



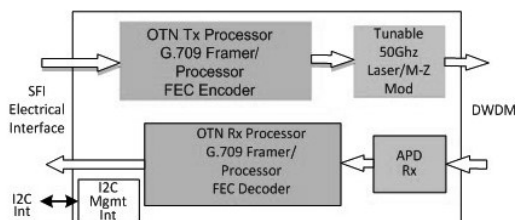
## Tunable OTN SFP+ MSA Compliant DWDM 11.1Gb/s Transceiver with Integrated G.709 Framing and EFEC



### Description

Menara Networks Tunable OTN SFP+ DWDM transceiver combines carrier grade OTN G.709 framing, FEC performance and 50GHz full C-band tunability into a SFP+ MSA compliant package. Menara's Tunable OTN SFP+ is the only industry SFP+ MSA that can transparently carry a native 10G LAN PHY and SONET/SDH payload with a carrier grade DWDM Optical Transport Network (OTN) interface without the need for bandwidth limitation. OTN SFP+ combines a G.709 compliant Digital Wrapper and Enhanced Forward Error Correction (FEC) with a M-Z modulated 50GHz tunable laser for superior optical performance and management functions equal to those found in external DWDM Transponder systems. Tunable OTN SFP+ is designed to interoperate with any Open DWDM line system that support 50GHz or 100GHz spaced wavelengths per the ITU-T C-band grid thus offering complete and cost effective DWDM transport for IP, MPLS, and Ethernet applications.

Tunable OTN SFP+ G.709 digital wrapper overhead and FEC functions are handled by the OTN Processor, which is integrated into the SFP+ module. The OTN Processor provides Operations Administration and Management (OAM) functions with G.709 alarms and Performance Management statistics.



### Management

Management of the Tunable OTN SFP+ is provided via the SFP+ MSA I<sup>2</sup>C interface, which supports digital diagnostic monitoring, alarms and loop backs to include G.709 and FEC management registers and wavelength tuning. Routers and Switches can reap the performance gains of FEC without changes to the existing I<sup>2</sup>C interface in a management Transparent Mode of operation, in which the Tunable OTN SFP+ activates the G.709 Digital Wrapper and FEC coding without the need for specific I<sup>2</sup>C provisioning.

### Applications

- IP/MPLS and Ethernet Switches
- Access, Metro and Regional Carrier Ethernet DWDM Networks
- MSPP
- Customer Premise Ethernet Demarcation

### Features

- Compliant with SFP+ MSA<sup>1</sup>
- Integrated OTN G.709 Digital Wrapper
- 6.2dB Net Coding Gain G-FEC
- 8 dB Net Coding Gain EFEC for enhanced optical performance
- Tunability over full C-band 50GHz ITU-T wavelengths (SFF-8477 Control)
- Multi-protocol and bit rate support for 10GE, OC-192/STM-64, 10G FC and OTN
- Fully transparent 10G LAN PHY OTU2e at 11.09 Gbps
- Adaptive Receiver Decision Threshold Control for improved OSNR range
- True link BER reporting and Integrated PRBS 10 Gbps BERT for test set free link turn-up
- OTN Digital diagnostics and alarm reporting
- 2.4W typical power consumption in GFEC mode and 3.0W typical in EFEC mode

<sup>1</sup> Compliant with SFP+ MSA except for additional mechanical length required to house the OTN processor