

Nu-Wave Optima™

Flexible Optical Transport Platform for Terrestrial and Submarine 100G Networks



A Flexible Platform Relying on Advanced Optical Amplification Technology for Efficient 100G Networks

Nu-Wave Optima is Xtera's next-generation optical DWDM transport system that is designed to significantly lower the cost of optical networks while offering industry-leading capacity (15 Tb/s per fiber pair) and ultra-long-reach capabilities.

Its highly-scalable architecture makes it ideal for communication providers in the regional, long-haul, and ultra-long-haul markets. It is also well-suited for service providers that will start out with lower capacities, but ultimately require the high capacity needed by today's and tomorrow's bandwidth-intensive applications. The unique modularity of the optical line system allows Xtera to customize a solution to cost-effectively address various distance requirements, capacities ranging from modest to very high, a combination of distance and capacities or to overcome optical impairments on any fiber type.

Nu-Wave Optima can be configured to support regional and long-haul terrestrial, as well as unrepeated and regional submarine applications. Using a single platform to address multiple applications lowers both CapEx and operational expenses for communication providers, for example, by reducing sparing and training.

One of the key elements of the line system which allows Nu-Wave Optima to address various applications is its optical amplifiers which include EDFA, hybrid EDFA/Raman, and all-Raman amplifiers. The latest Reconfigurable Optical Add Drop Multiplexing (ROADM) technologies are also implemented as needed to support directionless and/or colorless transmission over multi-degree nodes. The line system is then complemented with just the right interfaces to cost effectively deliver services ranging from GbE to 100 Gb/s.



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Nu-Wave Optima Features and Benefits

- Industry-leading [Capacity x Reach] metric for both unrepeated and repeated 100G networks
- Unrivalled capacity: 15 Tb/s in one fiber pair
- Compact equipment: up to 2.5 Tb/s per rack
- Amplifier/ROADM toolkit to efficiently address different spans, capacities, connectivity and availability requirements, during life of network
- Spares, training and NMS common to unrepeated, backbone and regional repeated submarine applications

Specifications

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Channel plan	1531.51 to 1592.10 nm on 50-GHz ITU-T grid	Interface cards	Multi-rate tunable transponders and muxponders
Configuration	30, 60, 90 or 150 channels	Client interfaces	GbE, OC-48/STM-16 10 GbE LAN & WAN PHY OC-192/STM-64/OTU-2/2e OC-768/STM-256/OTU-3 OTU-4
Reach	Up to 3,000 km at 15 Tb/s	ROADM / Multi-degree node	2 to 8 degrees, Colorless, directionless
Fiber type support	ITU-T G.652, G.653, G.654, G.655 and G.656	Control plane	Ring protection via colorless/directionless ROADM, shared/mesh protection
System performance	BER < 10 ⁻¹⁵	Footprint	1 Tb/s per rack for 10 x 100G terminal configuration 2.5 Tb/s per interface rack
Laser safety classification	Class 1M	Input power voltage	-40 to -72 VDC
OSC	100-Mb/s optical channel	Power consumption	2300 W for 1 Tb/s terminal configuration
EMS	GUI based management, Netcool® interface	Compliance	GR-63-CORE (NEBS), Zone 4 seismic, ETS 3 0-019-1, RoHS
NM interface	TL1	EMI/EMC	FCC Part 15, Class A, EN50082-1, EN61000-4
Craft interface	Java-based GUI with both local and remote access	Optical safety	21CFR1040.10, 21CFR1040.11, IEC60825-1, IEC60825-2
Performance monitoring	SDH/SONET, Ethernet and OTN (client) & FEC-derived statistics (line), optical power measurements		
Office alarms and controls	16 inputs and 8 outputs		
Rack dimensions	300-mm wide ETSI rack ANSI rack		

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