QSFP28, 100GbE, SM, 10km</td><td>C*</td></tr><tr><td>TOM-100G-Q-SR4</td><td>QSFP28, 100GbE, MM, 100m</td><td>C</td></tr><tr><td>TOM-100G-Q-CWDM4</td><td>QSFP28, 100GbE, SM, 2km</td><td>C</td></tr><tr><td>TRX100269/TC</td><td>CFP2, 200G-Coh, MR, DWDM, SM</td><td>L</td></tr><tr><td>TRX100272/TC</td><td>CFP2, 100G-Coh, SR, DWDM, SM</td><td>L</td></tr></table> “L” indicates that the TRX is used on line side. “C” indicates that the TRX is used on client side. * The TOM-100G-Q-LR4 support is restricted to versions labeled 130-0333-002 For technical data on supported transceivers, see <i>Dimensioning Guidelines</i> within the System Manual.	Item code	Item name	Support code	TOM-100GMR-Q-SR4	QSFP28, 100GbE/OTU4, MM, 100m	C	TOM-100GMR-Q-LR4	QSFP28, 100GbE/OTU4, SM, 10km	C	TOM-100G-Q-LR4	QSFP28, 100GbE, SM, 10km	C*	TOM-100G-Q-SR4	QSFP28, 100GbE, MM, 100m	C	TOM-100G-Q-CWDM4	QSFP28, 100GbE, SM, 2km	C	TRX100269/TC	CFP2, 200G-Coh, MR, DWDM, SM	L	TRX100272/TC	CFP2, 100G-Coh, SR, DWDM, SM	L
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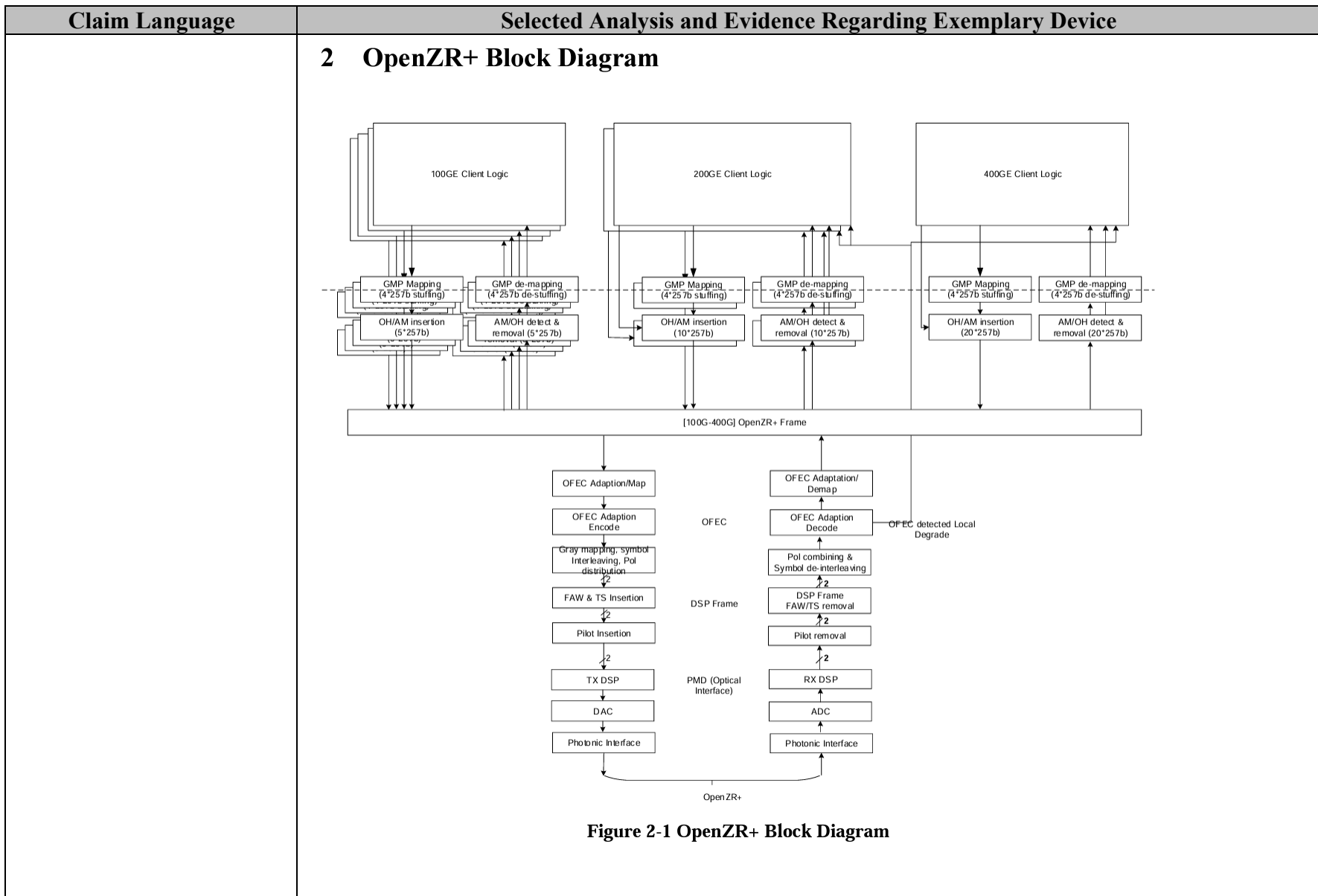
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[e] the optical transmitter for emitting a first optical signal on a first wavelength responsive to and representative of the amplified first electrical m-ary analog modulation signal from the driver;	The Exemplary Device comprises the optical transmitter for emitting a first optical signal on a first wavelength responsive to and representative of the amplified first electrical m-ary analog modulation signal from the driver. For example, the Exemplary Device includes transmitter functionalities as described above in claim elements 1[a]-[d]. On information and belief, the optical transmitter, or its equivalent, is contained within the interface IC(s) or TX Optics shown in the CFP specification functional block diagram, or, on information and belief, the DSP or Optics defined in the OIF Implementation Agreement 400ZR and/or OpenZR+ MSA Specification. https://cfp-msa.org/wp-content/uploads/2022/10/CFP2_HW-Spec-rev1.0.pdf. https://cfp-msa.org/wp-content/uploads/2022/10/CFP2_HW-Spec-rev1.0.pdf (

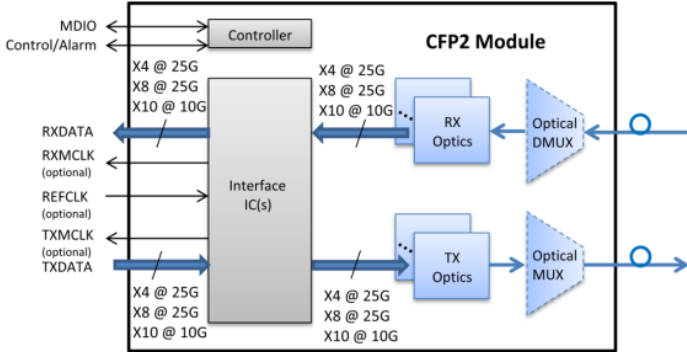
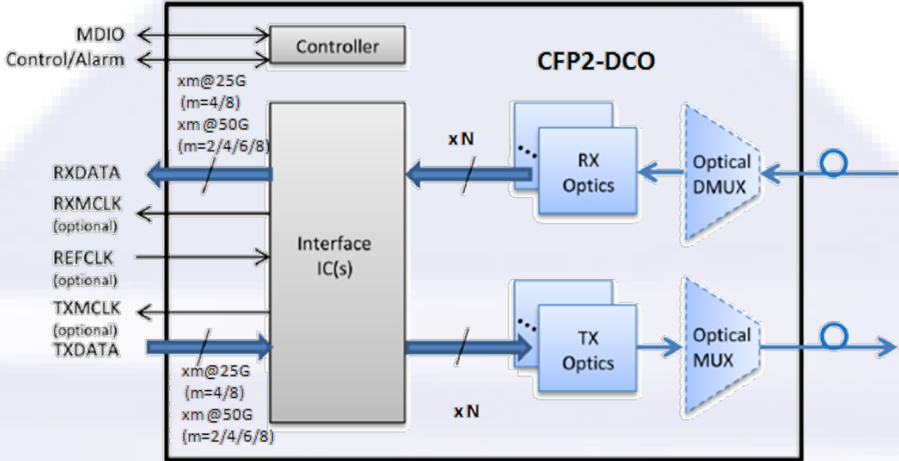
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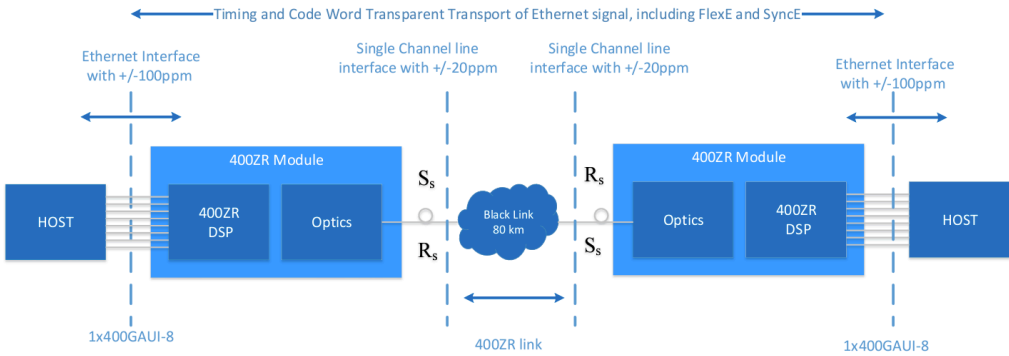
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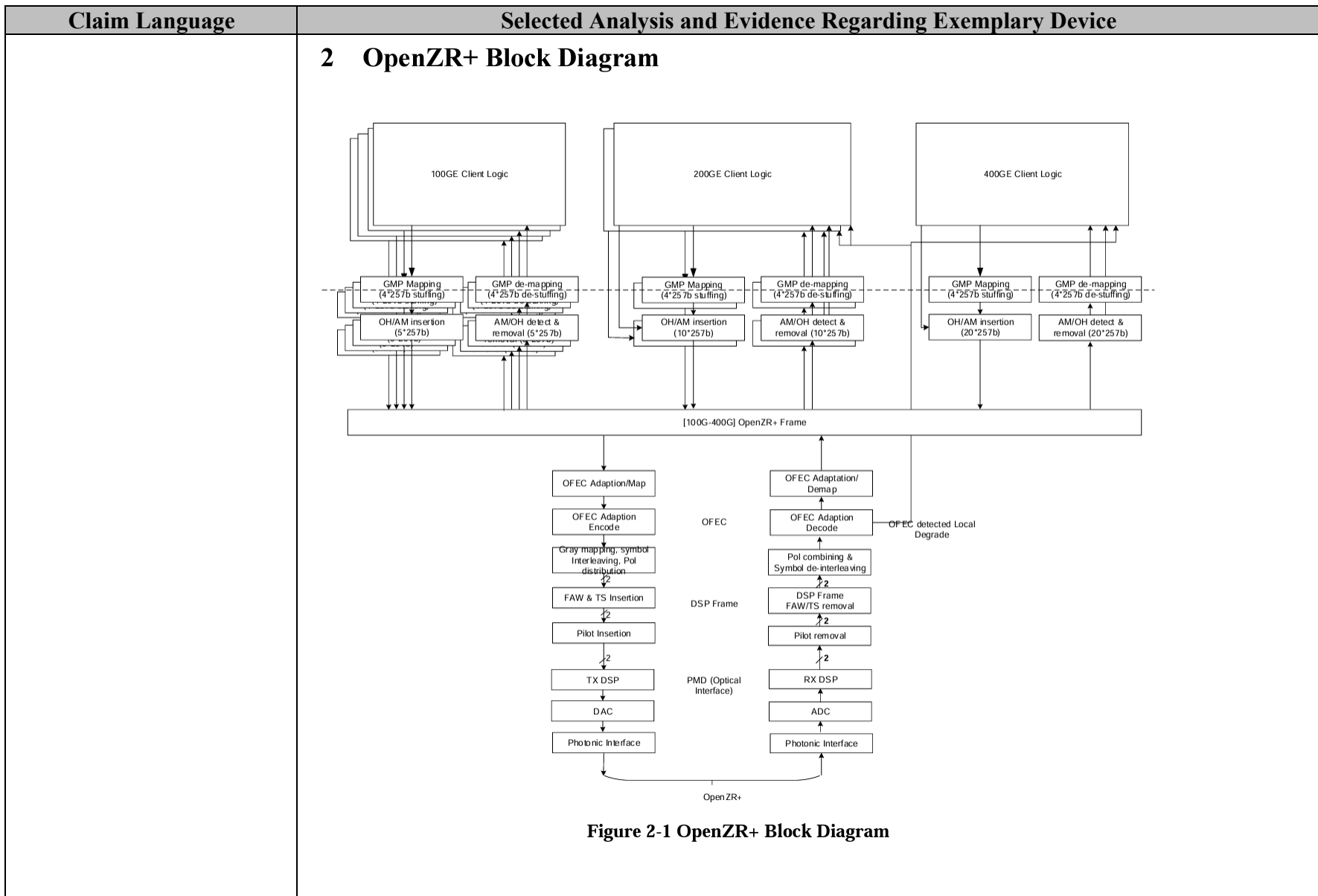


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[f] an optical detector for receiving a second optical signal on a second wavelength to produce an electrical analog signal;	The Exemplary Device comprises an optical detector for receiving a second optical signal on a second wavelength to produce an electrical analog signal. For example, the Exemplary Device includes transmitter functionalities as described above in claim elements 1[a]-[e]. On information and belief, the optical detector, or its equivalent, is contained within the interface IC(s) or RX Optics shown in the CFP specification functional block diagram, or the DSP or																																																				

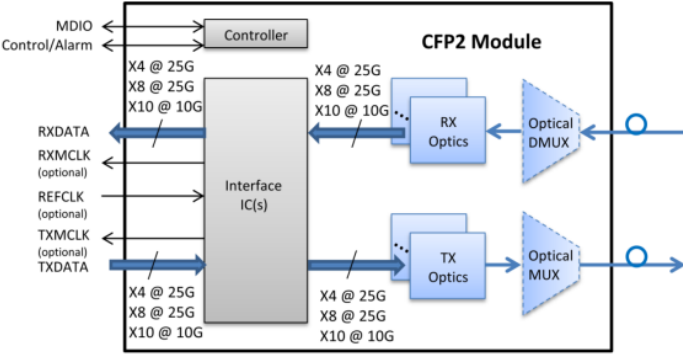
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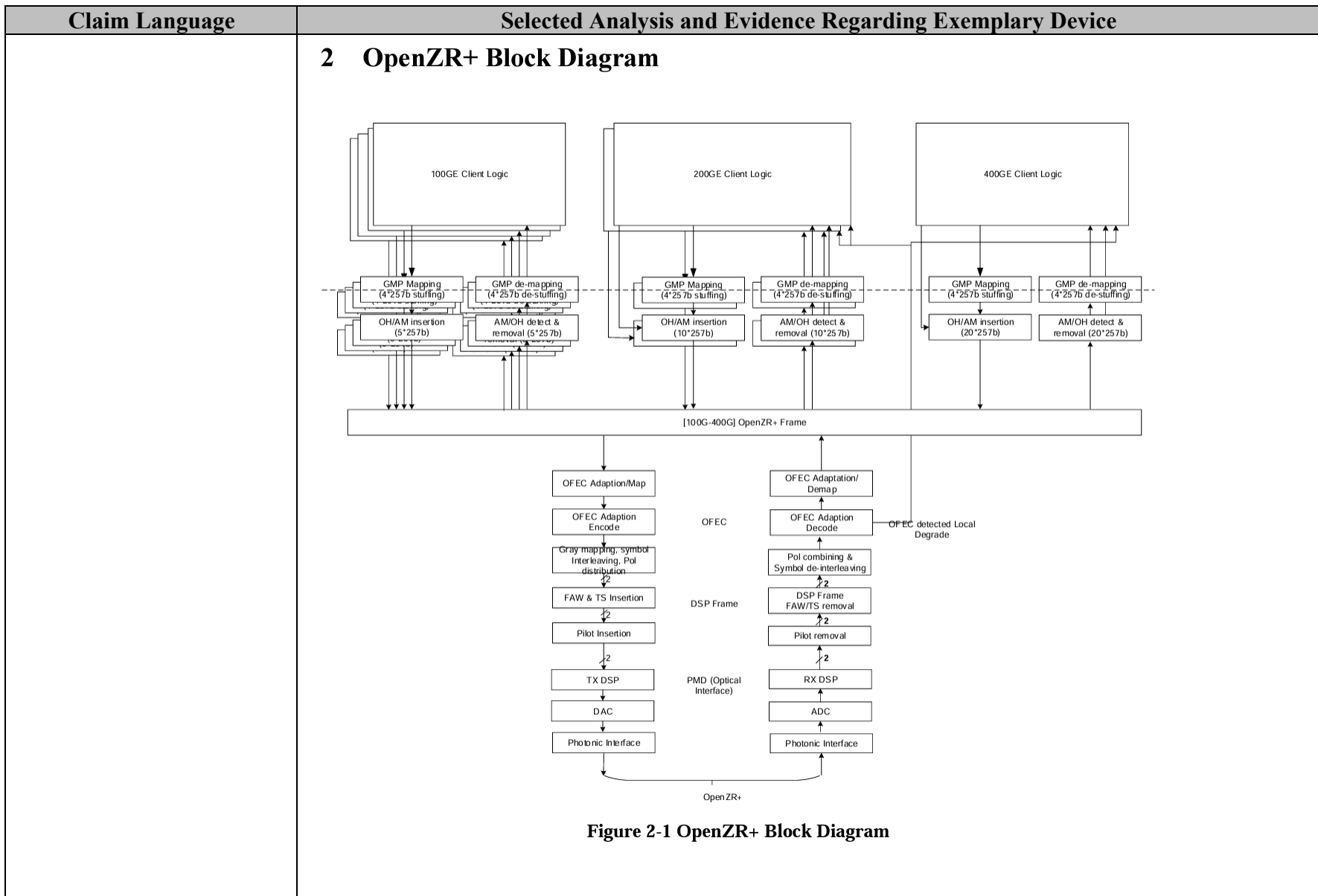


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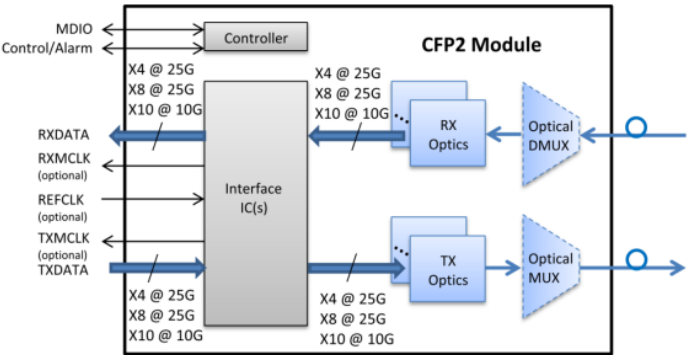
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[g] an amplifier for amplifying the electrical analog signal to an	The Exemplary Device comprises an amplifier for amplifying the electrical analog signal to an amplified electrical analog signal.																																																				

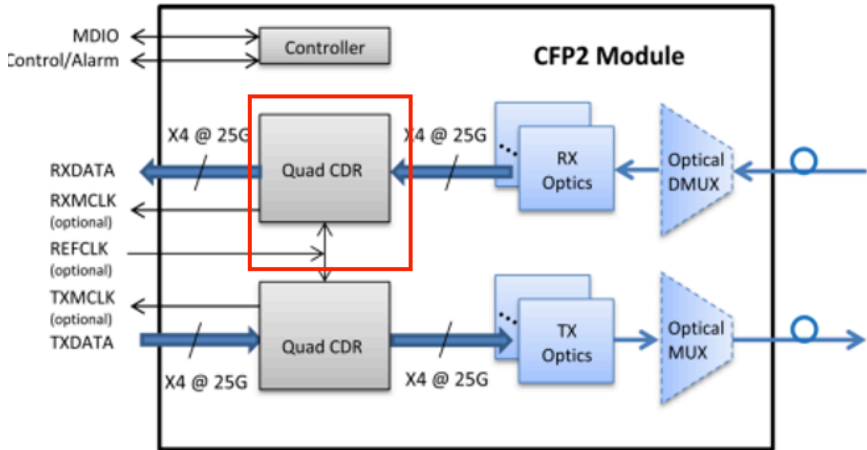
Claim Language	Selected Analysis and Evidence Regarding Exemplary Device
amplified electrical analog signal;	For example, the Exemplary Device includes transmitter functionalities as described above in claim elements 1[a]-[f]. On information and belief, an amplifier, or its equivalent, is contained within the interface IC(s) or RX Optics shown in the CFP specification functional block diagram, or the DSP or Optics defined in the OIF Implementation Agreement 400ZR and/or OpenZR+ MSA Specification. https://cfp-msa.org/wp-content/uploads/2022/10/CFP2_HW-Spec-rev1.0.pdf ( Figure 1-1: CFP2 Functional Block Diagram); https://www.oiforum.com/wp-content/uploads/2019/01/OIF-CFP2-DCO-01.0.pdf at 8-9 (specification for CFP2-DCO:

Claim Language	Selected Analysis and Evidence Regarding Exemplary Device
	Figure 1: CFP2-DCO Module Basic Functional Block Diagram), 12 (describing electrical interface), 16 (describing LC connector), 23-25 (Fujitsu, Infinera, and Nokia belonged to OIF); https://www.oiforum.com/wp-content/uploads/OIF-400ZR-01.0_reduced2.pdf at 14 (Figure 1: 400ZR reference diagram); https://openzrplus.org/site/assets/files/1091/openzrplus_2p0.pdf at 9, 16 (



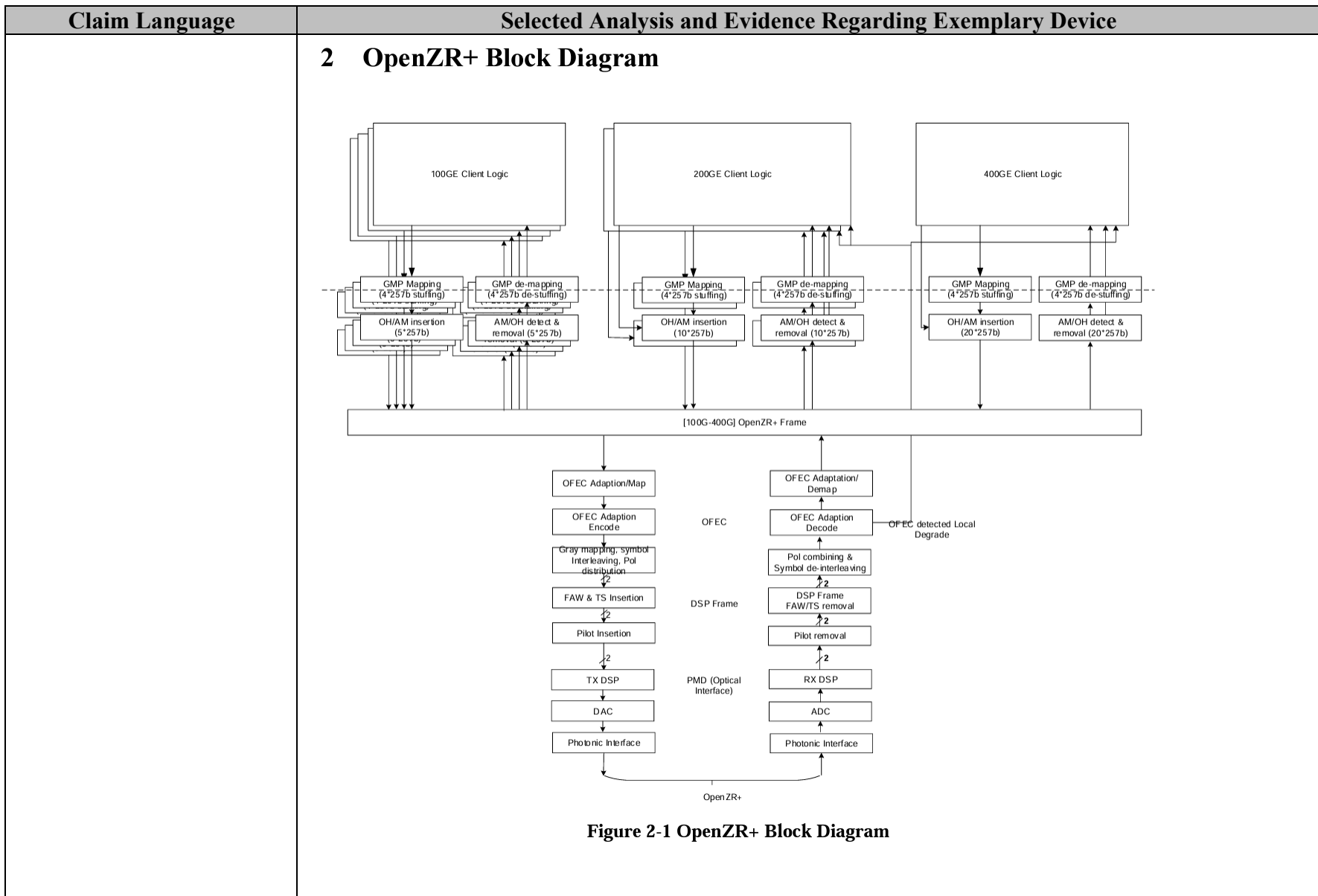
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[h] a clock data recovery unit for recovering clock and data information to	The Exemplary Device comprises a clock data recovery unit for recovering clock and data information to produce a second m-ary modulation signal from the amplified electrical analog signal.																																																				

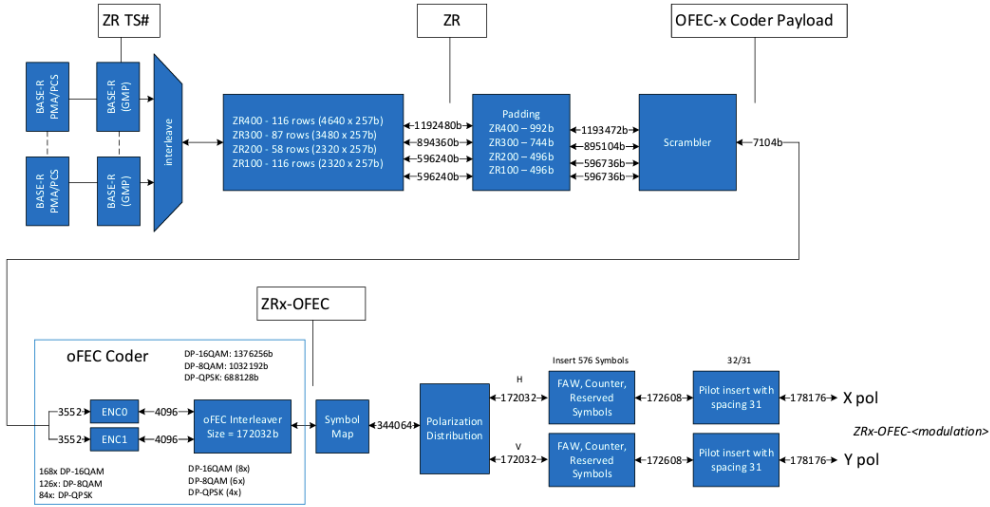
Claim Language	Selected Analysis and Evidence Regarding Exemplary Device
produce a second m-ary modulation signal from the amplified electrical analog signal;	For example, the Exemplary Device includes transmitter functionalities as described above in claim elements 1[a]-[g]. The clock-and-data recovery (“CDR”) functionality is used for coherent digital signal recovery/reception. On information and belief, the clock data recovery unit, or its equivalent, is contained within the interface IC(s) in the CFP MSA specification functional block diagram, or the DSP defined in the OIF Implementation Agreement 400ZR and/or OpenZR+ MSA Specification. https://cfp-msa.org/wp-content/uploads/2022/10/CFP2_HW-Spec-rev1.0.pdf ( Figure 1-1: CFP2 Functional Block Diagram

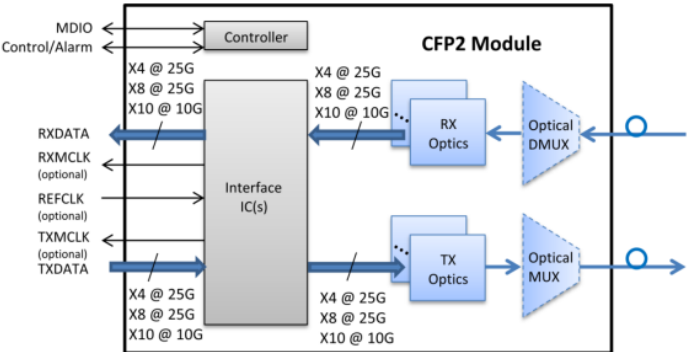
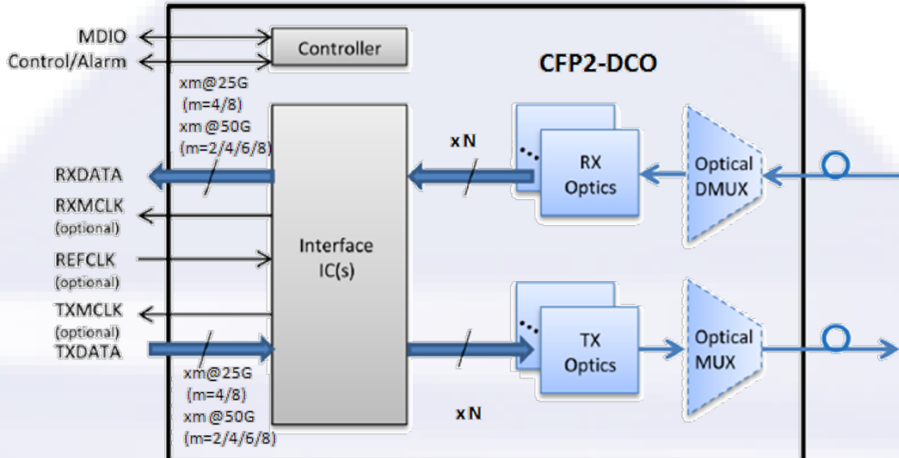
Claim Language	Selected Analysis and Evidence Regarding Exemplary Device
	Figure 4-3: Example of clocking for 4 x 25 Gbit/s CFP2 applications ); https://www.oiforum.com/wp-content/uploads/2019/01/OIF-CFP2-DCO-01.0.pdf at 8-9 (specification for CFP2-DCO:

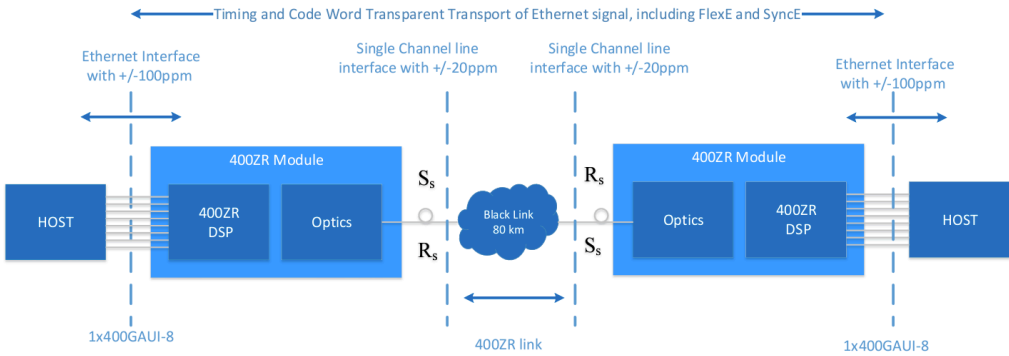
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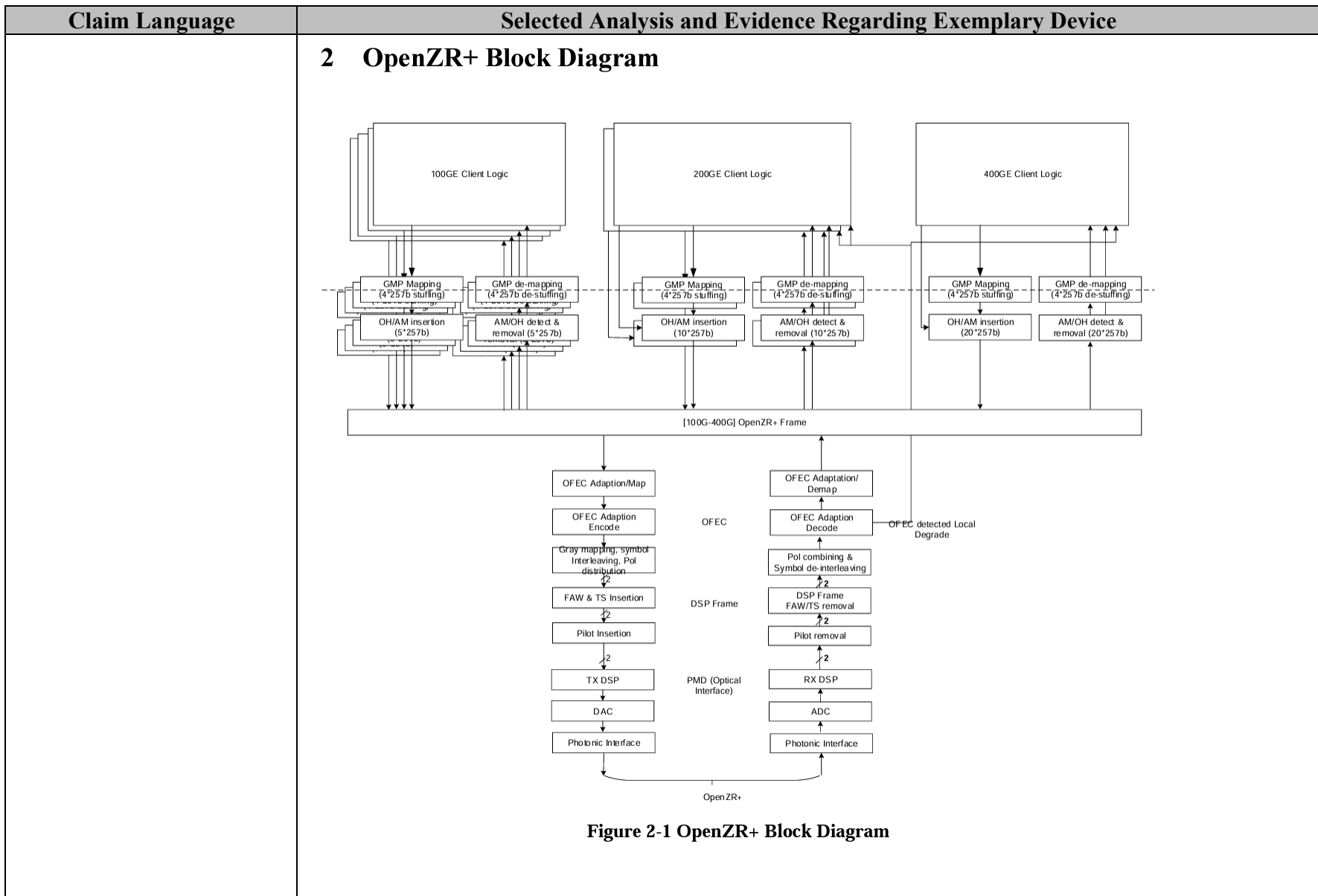
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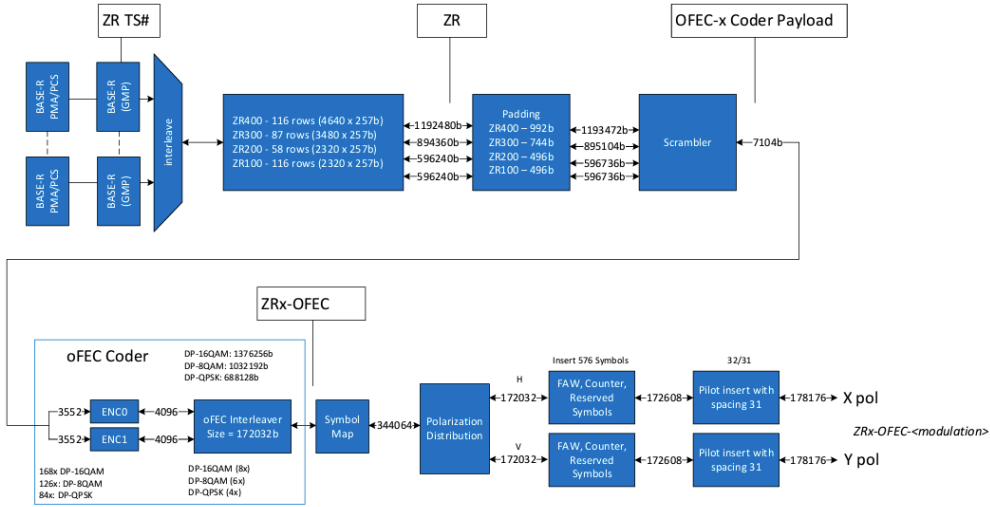


Claim Language	Selected Analysis and Evidence Regarding Exemplary Device
	 Figure 4-1: Digital port functions for a single ZRx-OFEC-mQAM signal
[i] an equalizer for performing equalization on the second m-ary modulation signal to remove noise; and	The Exemplary Device comprises an equalizer for performing equalization on the second m-ary modulation signal to remove noise. For example, equalization is used for coherent digital signal reception/recovery to compensate for group velocity dispersion and polarization mode dispersion effects. On information and belief, the equalizer, or its equivalent, is contained within the interface IC(s) in the CFP specification functional block diagram, or

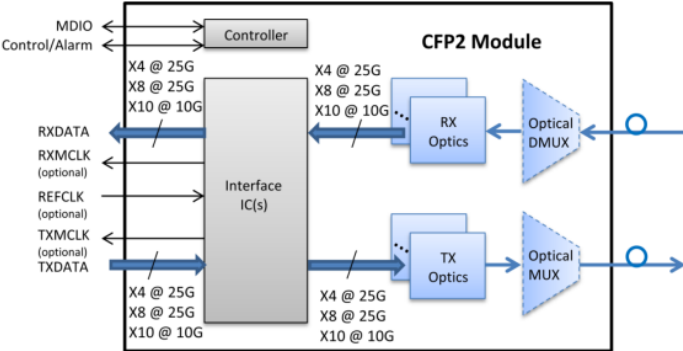
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	the DSP defined in the OIF Implementation Agreement 400ZR and/or OpenZR+ MSA Specification. https://cfp-msa.org/wp-content/uploads/2022/10/CFP2_HW-Spec-rev1.0.pdf ( Figure 1-1: CFP2 Functional Block Diagram); https://www.oiforum.com/wp-content/uploads/2019/01/OIF-CFP2-DCO-01.0.pdf at 8-9 (specification for CFP2-DCO:  Figure 1: CFP2-DCO Module Basic Functional Block Diagram

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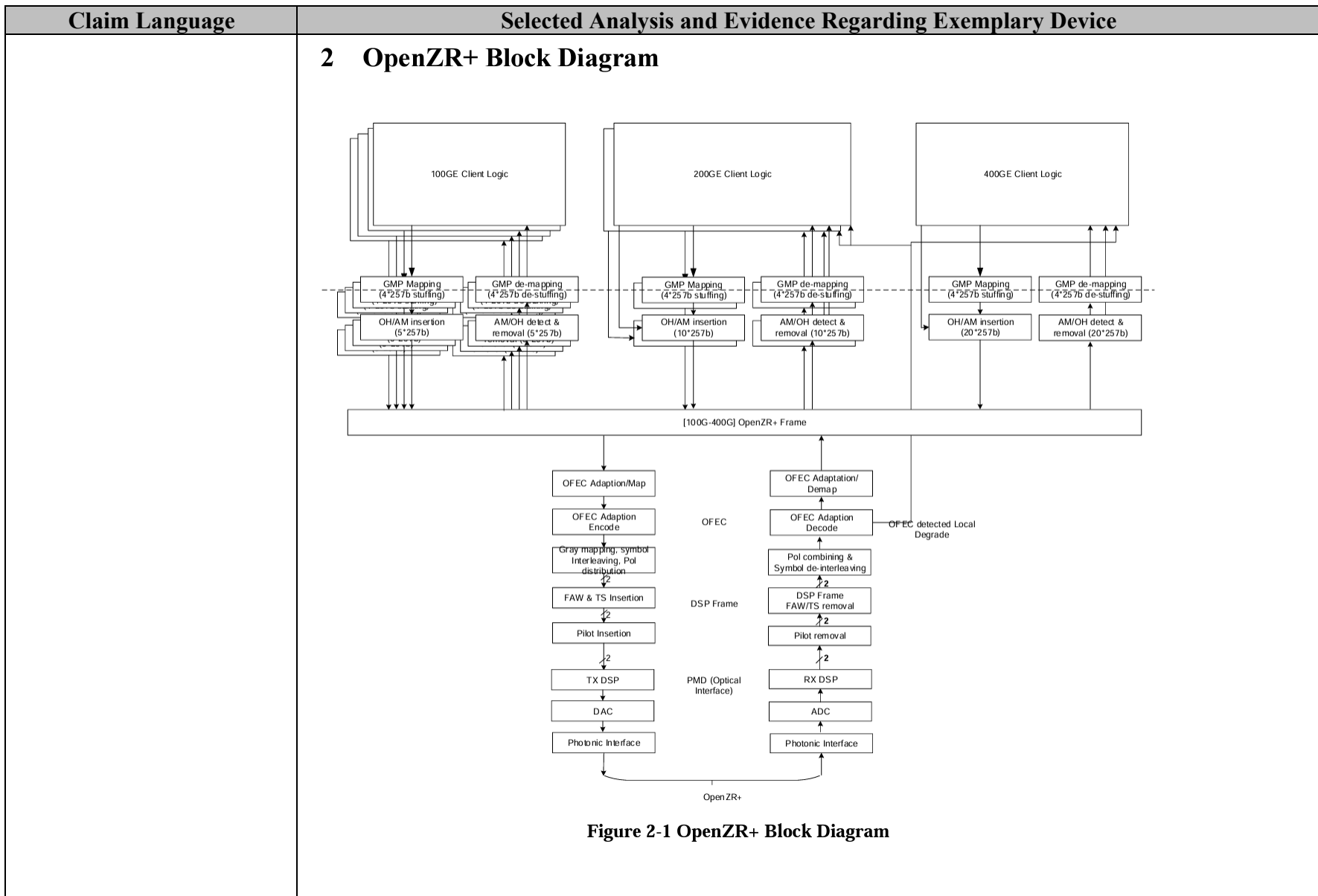
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[j] an m-ary demodulator for decreasing the number of bits per symbol in the equalized second m-ary modulation signal to produce the second electrical data signal.	The Exemplary Device comprises an m-ary demodulator for decreasing the number of bits per symbol in the equalized second m-ary modulation signal to produce the second electrical data signal. For example, the Exemplary Device supports the 16QAM modulation format. https://www.bccshop.fi/downloads/products/f/fxp400gotn/FXP400GOTN.pdf (

Claim Language	Selected Analysis and Evidence Regarding Exemplary Device																																																				
	The FXP400GOTN can support various CFP2 types on the line ports. From release R29.1 the support is: • TRX100269/TC, Multirate (QPSK/16QAM) CFP2 With release R30.0 additional CFP2 types are supported: • TRX100272/TC, Single rate (QPSK) CFP2 The multirate QPSK/16QAM CFP2 can be software reconfigurable to either 100Gbps QPSK or 200Gbps 16QAM. In 100Gbps QPSK the client service is mapped according to ITU-T G.709 OTN to an OTU4 line with additional proprietary SD-FEC wrapping. In 200Gbps the client services are multiplexed and mapped in line with ITU-T G.709 OTN to a proprietary OTUJ2 line with additional proprietary SD-FEC wrapping. The single rate QPSK CFP2 is applicable to OTU4 line only. <i>Table 5 Optical data. 100G DWDM CFP. TRX100269/TC.</i> <table> <tr> <th>Module type</th><th>Coherent 100G/200G CFP2</th></tr> <tr> <td>Product ID</td><td>TRX100269/TC</td></tr> <tr> <td>Signal Types:</td><td>100G QPSK: OTU4 + SD-FEC 200G 16QAM: OTUJ2 + SD-FEC</td></tr> <tr> <td>Connector type</td><td>LC</td></tr> <tr> <td>Input fiber type</td><td>SM</td></tr> <tr> <td>CD tolerance (disp limit)</td><td>40 000 ps/nm (OTU4) 20 000 ps/nm (OTUJ2)</td></tr> <tr> <td>PMD Tolerance</td><td>30 ps (OTU4) 15 ps (OTUJ2)</td></tr> <tr> <td>Tx wavelength</td><td>G.694.1 50GHz spacing C-band. ch9185 - ch958</td></tr> <tr> <td>Tx Output power</td><td>0dBm min +1dBm max</td></tr> <tr> <td>Rx sensitivity @10⁻¹² excl. Network Margin & excl. Disp. Penalty</td><td>-22dBm (16QAM) -29dBm (QPSK)</td></tr> <tr> <td>Rx overload</td><td>0dBm</td></tr> <tr> <td>Wavelength switching time</td><td>60 s</td></tr> <tr> <td>Transmitter cold startup time</td><td>90 s</td></tr> </table> <i>Table 6 Optical data. 100G DWDM CFP. TRX100272/TC.</i> <table> <tr> <th>Module type</th><th>Coherent 100G/200G CFP2</th></tr> <tr> <td>Product ID</td><td>TRX100272/TC</td></tr> <tr> <td>Signal Types:</td><td>100G QPSK: OTU4 + SD-FEC</td></tr> <tr> <td>Connector type</td><td>LC</td></tr> <tr> <td>Input fiber type</td><td>SM</td></tr> <tr> <td>CD tolerance (disp limit)</td><td>40 000 ps/nm (OTU4)</td></tr> <tr> <td>PMD Tolerance</td><td>30 ps (OTU4))</td></tr> <tr> <td>Tx wavelength</td><td>G.694.1 50GHz spacing C-band. ch9185 - ch958</td></tr> <tr> <td>Tx Output power</td><td>0dBm min +1dBm max</td></tr> <tr> <td>Rx sensitivity @10⁻¹² excl. Network Margin & excl. Disp. Penalty</td><td>-29dBm (QPSK)</td></tr> <tr> <td>Rx overload</td><td>0dBm</td></tr> <tr> <td>Wavelength switching time</td><td>60 s</td></tr> <tr> <td>Transmitter cold startup time</td><td>90 s</td></tr> </table>); https://www.oiforum.com/wp-content/uploads/OIF-400ZR-01.0_reduced2.pdf at 48-49 (section entitled “DP-16QAM Symbol mapping and polarization distribution”). The 16QAM modulation format is an m-ary modulation method. See ’181 patent at 10:20-31. M-ary is used “[t]o increase the number of bits per symbol transmitted” in optical systems. If m-ary modulation is used, the receiving functionality must	Module type	Coherent 100G/200G CFP2	Product ID	TRX100269/TC	Signal Types:	100G QPSK: OTU4 + SD-FEC 200G 16QAM: OTUJ2 + SD-FEC	Connector type	LC	Input fiber type	SM	CD tolerance (disp limit)	40 000 ps/nm (OTU4) 20 000 ps/nm (OTUJ2)	PMD Tolerance	30 ps (OTU4) 15 ps (OTUJ2)	Tx wavelength	G.694.1 50GHz spacing C-band. ch9185 - ch958	Tx Output power	0dBm min +1dBm max	Rx sensitivity @10 ⁻¹² excl. Network Margin & excl. Disp. Penalty	-22dBm (16QAM) -29dBm (QPSK)	Rx overload	0dBm	Wavelength switching time	60 s	Transmitter cold startup time	90 s	Module type	Coherent 100G/200G CFP2	Product ID	TRX100272/TC	Signal Types:	100G QPSK: OTU4 + SD-FEC	Connector type	LC	Input fiber type	SM	CD tolerance (disp limit)	40 000 ps/nm (OTU4)	PMD Tolerance	30 ps (OTU4))	Tx wavelength	G.694.1 50GHz spacing C-band. ch9185 - ch958	Tx Output power	0dBm min +1dBm max	Rx sensitivity @10 ⁻¹² excl. Network Margin & excl. Disp. Penalty	-29dBm (QPSK)	Rx overload	0dBm	Wavelength switching time	60 s	Transmitter cold startup time	90 s
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CD tolerance (disp limit)	40 000 ps/nm (OTU4) 20 000 ps/nm (OTUJ2)																																																				
PMD Tolerance	30 ps (OTU4) 15 ps (OTUJ2)																																																				
Tx wavelength	G.694.1 50GHz spacing C-band. ch9185 - ch958																																																				
Tx Output power	0dBm min +1dBm max																																																				
Rx sensitivity @10 ⁻¹² excl. Network Margin & excl. Disp. Penalty	-22dBm (16QAM) -29dBm (QPSK)																																																				
Rx overload	0dBm																																																				
Wavelength switching time	60 s																																																				
Transmitter cold startup time	90 s																																																				
Module type	Coherent 100G/200G CFP2																																																				
Product ID	TRX100272/TC																																																				
Signal Types:	100G QPSK: OTU4 + SD-FEC																																																				
Connector type	LC																																																				
Input fiber type	SM																																																				
CD tolerance (disp limit)	40 000 ps/nm (OTU4)																																																				
PMD Tolerance	30 ps (OTU4))																																																				
Tx wavelength	G.694.1 50GHz spacing C-band. ch9185 - ch958																																																				
Tx Output power	0dBm min +1dBm max																																																				
Rx sensitivity @10 ⁻¹² excl. Network Margin & excl. Disp. Penalty	-29dBm (QPSK)																																																				
Rx overload	0dBm																																																				
Wavelength switching time	60 s																																																				
Transmitter cold startup time	90 s																																																				

Claim Language	Selected Analysis and Evidence Regarding Exemplary Device
	include a m-ary-type demodulator that decreases the number of bits per symbol in the equalized, received signal. Additionally, on information and belief, the m-ary demodulator, or its equivalent, can found in the “Interface IC(s)” or “RX Optics” defined in the CFP2 MSA specification, or the DSP defined in the OIF Implementation Agreement 400ZR and/or OpenZR+ MSA Specification includes an m-ary modulator, or its equivalent. https://cfp-msa.org/wp-content/uploads/2022/10/CFP2_HW-Spec-rev1.0.pdf ( Figure 1-1: CFP2 Functional Block Diagram); https://www.oiforum.com/wp-content/uploads/2019/01/OIF-CFP2-DCO-01.0.pdf at 8-9 (specification for CFP2-DCO:

Claim Language	Selected Analysis and Evidence Regarding Exemplary Device
	Figure 1: CFP2-DCO Module Basic Functional Block Diagram), 12 (describing electrical interface), 16 (describing LC connector), 23-25 (Fujitsu, Infinera, and Nokia belonged to OIF); https://cfp-msa.org/wp-content/uploads/2022/10/CFP-MSA-HW-Spec-rev1-40.pdf (1.2 CFP BLOCK DIAGRAM Figure 1-1: CFP Block Diagram); https://www.oiforum.com/wp-content/uploads/OIF-400ZR-01.0_reduced2.pdf at 14 (

Claim Language	Selected Analysis and Evidence Regarding Exemplary Device
	Figure 1: 400ZR reference diagram); https://openzrplus.org/site/assets/files/1091/openzrplus_2p0.pdf at 9, 16 (



Claim Language	Selected Analysis and Evidence Regarding Exemplary Device
	Figure 4-1: Digital port functions for a single ZRx-OFEC-mQAM signal). In addition, on information and belief, the second m-ary modulation signal is demodulated by the DSP, digital-to-analog converter, or equivalent hardware used in the Exemplary Device. Investigation of both the patent and the Exemplary Device (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. NextGen reserves the right to update and amend its contentions, including adding additional claims, evidence and accused devices, as the litigation progresses and discovery is provided by the defendant.
Claim 2	
2. The pluggable optical transceiver module of claim 1, wherein the form factor of the pluggable optical	The form factor of the Exemplary Device, which is pluggable optical transceiver module, is a pluggable form factor standard. For example, as discussed in claim 1, the Exemplary Device uses a CFP or CFP2 form factor, or a QSFP or OSFP form factor implementing OIF Implementation Agreement 400ZR and/or OpenZR+ MSA Specification, all of which are based on standards.

Claim Language	Selected Analysis and Evidence Regarding Exemplary Device
transceiver module is a pluggable form factor standard.	Investigation of both the patent and the Exemplary Device (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. NextGen reserves the right to update and amend its contentions, including adding additional claims, evidence and accused devices, as the litigation progresses and discovery is provided by the defendant.
Claim 3	
3. The pluggable optical transceiver module of claim 2, wherein the pluggable form factor standard of the pluggable optical transceiver module is a small form factor pluggable (SFP) or SFP+ form factor standard.	The Exemplary Device is a pluggable optical transceiver module wherein the pluggable form factor standard of the pluggable optical transceiver module is a small form factor pluggable (SFP) or SFP+ form factor standard. For example, QSFP and OSFP are forms of a small form factor pluggable standard. <i>See</i> claim 1. Investigation of both the patent and the Exemplary Device (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. NextGen reserves the right to update and amend its contentions, including adding additional claims, evidence and accused devices, as the litigation progresses and discovery is provided by the defendant.
Claim 5	
5. The pluggable optical transceiver module of claim 1, wherein the m-ary modulator and the m-ary demodulator perform m-ary quadrature amplitude modulation and demodulation, respectively, that uses two or more bits per symbol.	The Exemplary Device includes an m-ary modulator and an m-ary demodulator that perform m-ary quadrature amplitude modulation and demodulation, respectively, that uses two or more bits per symbol. For example, <i>see</i> Claim 1[b] and [j]. Investigation of both the patent and the Exemplary Device (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. NextGen reserves the right to update and amend its contentions, including adding additional claims, evidence and accused devices, as the litigation progresses and discovery is provided by the defendant.
Claim 6	

Claim Language	Selected Analysis and Evidence Regarding Exemplary Device
6. The pluggable optical transceiver module of claim 1, wherein the m-ary modulator and the m-ary demodulator perform m-ary quadrature phase shift keying modulation and de-modulation, respectively, that uses two or more bits per symbol.	The Exemplary Device includes an m-ary modulator and an m-ary demodulator perform m-ary quadrature phase shift keying modulation and de-modulation, respectively, that uses two or more bits per symbol. For example, <i>see</i> Claim 1[b] and [j]; https://www.oiforum.com/wp-content/uploads/OIF-400ZR-01.0_reduced2.pdf at 50-52 (referring to use of QPSK). Investigation of both the patent and the Exemplary Device (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. NextGen reserves the right to update and amend its contentions, including adding additional claims, evidence and accused devices, as the litigation progresses and discovery is provided by the defendant.
Claim 8	
8. The pluggable optical transceiver module of claim 1, wherein the electrical system interface includes parallel signals.	The electrical system interface in the Exemplary Device includes parallel signals. <i>See</i> claim 1. Investigation of both the patent and the Exemplary Device (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. NextGen reserves the right to update and amend its contentions, including adding additional claims, evidence and accused devices, as the litigation progresses and discovery is provided by the defendant.
Claim 10	
10. The pluggable optical transceiver module of claim 1, wherein the first electrical data signal and second electrical data signal includes parallel electrical data signals.	The first electrical data signal and second electrical data signal in the Exemplary Device include parallel electrical data signals. <i>See</i> claim 1. Investigation of both the patent and the Exemplary Device (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. NextGen reserves the right to update and amend its contentions, including adding additional claims, evidence and accused devices, as the litigation progresses and discovery is provided by the defendant.
Claim 11	

Claim Language	Selected Analysis and Evidence Regarding Exemplary Device
11. The pluggable optical transceiver module of claim 1, wherein the electrical system interface includes an attachment unit interface (AUI) based interface.	The electrical system interface in the Exemplary Device includes an attachment unit interface (AUI) based interface. <i>See, e.g.,</i> https://www.oiforum.com/wp-content/uploads/2019/01/OIF-CFP2-DCO-01.0.pdf at 8 (CFP2-DCO specification requiring use of AUI interfaces such as “CAUI-4 [7], 200GAUI-8 [13], 400GAUI-16 [13], 25GAUI [14], LAUI2 [15], 50GAUI-2 [16], or 100GAUI-4 [16].”
Claim 12	
12. The pluggable optical transceiver module of claim 1, wherein the first optical signal on a first wavelength is configured to emit into a first optical fiber and the second optical signal on a second wavelength is configured to be received from the first optical fiber.	In the Exemplary Device, the first optical signal on a first wavelength is configured to emit into a first optical fiber and the second optical signal on a second wavelength is configured to be received from the first optical fiber. <i>See</i> claim 1. Investigation of both the patent and the Exemplary Device (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. NextGen reserves the right to update and amend its contentions, including adding additional claims, evidence and accused devices, as the litigation progresses and discovery is provided by the defendant.
Claim 13	
13. The pluggable optical transceiver module of claim 1, wherein the first optical signal on a first wavelength is configured to emit into a first optical fiber and the second optical signal on a second wavelength is configured to be received from a second optical fiber.	In the Exemplary Device, the first optical signal on a first wavelength is configured to emit into a first optical fiber and the second optical signal on a second wavelength is configured to be received from a second optical fiber. <i>See</i> claim 1. Investigation of both the patent and the Exemplary Device (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. NextGen reserves the right to update and amend its contentions, including adding additional claims, evidence and accused devices, as the litigation progresses and discovery is provided by the defendant.
Claim 14	

Claim Language	Selected Analysis and Evidence Regarding Exemplary Device
14. The pluggable optical transceiver module of claim 1, wherein the noise removed by the equalizer includes inter-symbol interference (ISI).	On information and belief, in the Exemplary Device, the noise removed by the equalizer includes inter-symbol interference (ISI). <i>See</i> https://en.wikipedia.org/wiki/Intersymbol_interference (equalizer is used to remove ISI). Investigation of both the patent and the Exemplary Device (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. NextGen reserves the right to update and amend its contentions, including adding additional claims, evidence and accused devices, as the litigation progresses and discovery is provided by the defendant.
Claim 15	
15. The pluggable optical transceiver module of claim 1, wherein the equalizer performs decision directed equalization on the second m-ary modulation signal to remove noise.	On information and belief, the equalizer in the Exemplary Device performs decision directed equalization on the second m-ary modulation signal to remove noise. <i>See</i> Claim 1[i]. This type of operation is performed by optical transceivers such as the Exemplary Device. <i>E.g.</i>, https://www.researchgate.net/publication/236606066_Frequency_Domain_Blind_Equalization_for_Long-Haul_Coherent_Pol-Mux_16-QAM_System_with_CD_Prediction_and_Dual-Mode_Adaptive_Algorithm. On information and belief, the Exemplary Device also performs this operation. Investigation of both the patent and the Exemplary Device (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. NextGen reserves the right to update and amend its contentions, including adding additional claims, evidence and accused devices, as the litigation progresses and discovery is provided by the defendant.
Claim 16	
16. The pluggable optical transceiver module of claim 1, wherein the equalizer performs blind equalization on the second m-ary	On information and belief, the equalizer in the Exemplary Device performs blind equalization on the second m-ary modulation signal to remove noise. <i>See</i> Claim 1[i]. This type of operation is performed by optical transceivers such as the Exemplary Device. <i>E.g.</i>, https://www.researchgate.net/publication/236606066_Frequency_Domain_Blind_Equalization_for_Long-Haul_Coherent_Pol-Mux_16-QAM_System_with_CD_Prediction_and_Dual-

Claim Language	Selected Analysis and Evidence Regarding Exemplary Device
modulation signal to remove noise.	Mode Adaptive Algorithm. On information and belief, the Exemplary Device also performs this operation. Investigation of both the patent and the Exemplary Device (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. NextGen reserves the right to update and amend its contentions, including adding additional claims, evidence and accused devices, as the litigation progresses and discovery is provided by the defendant.
Claim 17	
17. The pluggable optical transceiver module of claim 1, wherein the digital to analog converter is configured to shape, condition, or emphasize the first electrical m-ary analog modulation signal for improved transmission performance.	On information and belief, the digital to analog converter in the Exemplary Device is configured to shape, condition, or emphasize the first electrical m-ary analog modulation signal for improved transmission performance. <i>See</i> Claim 1[c]. For example, on information and belief, the Exemplary Device may use techniques such as constellation shaping for improved transmission performance. Investigation of both the patent and the Exemplary Device (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. NextGen reserves the right to update and amend its contentions, including adding additional claims, evidence and accused devices, as the litigation progresses and discovery is provided by the defendant.
Claim 22	
[pre] A pluggable optical transceiver module comprising of:	The Exemplary Device is a pluggable optical transceiver module. <i>See</i> claim 1[pre].
[a] an electrical system interface for receiving a first electrical data signal and for transmitting a second electrical data signal;	The Exemplary Device comprises an electrical system interface for receiving a first electrical data signal and for transmitting a second electrical data signal. <i>See</i> claim 1[a].
[b] an m-ary modulator for increasing the number of	The Exemplary Device comprises an m-ary modulator for increasing the number of bits per symbol in the first electrical data signal to produce a first m-ary modulation signal. <i>See</i> claim 1[b].

Claim Language	Selected Analysis and Evidence Regarding Exemplary Device
bits per symbol in the first electrical data signal to produce a first m-ary modulation signal;	
[c] a digital to analog converter for converting the first m-ary modulation signal to a first electrical m-ary analog modulation signal;	The Exemplary Device comprises a digital to analog converter for converting the first m-ary modulation signal to a first electrical m-ary analog modulation signal. <i>See</i> claim 1[c].
[d] a driver for amplifying the first electrical m-ary analog modulation signal to an amplified first electrical m-ary analog modulation signal to drive an optical transmitter;	The Exemplary Device comprises a driver for amplifying the first electrical m-ary analog modulation signal to an amplified first electrical m-ary analog modulation signal to drive an optical transmitter. <i>See</i> claim 1[d].
[e] the optical transmitter for emitting a first optical signal on a first wavelength responsive to and representative of the amplified first electrical m-ary analog modulation signal from the driver;	The Exemplary Device comprises the optical transmitter for emitting a first optical signal on a first wavelength responsive to and representative of the amplified first electrical m-ary analog modulation signal from the driver. <i>See</i> claim 1[e].
[f] an optical detector for receiving a second optical signal on a second wavelength to produce an electrical analog signal;	The Exemplary Device comprises an optical detector for receiving a second optical signal on a second wavelength to produce an electrical analog signal. <i>See</i> claim 1[f].
[g] an amplifier for amplifying the electrical	The Exemplary Device comprises an amplifier for amplifying the electrical analog signal to an amplified electrical analog signal. <i>See</i> claim 1[g].

Claim Language	Selected Analysis and Evidence Regarding Exemplary Device
analog signal to an amplified electrical analog signal;	
[h] a clock data recovery unit for recovering clock and data information to produce a second m-ary modulation signal from the amplified electrical analog signal;	The Exemplary Device comprises a clock data recovery unit for recovering clock and data information to produce a second m-ary modulation signal from the amplified electrical analog signal. <i>See</i> claim 1[h].
[i] an equalizer for performing equalization on the second m-ary modulation signal to remove noise; and	The Exemplary Device comprises an equalizer for performing equalization on the second m-ary modulation signal to remove noise. <i>See</i> claim 1[i].
[j] an m-ary demodulator for decreasing the number of bits per symbol in the equalized second m-ary modulation signal to produce the second electrical data signal.	The Exemplary Device comprises an m-ary demodulator for decreasing the number of bits per symbol in the equalized second m-ary modulation signal to produce the second electrical data signal. <i>See</i> claim 1[j].
[k] wherein the m-ary modulator and the m-ary demodulator perform m-ary pulse amplitude modulation and demodulation, respectively, that uses two or more bits per symbol.	On information and belief, the Exemplary Device includes an m-ary modulator and m-ary demodulator that performs m-ary pulse amplitude modulation and demodulation, respectively, that uses two or more bits per symbol.
Claim 23	

Claim Language	Selected Analysis and Evidence Regarding Exemplary Device
[pre] A pluggable optical transceiver module comprising of:	The Exemplary Device is a pluggable optical transceiver module. <i>See</i> claim 1[pre].
[a] an electrical system interface for receiving a first electrical data signal and for transmitting a second electrical data signal;	The Exemplary Device comprises an electrical system interface for receiving a first electrical data signal and for transmitting a second electrical data signal. <i>See</i> claim 1[a].
[b] an m-ary modulator for increasing the number of bits per symbol in the first electrical data signal to produce a first m-ary modulation signal;	The Exemplary Device comprises an m-ary modulator for increasing the number of bits per symbol in the first electrical data signal to produce a first m-ary modulation signal. <i>See</i> claim 1[b].
[c] a digital to analog converter for converting the first m-ary modulation signal to a first electrical m-ary analog modulation signal;	The Exemplary Device comprises a digital to analog converter for converting the first m-ary modulation signal to a first electrical m-ary analog modulation signal. <i>See</i> claim 1[c].
[d] a driver for amplifying the first electrical m-ary analog modulation signal to an amplified first electrical m-ary analog modulation signal to drive an optical transmitter;	The Exemplary Device comprises a driver for amplifying the first electrical m-ary analog modulation signal to an amplified first electrical m-ary analog modulation signal to drive an optical transmitter. <i>See</i> claim 1[d].
[e] the optical transmitter for emitting a first optical signal on a first wavelength responsive to and representative of the	The Exemplary Device comprises the optical transmitter for emitting a first optical signal on a first wavelength responsive to and representative of the amplified first electrical m-ary analog modulation signal from the driver. <i>See</i> claim 1[e].

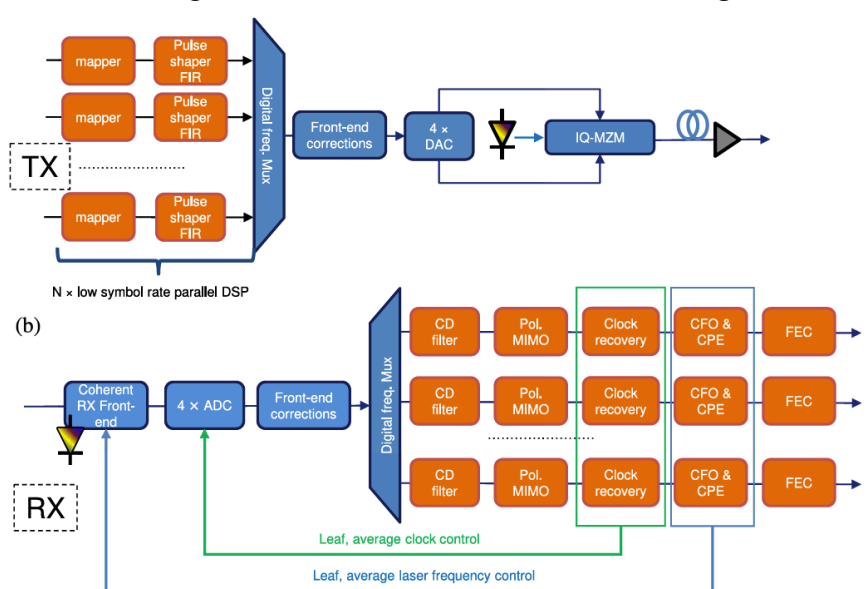
Claim Language	Selected Analysis and Evidence Regarding Exemplary Device
amplified first electrical m-ary analog modulation signal from the driver;	
[f] an optical detector for receiving a second optical signal on a second wavelength to produce an electrical analog signal;	The Exemplary Device comprises an optical detector for receiving a second optical signal on a second wavelength to produce an electrical analog signal. <i>See</i> claim 1[f].
[g] an amplifier for amplifying the electrical analog signal to an amplified electrical analog signal;	The Exemplary Device comprises an amplifier for amplifying the electrical analog signal to an amplified electrical analog signal. <i>See</i> claim 1[g].
[h] a clock data recovery unit for recovering clock and data information to produce a second m-ary modulation signal from the amplified electrical analog signal;	The Exemplary Device comprises a clock data recovery unit for recovering clock and data information to produce a second m-ary modulation signal from the amplified electrical analog signal. <i>See</i> claim 1[h].
[i] an equalizer for performing equalization on the second m-ary modulation signal to remove noise; and	The Exemplary Device comprises an equalizer for performing equalization on the second m-ary modulation signal to remove noise. <i>See</i> claim 1[i].
[j] an m-ary demodulator for decreasing the number of bits per symbol in the equalized second m-ary modulation signal to produce the second electrical data signal.	The Exemplary Device comprises an m-ary demodulator for decreasing the number of bits per symbol in the equalized second m-ary modulation signal to produce the second electrical data signal. <i>See</i> claim 1[j].

Claim Language	Selected Analysis and Evidence Regarding Exemplary Device
[k] wherein the equalizer includes coefficients or weights configured to remove noise from the second m-ary modulation signal.	The Exemplary Device includes an equalizer that includes coefficients or weights configured to remove noise from the second m-ary modulation signal. <i>See</i> claims 1[i], 14.

Exhibit I2
U.S. Patent No. 10,771,181
v.
Infinera’s ICR-XR Devices (“Exemplary Device”)

Claim Language	Selected Analysis and Evidence Regarding Exemplary Device
Claim 1	
[pre] A pluggable optical transceiver module comprising of:	The Exemplary Device is an optical transceiver module. For example, the Exemplary Device does, or will, come in variety of form factors, including CFP2-DCO, QSFP-DD, QSFP-28, OSFP, and SFP28. <i>E.g.</i>, https://www.infinera.com/innovation/icexr-coherent-optical-pluggables/ ( The diagram illustrates three different optical transceiver module form factors. On the left is a 100G module labeled '(4 Subcarriers) QSFP-28/QSFP-DD/CFP2'. In the middle is a 400G module labeled '(16 Subcarriers) QSFP-DD/CFP2'. On the right is an 800G module labeled '(32 Subcarriers)'. Above each label is a small image of the respective module. To the left of these three is a larger image of an Infinera ICE-XR module.); https://www.infinera.com/wp-content/uploads/XR-Optics-SB-0217-RevF-0222.pdf (“XR optics implements this concept in industry-standard pluggable form factors such as SFP28, QSFP28, QSFP-DD, OSFP, and CFP2.”). All of these form factors are “industry-standard pluggable form factors.” https://www.infinera.com/wp-content/uploads/XR-Optics-SB-0217-RevF-0222.pdf; <i>see also</i> https://www.infinera.com/blog/happy-star-wars-day-may-the-400g-be-with-you/tag/access-and-aggregation/?utm_source=FB&utm_medium=Blog&utm_campaign=400GBewithYou (discussing use of CFP2-DCO and XR optics pluggables in XTM series and GX series platforms); https://www.infinera.com/wp-content/uploads/Infinera-GX-Series-0243-BR-RevE-0222.pdf (

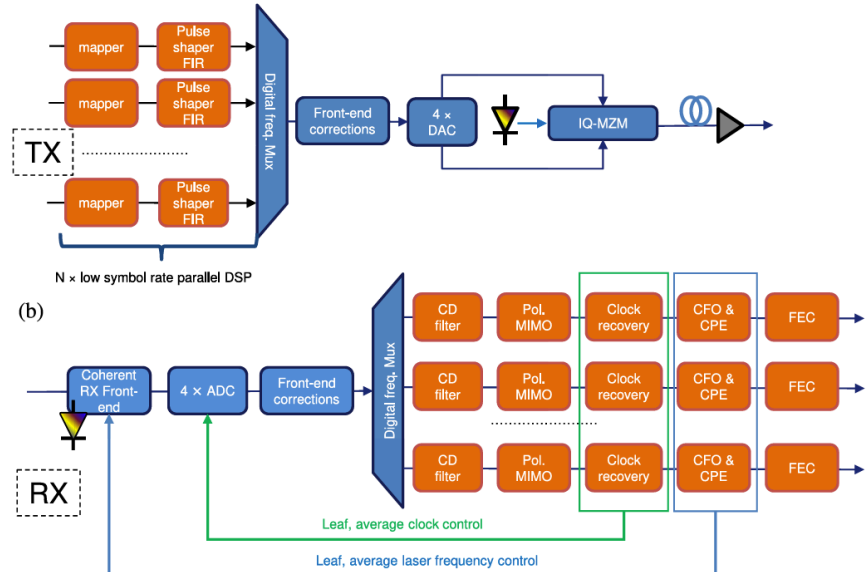
Claim Language	Selected Analysis and Evidence Regarding Exemplary Device
	Coherent Interfaces • 100G to 800G • XR optics including ZR+ • CFP2, QSFP-DD, embedded); https://www.infinera.com/blog/happy-star-wars-day-may-the-400g-be-with-you/tag/access-and-aggregation/?utm_source=FB&utm_medium=Blog&utm_campaign=400GBeWithYou (discussing use of CFP2-DCO and XR optics pluggables in XTM series and GX series platforms); https://www.infinera.com/press-release/infinera-announces-ice-xr-pluggables-availability-and-open-optical-toolkit (Infinera announcing availability in 2022 of the Exemplary Device in CFP2 and QSFP-DD form factors); https://www.infinera.com/wp-content/uploads/Delivering-a-Transformative-Network-Architecture-with-XR-Optics-0261-TB-RevB-0820-1.pdf (describing XR Optics); https://www.infinera.com/wp-content/uploads/pr20210519-Infinera-Introduces-New-Suite-of-XR-Optics-powered-Coherent-Pluggable-Solutions.pdf (2021 press release regarding introduction of XR Optics); https://www.infinera.com/wp-content/uploads/XR_Optics_FAQ.pdf (FAQ regarding XR Optics); https://www.infinera.com/innovation/xr-optics/. On information and belief, the article entitled Point-to-Multipoint Optical Networks Using Coherent Digital Subcarriers by Welch et al. (Welch 2020, https://www.infinera.com/wp-content/uploads/IEEE-pt-to-multipt-Aug-2021.pdf) describes a representative structure of an Exemplary Device. Investigation of both the patent and the Exemplary Device (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. NextGen reserves the right to update and amend its contentions, including adding additional claims, evidence and accused devices, as the litigation progresses and discovery is provided by the defendant.
[a] an electrical system interface for receiving a first electrical data signal and for	The Exemplary Device comprises an electrical system interface for receiving a first electrical data signal and for transmitting a second electrical data signal.

Claim Language	Selected Analysis and Evidence Regarding Exemplary Device
transmitting a second electrical data signal;	For example, Welch 2020 demonstrates that the Exemplary Device includes an electrical system interface for electrical data signals that are received and transmitted. <i>E.g.</i>, Welch 2020 at 5237 (). In addition, the Exemplary Device conforms to various form factors, including CFP2-DCO and QSFP. <i>E.g.</i>, https://www.infinera.com/innovation/icexr-coherent-optical-pluggables/ (); https://www.infinera.com/wp-content/uploads/XR-Optics-SB-0217-RevF-0222.pdf (“XR optics implements this concept in industry-standard pluggable form factors such as SFP28, QSFP28, QSFP-DD, OSFP, and CFP2.”); https://www.infinera.com/press-release/infinera-announces-ice-xr-pluggables-availability-and-open-optical-toolkit (Infinera announcing availability in 2022 of the Exemplary Device in

Claim Language	Selected Analysis and Evidence Regarding Exemplary Device
	CFP2 and QSFP-DD form factors). NextGen refers to and incorporates by reference its contentions regarding the CFP2 pluggable devices sold by Infinera, as well as its contentions regarding the QSFP pluggable devices sold by Infinera. Investigation of both the patent and the Exemplary Device (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. NextGen reserves the right to update and amend its contentions, including adding additional claims, evidence and accused devices, as the litigation progresses and discovery is provided by the defendant.
[b] an m-ary modulator for increasing the number of bits per symbol in the first electrical data signal to produce a first m-ary modulation signal;	The Exemplary Device comprises an m-ary modulator for increasing the number of bits per symbol in the first electrical data signal to produce a first m-ary modulation signal. For example, the Exemplary Device supports the 16QAM modulation format. https://www.infinera.com/wp-content/uploads/XR-Optics-SB-0217-RevF-0222.pdf. The 16QAM modulation format is an m-ary modulation method. <i>See</i> '181 patent at 10:20-31. M-ary is used to increase the number of bits per symbol transmitted in optical systems. Additionally, on information and belief, the DSP used in the Exemplary Devices includes an m-ary modulator, or its equivalent. <i>E.g.</i>, Welch 2020 at 5237 (

Claim Language	Selected Analysis and Evidence Regarding Exemplary Device				
	(b)). In addition, the Exemplary Device conforms to various form factors, including CFP2-DCO and QSFP. E.g., https://www.infinera.com/innovation/icexr-coherent-optical-pluggables/ (<table><tr><th>Infinera ICE-XR</th><th>100G (4 Subcarriers) QSFP-28/QSFP-DD/CFP2</th><th>400G (16 Subcarriers) QSFP-DD/CFP2</th><th>800G (32 Subcarriers)</th></tr></table>); https://www.infinera.com/wp-content/uploads/XR-Optics-SB-0217-RevF-0222.pdf (“XR optics implements this concept in industry-standard pluggable form factors such as SFP28, QSFP28, QSFP-DD, OSFP, and CFP2.”); https://www.infinera.com/press-release/infinera-announces-ice-xr-pluggables-availability-and-open-optical-toolkit (Infinera announcing availability in 2022 of the Exemplary Device in CFP2 and QSFP-DD form factors). NextGen refers to and incorporates by reference its contentions	Infinera ICE-XR	100G (4 Subcarriers) QSFP-28/QSFP-DD/CFP2	400G (16 Subcarriers) QSFP-DD/CFP2	800G (32 Subcarriers)
Infinera ICE-XR	100G (4 Subcarriers) QSFP-28/QSFP-DD/CFP2	400G (16 Subcarriers) QSFP-DD/CFP2	800G (32 Subcarriers)		

Claim Language	Selected Analysis and Evidence Regarding Exemplary Device
	regarding the CFP2 pluggable devices sold by Infinera, as well as its contentions regarding the QSFP pluggable devices sold by Infinera. In addition, on information and belief, a first m-ary modulation signal is created by the DSP, digital-to-analog converter, or equivalent hardware used in the Exemplary Device. Investigation of both the patent and the Exemplary Device (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. NextGen reserves the right to update and amend its contentions, including adding additional claims, evidence and accused devices, as the litigation progresses and discovery is provided by the defendant.
[c] a digital to analog converter for converting the first m-ary modulation signal to a first electrical m-ary analog modulation signal;	The Exemplary Device comprises a digital to analog converter for converting the first m-ary modulation signal to a first electrical m-ary analog modulation signal. For example, the Exemplary Device includes functionality that converts the m-ary modulated signal to an electrical m-ary analog modulation signal (for example, along the optical connection). <i>E.g.</i>, Welch 2020 at 5237 (

Claim Language	Selected Analysis and Evidence Regarding Exemplary Device				
	 (b) TX N x low symbol rate parallel DSP RX Leaf, average clock control Leaf, average laser frequency control). Welch 2020 shows “4xDAC.” <i>Id.</i> In addition, the Exemplary Device conforms to various form factors, including CFP2-DCO and QSFP. <i>E.g.</i>, https://www.infinera.com/innovation/icexr-coherent-optical-pluggables/ (<table><tr><td></td><td> 100G (4 Subcarriers) QSFP-28/QSFP-DD/CFP2</td><td> 400G (16 Subcarriers) QSFP-DD/CFP2</td><td> 800G (32 Subcarriers)</td></tr></table>); https://www.infinera.com/wp-content/uploads/XR-Optics-SB-0217-RevF-0222.pdf (“XR optics implements this concept in industry-standard pluggable form factors such as SFP28, QSFP28, QSFP-DD, OSFP, and CFP2.”); https://www.infinera.com/press-release/infinera-announces-ice-xr-pluggables-availability-and-open-optical-toolkit (Infinera announcing availability in 2022 of the Exemplary Device in CFP2 and QSFP-DD form factors). NextGen refers to and incorporates by reference its contentions		 100G (4 Subcarriers) QSFP-28/QSFP-DD/CFP2	 400G (16 Subcarriers) QSFP-DD/CFP2	 800G (32 Subcarriers)
	 100G (4 Subcarriers) QSFP-28/QSFP-DD/CFP2	 400G (16 Subcarriers) QSFP-DD/CFP2	 800G (32 Subcarriers)		

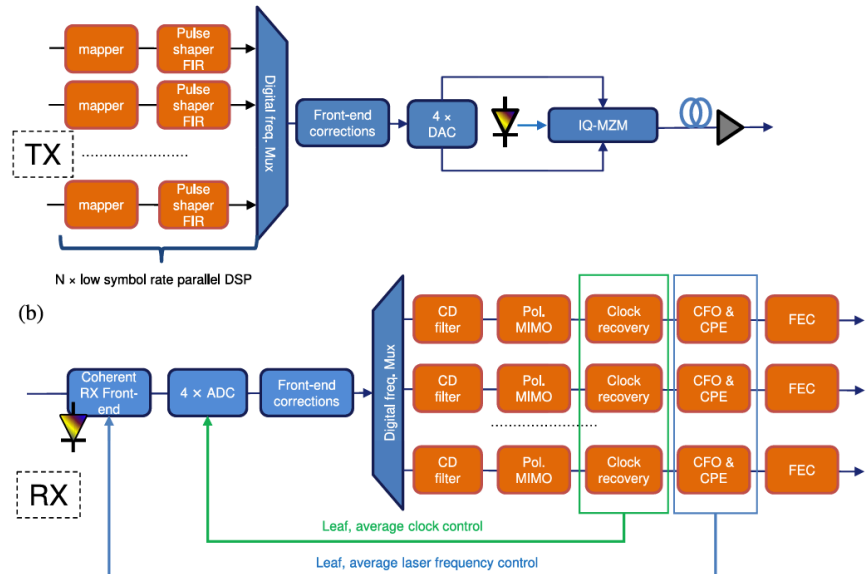
Claim Language	Selected Analysis and Evidence Regarding Exemplary Device												
	regarding the CFP2 pluggable devices sold by Infinera, as well as its contentions regarding the QSFP pluggable devices sold by Infinera. Investigation of both the patent and the Exemplary Device (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. NextGen reserves the right to update and amend its contentions, including adding additional claims, evidence and accused devices, as the litigation progresses and discovery is provided by the defendant.												
[d] a driver for amplifying the first electrical m-ary analog modulation signal to an amplified first electrical m-ary analog modulation signal to drive an optical transmitter;	The Exemplary Device comprises a driver for amplifying the first electrical m-ary analog modulation signal to an amplified first electrical m-ary analog modulation signal to drive an optical transmitter. For example, the Exemplary Device contains one or more DWDM optical transmitters. <i>E.g.</i>, https://www.infinera.com/innovation/icexr-coherent-optical-pluggables/ (<table><tr><th>100G (4 Subcarriers) QSFP-28/QSFP-DD/CFP2</th><th>400G (16 Subcarriers) QSFP-DD/CFP2</th><th>800G (32 Subcarriers)</th></tr><tr><td></td><td></td><td></td></tr></table>); https://www.infinera.com/wp-content/uploads/ICE-XR-in-5G-xHaul-Transport-Networks-0309-AN-RevA-0622.pdf (Application Note describing use of Exemplary Device to enable a “DWDM transport network”). The optical transmitter uses a driver amplifier to optimize the level of the modulation signal driven by the optical transmitter. Welch 2020 at 5237 (“Finally, the signal is input to the driver”). In addition, the Exemplary Device conforms to various form factors, including CFP2-DCO and QSFP. <i>E.g.</i>, https://www.infinera.com/innovation/icexr-coherent-optical-pluggables/ (<table><tr><th>100G (4 Subcarriers) QSFP-28/QSFP-DD/CFP2</th><th>400G (16 Subcarriers) QSFP-DD/CFP2</th><th>800G (32 Subcarriers)</th></tr><tr><td></td><td></td><td></td></tr></table>	100G (4 Subcarriers) QSFP-28/QSFP-DD/CFP2	400G (16 Subcarriers) QSFP-DD/CFP2	800G (32 Subcarriers)				100G (4 Subcarriers) QSFP-28/QSFP-DD/CFP2	400G (16 Subcarriers) QSFP-DD/CFP2	800G (32 Subcarriers)			
100G (4 Subcarriers) QSFP-28/QSFP-DD/CFP2	400G (16 Subcarriers) QSFP-DD/CFP2	800G (32 Subcarriers)											
													
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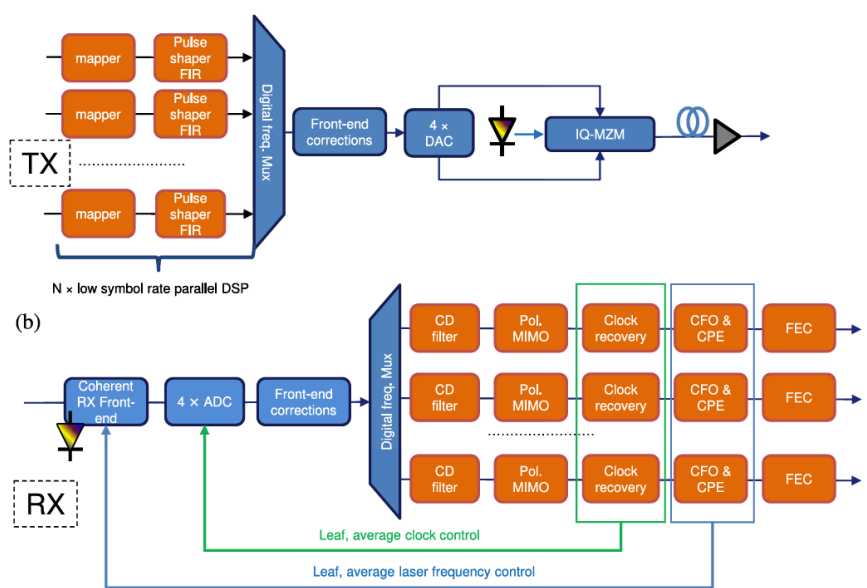
Claim Language	Selected Analysis and Evidence Regarding Exemplary Device			
	); https://www.infinera.com/wp-content/uploads/XR-Optics-SB-0217-RevF-0222.pdf (“XR optics implements this concept in industry-standard pluggable form factors such as SFP28, QSFP28, QSFP-DD, OSFP, and CFP2.”); https://www.infinera.com/press-release/infinera-announces-ice-xr-pluggables-availability-and-open-optical-toolkit (Infinera announcing availability in 2022 of the Exemplary Device in CFP2 and QSFP-DD form factors). NextGen refers to and incorporates by reference its contentions regarding the CFP2 pluggable devices sold by Infinera, as well as its contentions regarding the QSFP pluggable devices sold by Infinera. Investigation of both the patent and the Exemplary Device (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. NextGen reserves the right to update and amend its contentions, including adding additional claims, evidence and accused devices, as the litigation progresses and discovery is provided by the defendant.			
[e] the optical transmitter for emitting a first optical signal on a first wavelength responsive to and representative of the amplified first electrical m-ary analog modulation signal from the driver;	The Exemplary Device comprises the optical transmitter for emitting a first optical signal on a first wavelength responsive to and representative of the amplified first electrical m-ary analog modulation signal from the driver. For example, the Exemplary Device includes transmitter functionalities as described above in claim elements 1[a]-[d]. The Exemplary Device conforms to various form factors, including CFP2-DCO and QSFP. <i>E.g.</i>, https://www.infinera.com/innovation/icexr-coherent-optical-pluggables/ ( <table><tr><td>100G (4 Subcarriers) QSFP-28/QSFP-DD/CFP2</td><td>400G (16 Subcarriers) QSFP-DD/CFP2</td><td>800G (32 Subcarriers)</td></tr></table>); https://www.infinera.com/wp-content/uploads/XR-Optics-SB-0217-RevF-0222.pdf (“XR optics implements this concept in industry-standard pluggable form factors such as SFP28, QSFP28, QSFP-DD, OSFP, and CFP2.”); https://www.infinera.com/press-release/infinera-announces-ice-xr-pluggables-availability-and-open-optical-toolkit (Infinera announcing availability in 2022 of the Exemplary Device in CFP2 and QSFP-DD form factors). NextGen refers to and incorporates by reference its contentions	100G (4 Subcarriers) QSFP-28/QSFP-DD/CFP2	400G (16 Subcarriers) QSFP-DD/CFP2	800G (32 Subcarriers)
100G (4 Subcarriers) QSFP-28/QSFP-DD/CFP2	400G (16 Subcarriers) QSFP-DD/CFP2	800G (32 Subcarriers)		

Claim Language	Selected Analysis and Evidence Regarding Exemplary Device			
	regarding the CFP2 pluggable devices sold by Infinera, as well as its contentions regarding the QSFP pluggable devices sold by Infinera. Investigation of both the patent and the Exemplary Device (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. NextGen reserves the right to update and amend its contentions, including adding additional claims, evidence and accused devices, as the litigation progresses and discovery is provided by the defendant.			
[f] an optical detector for receiving a second optical signal on a second wavelength to produce an electrical analog signal;	The Exemplary Device comprises an optical detector for receiving a second optical signal on a second wavelength to produce an electrical analog signal. For example, the Exemplary Device includes transmitter functionalities as described above in claim elements 1[a]-[e]. The Exemplary Device conforms to various form factors, including CFP2-DCO and QSFP. <i>E.g.</i>, https://www.infinera.com/innovation/icexr-coherent-optical-pluggables/ ( <table><tr><td> 100G (4 Subcarriers) QSFP-28/QSFP-DD/CFP2</td><td> 400G (16 Subcarriers) QSFP-DD/CFP2</td><td> 800G (32 Subcarriers)</td></tr></table>); https://www.infinera.com/wp-content/uploads/XR-Optics-SB-0217-RevF-0222.pdf (“XR optics implements this concept in industry-standard pluggable form factors such as SFP28, QSFP28, QSFP-DD, OSFP, and CFP2.”); https://www.infinera.com/press-release/infinera-announces-ice-xr-pluggables-availability-and-open-optical-toolkit (Infinera announcing availability in 2022 of the Exemplary Device in CFP2 and QSFP-DD form factors). NextGen refers to and incorporates by reference its contentions regarding the CFP2 pluggable devices sold by Infinera, as well as its contentions regarding the QSFP pluggable devices sold by Infinera. Investigation of both the patent and the Exemplary Device (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. NextGen	 100G (4 Subcarriers) QSFP-28/QSFP-DD/CFP2	 400G (16 Subcarriers) QSFP-DD/CFP2	 800G (32 Subcarriers)
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Claim Language	Selected Analysis and Evidence Regarding Exemplary Device
	reserves the right to update and amend its contentions, including adding additional claims, evidence and accused devices, as the litigation progresses and discovery is provided by the defendant.
[g] an amplifier for amplifying the electrical analog signal to an amplified electrical analog signal;	The Exemplary Device comprises an amplifier for amplifying the electrical analog signal to an amplified electrical analog signal. For example, the Exemplary Device includes transmitter functionalities as described above in claim elements 1[a]-[f]. On information and belief, an amplifier, or its equivalent, is contained in the Coherent RX Frontend, ADC, Front-end corrections, or DSP in the Exemplary Device. <i>E.g.</i>, Welch 2020 at 5237 ((b)). In addition, the Exemplary Device conforms to various form factors, including CFP2-DCO and QSFP. <i>E.g.</i>, https://www.infinera.com/innovation/icexr-coherent-optical-pluggables/ (

Claim Language	Selected Analysis and Evidence Regarding Exemplary Device
	  100G (4 Subcarriers) QSFP-28/QSFP-DD/CFP2  400G (16 Subcarriers) QSFP-DD/CFP2  800G (32 Subcarriers)); https://www.infinera.com/wp-content/uploads/XR-Optics-SB-0217-RevF-0222.pdf (“XR optics implements this concept in industry-standard pluggable form factors such as SFP28, QSFP28, QSFP-DD, OSFP, and CFP2.”); https://www.infinera.com/press-release/infinera-announces-ice-xr-pluggables-availability-and-open-optical-toolkit (Infinera announcing availability in 2022 of the Exemplary Device in CFP2 and QSFP-DD form factors). NextGen refers to and incorporates by reference its contentions regarding the CFP2 pluggable devices sold by Infinera, as well as its contentions regarding the QSFP pluggable devices sold by Infinera. Investigation of both the patent and the Exemplary Device (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. NextGen reserves the right to update and amend its contentions, including adding additional claims, evidence and accused devices, as the litigation progresses and discovery is provided by the defendant.
[h] a clock data recovery unit for recovering clock and data information to produce a second m-ary modulation signal from the amplified electrical analog signal;	The Exemplary Device comprises a clock data recovery unit for recovering clock and data information to produce a second m-ary modulation signal from the amplified electrical analog signal. For example, the Exemplary Device includes transmitter functionalities as described above in claim elements 1[a]-[g]. The clock-and-data recovery (“CDR”) functionality is used for coherent digital signal recovery/reception. Welch 2020 at 5237 (

Claim Language	Selected Analysis and Evidence Regarding Exemplary Device				
	 (b) TX N x low symbol rate parallel DSP RX Leaf, average clock control Leaf, average laser frequency control ; “The clock recovery comprises a clock phase detector and an interpolator for fact jitter compensation.”). In addition, the Exemplary Device conforms to various form factors, including CFP2-DCO and QSFP. E.g., https://www.infinera.com/innovation/icexr-coherent-optical-pluggables/ (<table><tr><td></td><td> 100G (4 Subcarriers) QSFP-28/QSFP-DD/CFP2 </td><td> 400G (16 Subcarriers) QSFP-DD/CFP2 </td><td> 800G (32 Subcarriers) </td></tr></table>); https://www.infinera.com/wp-content/uploads/XR-Optics-SB-0217-RevF-0222.pdf (“XR optics implements this concept in industry-standard pluggable form factors such as SFP28, QSFP28, QSFP-DD, OSFP, and CFP2.”); https://www.infinera.com/press-release/infinera-announces-ice-xr-pluggables-availability-and-open-optical-toolkit (Infinera announcing availability in 2022 of the Exemplary Device in CFP2 and QSFP-DD form factors). NextGen refers to and incorporates by reference its contentions		 100G (4 Subcarriers) QSFP-28/QSFP-DD/CFP2	 400G (16 Subcarriers) QSFP-DD/CFP2	 800G (32 Subcarriers)
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Claim Language	Selected Analysis and Evidence Regarding Exemplary Device
	regarding the CFP2 pluggable devices sold by Infinera, as well as its contentions regarding the QSFP pluggable devices sold by Infinera. Investigation of both the patent and the Exemplary Device (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. NextGen reserves the right to update and amend its contentions, including adding additional claims, evidence and accused devices, as the litigation progresses and discovery is provided by the defendant.
[i] an equalizer for performing equalization on the second m-ary modulation signal to remove noise; and	The Exemplary Device comprises an equalizer for performing equalization on the second m-ary modulation signal to remove noise. For example, equalization is used for coherent digital signal reception/recovery to compensate for group velocity dispersion and polarization mode dispersion effects. The Exemplary Device includes at least one equalizer. Welch 2020 at 5237-38 ( ; describing use of “Multiple Input Multiple Output (MIMO) equalizer”).

Claim Language	Selected Analysis and Evidence Regarding Exemplary Device			
	In addition, the Exemplary Device conforms to various form factors, including CFP2-DCO and QSFP. <i>E.g.</i>, https://www.infinera.com/innovation/icexr-coherent-optical-pluggables/ ( <table><tr><td>100G (4 Subcarriers) QSFP-28/QSFP-DD/CFP2</td><td>400G (16 Subcarriers) QSFP-DD/CFP2</td><td>800G (32 Subcarriers)</td></tr></table>); https://www.infinera.com/wp-content/uploads/XR-Optics-SB-0217-RevF-0222.pdf (“XR optics implements this concept in industry-standard pluggable form factors such as SFP28, QSFP28, QSFP-DD, OSFP, and CFP2.”); https://www.infinera.com/press-release/infinera-announces-ice-xr-pluggables-availability-and-open-optical-toolkit (Infinera announcing availability in 2022 of the Exemplary Device in CFP2 and QSFP-DD form factors). NextGen refers to and incorporates by reference its contentions regarding the CFP2 pluggable devices sold by Infinera, as well as its contentions regarding the QSFP pluggable devices sold by Infinera. Investigation of both the patent and the Exemplary Device (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. NextGen reserves the right to update and amend its contentions, including adding additional claims, evidence and accused devices, as the litigation progresses and discovery is provided by the defendant.	100G (4 Subcarriers) QSFP-28/QSFP-DD/CFP2	400G (16 Subcarriers) QSFP-DD/CFP2	800G (32 Subcarriers)
100G (4 Subcarriers) QSFP-28/QSFP-DD/CFP2	400G (16 Subcarriers) QSFP-DD/CFP2	800G (32 Subcarriers)		
[j] an m-ary demodulator for decreasing the number of bits per symbol in the equalized second m-ary modulation signal to produce the second electrical data signal.	The Exemplary Device comprises an m-ary demodulator for decreasing the number of bits per symbol in the equalized second m-ary modulation signal to produce the second electrical data signal. For example, the Exemplary Device supports the 16QAM modulation format. https://www.infinera.com/wp-content/uploads/XR-Optics-SB-0217-RevF-0222.pdf. The 16QAM modulation format is an m-ary modulation method. <i>See</i> ’181 patent at 10:20-31. M-ary is used to increase the number of bits per symbol transmitted in optical systems. Additionally, on information and belief, the DSP used in the Exemplary Devices includes an m-ary modulator, or its equivalent. <i>E.g.</i>, Welch 2020 at 5237 (			

Claim Language	Selected Analysis and Evidence Regarding Exemplary Device								
	(b)). In addition, the Exemplary Device conforms to various form factors, including CFP2-DCO and QSFP. E.g., https://www.infinera.com/innovation/icexr-coherent-optical-pluggables/ (<table><tr><th></th><th>100G (4 Subcarriers) QSFP-28/QSFP-DD/CFP2</th><th>400G (16 Subcarriers) QSFP-DD/CFP2</th><th>800G (32 Subcarriers) CFP2</th></tr><tr><td></td><td></td><td></td><td></td></tr></table>); https://www.infinera.com/wp-content/uploads/XR-Optics-SB-0217-RevF-0222.pdf (“XR optics implements this concept in industry-standard pluggable form factors such as SFP28, QSFP28, QSFP-DD, OSFP, and CFP2.”); https://www.infinera.com/press-release/infinera-announces-ice-xr-pluggables-availability-and-open-optical-toolkit (Infinera announcing availability in 2022 of the Exemplary Device in CFP2 and QSFP-DD form factors). NextGen refers to and incorporates by reference its contentions		100G (4 Subcarriers) QSFP-28/QSFP-DD/CFP2	400G (16 Subcarriers) QSFP-DD/CFP2	800G (32 Subcarriers) CFP2				
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Claim Language	Selected Analysis and Evidence Regarding Exemplary Device			
	regarding the CFP2 pluggable devices sold by Infinera, as well as its contentions regarding the QSFP pluggable devices sold by Infinera. In addition, on information and belief, the second m-ary modulation signal is demodulated by the DSP, digital-to-analog converter, or equivalent hardware used in the Exemplary Device. Investigation of both the patent and the Exemplary Device (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. NextGen reserves the right to update and amend its contentions, including adding additional claims, evidence and accused devices, as the litigation progresses and discovery is provided by the defendant.			
Claim 2				
2. The pluggable optical transceiver module of claim 1, wherein the form factor of the pluggable optical transceiver module is a pluggable form factor standard.	The form factor of the Exemplary Device, which is pluggable optical transceiver module, is a pluggable form factor standard. For example, as discussed in claim 1, the Exemplary Device uses a CFP2-DCO, QSFP-DD, QSFP-28, OSFP, and SFP28, which are all based on standards. <i>E.g.</i>, https://www.infinera.com/innovation/icexr-coherent-optical-pluggables/ ( <table><tr><td> 100G (4 Subcarriers) QSFP-28/QSFP-DD/CFP2</td><td> 400G (16 Subcarriers) QSFP-DD/CFP2</td><td> 800G (32 Subcarriers)</td></tr></table>); https://www.infinera.com/wp-content/uploads/XR-Optics-SB-0217-RevF-0222.pdf (“XR optics implements this concept in industry-standard pluggable form factors such as SFP28, QSFP28, QSFP-DD, OSFP, and CFP2.”). All of these form factors are “industry-standard pluggable form factors.” https://www.infinera.com/wp-content/uploads/XR-Optics-SB-0217-RevF-0222.pdf; <i>see also</i> https://www.infinera.com/blog/happy-star-wars-day-may-the-400g-be-with-you/tag/access-and-aggregation/?utm_source=FB&utm_medium=Blog&utm_campaign=400GBeWithYou (discussing use of CFP2-DCO and XR optics pluggables in XTM series and GX series platforms); https://www.infinera.com/wp-content/uploads/Infinera-GX-Series-0243-BR-RevE-0222.pdf (	 100G (4 Subcarriers) QSFP-28/QSFP-DD/CFP2	 400G (16 Subcarriers) QSFP-DD/CFP2	 800G (32 Subcarriers)
 100G (4 Subcarriers) QSFP-28/QSFP-DD/CFP2	 400G (16 Subcarriers) QSFP-DD/CFP2	 800G (32 Subcarriers)		

Claim Language	Selected Analysis and Evidence Regarding Exemplary Device
	Coherent Interfaces • 100G to 800G • XR optics including ZR+ • CFP2, QSFP-DD, embedded); https://www.infinera.com/blog/happy-star-wars-day-may-the-400g-be-with-you/tag/access-and-aggregation/?utm_source=FB&utm_medium=Blog&utm_campaign=400GBeWithYou (discussing use of CFP2-DCO and XR optics pluggables in XTM series and GX series platforms); https://www.infinera.com/press-release/infinera-announces-ice-xr-pluggables-availability-and-open-optical-toolkit (Infinera announcing availability in 2022 of the Exemplary Device in CFP2 and QSFP-DD form factors). Investigation of both the patent and the Exemplary Device (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. NextGen reserves the right to update and amend its contentions, including adding additional claims, evidence and accused devices, as the litigation progresses and discovery is provided by the defendant.
Claim 3	
3. The pluggable optical transceiver module of claim 2, wherein the pluggable form factor standard of the pluggable optical transceiver module is a small form factor pluggable (SFP) or SFP+ form factor standard.	The Exemplary Device is a pluggable optical transceiver module wherein the pluggable form factor standard of the pluggable optical transceiver module is a small form factor pluggable (SFP) or SFP+ form factor standard. For example, QSFP, OSFP and SFP28 are a form of a small form factor pluggable standard. <i>See</i> claim 1.
Claim 5	

Claim Language	Selected Analysis and Evidence Regarding Exemplary Device
5. The pluggable optical transceiver module of claim 1, wherein the m-ary modulator and the m-ary demodulator perform m-ary quadrature amplitude modulation and demodulation, respectively, that uses two or more bits per symbol.	The Exemplary Device includes an m-ary modulator and an m-ary demodulator that perform m-ary quadrature amplitude modulation and demodulation, respectively, that uses two or more bits per symbol. For example, <i>see</i> Claim 1[b] and [j]. Investigation of both the patent and the Exemplary Device (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. NextGen reserves the right to update and amend its contentions, including adding additional claims, evidence and accused devices, as the litigation progresses and discovery is provided by the defendant.
Claim 6	
6. The pluggable optical transceiver module of claim 1, wherein the m-ary modulator and the m-ary demodulator perform m-ary quadrature phase shift keying modulation and de-modulation, respectively, that uses two or more bits per symbol.	The Exemplary Device includes an m-ary modulator and an m-ary demodulator perform m-ary quadrature phase shift keying modulation and de-modulation, respectively, that uses two or more bits per symbol. For example, <i>see</i> Claim 1[b] and [j]. Investigation of both the patent and the Exemplary Device (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. NextGen reserves the right to update and amend its contentions, including adding additional claims, evidence and accused devices, as the litigation progresses and discovery is provided by the defendant.
Claim 8	
8. The pluggable optical transceiver module of claim 1, wherein the electrical system interface includes parallel signals.	The electrical system interface in the Exemplary Device includes parallel signals. <i>See</i> claim 1, Welch 2020 at 5237-38 (describing parallelization in Exemplary Device). Investigation of both the patent and the Exemplary Device (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. NextGen reserves the right to update and amend its contentions, including adding additional claims, evidence and accused devices, as the litigation progresses and discovery is provided by the defendant.

Claim Language	Selected Analysis and Evidence Regarding Exemplary Device
Claim 10	
10. The pluggable optical transceiver module of claim 1, wherein the first electrical data signal and second electrical data signal includes parallel electrical data signals.	The first electrical data signal and second electrical data signal in the Exemplary Device include parallel electrical data signals. <i>See</i> claim 1, Welch 2020 at 5237-38 (describing parallelization in Exemplary Device). Investigation of both the patent and the Exemplary Device (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. NextGen reserves the right to update and amend its contentions, including adding additional claims, evidence and accused devices, as the litigation progresses and discovery is provided by the defendant.
Claim 12	
12. The pluggable optical transceiver module of claim 1, wherein the first optical signal on a first wavelength is configured to emit into a first optical fiber and the second optical signal on a second wavelength is configured to be received from the first optical fiber.	In the Exemplary Device, the first optical signal on a first wavelength is configured to emit into a first optical fiber and the second optical signal on a second wavelength is configured to be received from the first optical fiber. <i>See</i> claim 1. Investigation of both the patent and the Exemplary Device (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. NextGen reserves the right to update and amend its contentions, including adding additional claims, evidence and accused devices, as the litigation progresses and discovery is provided by the defendant.
Claim 13	
13. The pluggable optical transceiver module of claim 1, wherein the first optical signal on a first wavelength is configured to emit into a first optical fiber and the	In the Exemplary Device, the first optical signal on a first wavelength is configured to emit into a first optical fiber and the second optical signal on a second wavelength is configured to be received from a second optical fiber. <i>See</i> claim 1. Investigation of both the patent and the Exemplary Device (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. NextGen

Claim Language	Selected Analysis and Evidence Regarding Exemplary Device
second optical signal on a second wavelength is configured to be received from a second optical fiber.	reserves the right to update and amend its contentions, including adding additional claims, evidence and accused devices, as the litigation progresses and discovery is provided by the defendant.
Claim 14	
14. The pluggable optical transceiver module of claim 1, wherein the noise removed by the equalizer includes inter-symbol interference (ISI).	On information and belief, in the Exemplary Device, the noise removed by the equalizer includes inter-symbol interference (ISI). <i>See</i> https://en.wikipedia.org/wiki/Intersymbol_interference (equalizer is used to remove ISI). Investigation of both the patent and the Exemplary Device (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. NextGen reserves the right to update and amend its contentions, including adding additional claims, evidence and accused devices, as the litigation progresses and discovery is provided by the defendant.
Claim 15	
15. The pluggable optical transceiver module of claim 1, wherein the equalizer performs decision directed equalization on the second m-ary modulation signal to remove noise.	On information and belief, the equalizer in the Exemplary Device performs decision directed equalization on the second m-ary modulation signal to remove noise. <i>See</i> Claim 1[i]. This type of operation is performed by optical transceivers such as the Exemplary Device. <i>E.g.</i>, https://www.researchgate.net/publication/236606066_Frequency_Domain_Blind_Equalization_for_Long-Haul_Coherent_Pol-Mux_16-QAM_System_with_CD_Prediction_and_Dual-Mode_Adaptive_Algorithm. On information and belief, the Exemplary Device also performs this operation. Investigation of both the patent and the Exemplary Device (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. NextGen reserves the right to update and amend its contentions, including adding additional claims, evidence and accused devices, as the litigation progresses and discovery is provided by the defendant.
Claim 16	

Claim Language	Selected Analysis and Evidence Regarding Exemplary Device
16. The pluggable optical transceiver module of claim 1, wherein the equalizer performs blind equalization on the second m-ary modulation signal to remove noise.	On information and belief, the equalizer in the Exemplary Device performs blind equalization on the second m-ary modulation signal to remove noise. <i>See</i> Claim 1[i]. This type of operation is performed by optical transceivers such as the Exemplary Device. <i>E.g.</i>, https://www.researchgate.net/publication/236606066_Frequency_Domain_Blind_Equalization_for_Long-Haul_Coherent_Pol-Mux_16-QAM_System_with_CD_Prediction_and_Dual-Mode_Adaptive_Algorithm. On information and belief, the Exemplary Device also performs this operation. Investigation of both the patent and the Exemplary Device (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. NextGen reserves the right to update and amend its contentions, including adding additional claims, evidence and accused devices, as the litigation progresses and discovery is provided by the defendant.
Claim 17	
17. The pluggable optical transceiver module of claim 1, wherein the digital to analog converter is configured to shape, condition, or emphasize the first electrical m-ary analog modulation signal for improved transmission performance.	On information and belief, the digital to analog converter in the Exemplary Device is configured to shape, condition, or emphasize the first electrical m-ary analog modulation signal for improved transmission performance. <i>See</i> Claim 1[c]. For example, on information and belief, the Exemplary Device may use techniques such as constellation shaping for improved transmission performance. Investigation of both the patent and the Exemplary Device (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. NextGen reserves the right to update and amend its contentions, including adding additional claims, evidence and accused devices, as the litigation progresses and discovery is provided by the defendant.
Claim 23	
[pre] A pluggable optical transceiver module comprising of:	The Exemplary Device is a pluggable optical transceiver module. <i>See</i> claim 1[pre].
[a] an electrical system interface for receiving a first	The Exemplary Device comprises an electrical system interface for receiving a first electrical data signal and for transmitting a second electrical data signal. <i>See</i> claim 1[a].

Claim Language	Selected Analysis and Evidence Regarding Exemplary Device
electrical data signal and for transmitting a second electrical data signal;	
[b] an m-ary modulator for increasing the number of bits per symbol in the first electrical data signal to produce a first m-ary modulation signal;	The Exemplary Device comprises an m-ary modulator for increasing the number of bits per symbol in the first electrical data signal to produce a first m-ary modulation signal. <i>See</i> claim 1[b].
[c] a digital to analog converter for converting the first m-ary modulation signal to a first electrical m-ary analog modulation signal;	The Exemplary Device comprises a digital to analog converter for converting the first m-ary modulation signal to a first electrical m-ary analog modulation signal. <i>See</i> claim 1[c].
[d] a driver for amplifying the first electrical m-ary analog modulation signal to an amplified first electrical m-ary analog modulation signal to drive an optical transmitter;	The Exemplary Device comprises a driver for amplifying the first electrical m-ary analog modulation signal to an amplified first electrical m-ary analog modulation signal to drive an optical transmitter. <i>See</i> claim 1[d].
[e] the optical transmitter for emitting a first optical signal on a first wavelength responsive to and representative of the amplified first electrical m-ary analog modulation signal from the driver;	The Exemplary Device comprises the optical transmitter for emitting a first optical signal on a first wavelength responsive to and representative of the amplified first electrical m-ary analog modulation signal from the driver. <i>See</i> claim 1[e].
[f] an optical detector for receiving a second optical	The Exemplary Device comprises an optical detector for receiving a second optical signal on a second wavelength to produce an electrical analog signal. <i>See</i> claim 1[f].

Claim Language	Selected Analysis and Evidence Regarding Exemplary Device
signal on a second wavelength to produce an electrical analog signal;	
[g] an amplifier for amplifying the electrical analog signal to an amplified electrical analog signal;	The Exemplary Device comprises an amplifier for amplifying the electrical analog signal to an amplified electrical analog signal. <i>See</i> claim 1[g].
[h] a clock data recovery unit for recovering clock and data information to produce a second m-ary modulation signal from the amplified electrical analog signal;	The Exemplary Device comprises a clock data recovery unit for recovering clock and data information to produce a second m-ary modulation signal from the amplified electrical analog signal. <i>See</i> claim 1[h].
[i] an equalizer for performing equalization on the second m-ary modulation signal to remove noise; and	The Exemplary Device comprises an equalizer for performing equalization on the second m-ary modulation signal to remove noise. <i>See</i> claim 1[i].
[j] an m-ary demodulator for decreasing the number of bits per symbol in the equalized second m-ary modulation signal to produce the second electrical data signal.	The Exemplary Device comprises an m-ary demodulator for decreasing the number of bits per symbol in the equalized second m-ary modulation signal to produce the second electrical data signal. <i>See</i> claim 1[j].
[k] wherein the equalizer includes coefficients or weights configured to remove noise from the	The Exemplary Device includes an equalizer that includes coefficients or weights configured to remove noise from the second m-ary modulation signal. <i>See</i> claims 1[i], 14.

Claim Language	Selected Analysis and Evidence Regarding Exemplary Device
second m-ary modulation signal.	