The Viavi Solutions CWDM module, part of the 8100-Series OTDR EVO family can connect anywhere on the fiber to characterize CWDM networks for commissioning, network upgrades, and troubleshooting with the insurance of workflow optimization and accurate fiber-link fingerprinting.

The optical performance of the CWDM module, combined with the T-BERD/MTS platform’s suite of testing features, ensures that testing jobs are performed right the first time to successfully deploy and maintain metro- and mobile-backhaul networks.

Testing features include:

- Automatic multitest configuration
- Summary results table with pass/fail analysis
- Linear trace interpretation with SLM (optional)
- Fast-Report — onboard report generation

Key Benefits

- Characterize fiber links with exact CWDM wavelengths per ITU-T G.694.2
- Test through CWDM multiplexers, optical add/drop multiplexers (OADM), and demultiplexers with central wavelength control
- Troubleshoot live networks with in-service testing feature
- Verify end-to-end continuity using the continuous wave source
- Eliminate OTDR interpretation errors with Smart Link Mapper (SLM) without compromising on test time

Key Features

- Optimized dynamic range to test through mux, OADM, and demux
- Headend/central-office testing with sequenced short acquisition
- Integrated continuous-wave light source with modulation capability
- Instantaneous traffic detection
- Central wavelength control for accurate mux/demux loss measurement

Applications

- Test any CWDM network configuration
- Qualify fiber links during CWDM installation
- Wavelength provisioning—test new wavelength routes without disrupting traffic on active channels
- In-service troubleshooting—pinpoint the nature of a fault and its exact location
Specifications (Typical at 25°C)

**General**
- **Weight**: approx. 500 g (1.1 lb)
- **Dimensions (W x H x D)**: 213 x 124 x 32 mm (8.38 x 4.88 x 1.26 in)
- **Laser safety class (21 CFR)**: Class 1
- **Distance units**: Kilometer, meter, feet, and miles
- **Group index range**: 1.30000 to 1.70000 in 0.00001 steps
- **Number of data points**: Up to 256,000 data points
- **Storage**: Bellcore/Telcordia compatible Version 1.1 and Version 2.0

**Distance Measurements**
- **Mode**: Automatic or dual cursor
- **Display range**: From 0.5 to 320 km
- **Display resolution**: 1 cm
- **Cursor resolution**: From 1 cm
- **Sampling resolution**: From 4 cm
- **Accuracy**: ±0.75 m ± sampling resolution ±1.10^-5 * x distance (excluding group index uncertainties)

**OTDR Modules**

<table>
<thead>
<tr>
<th>Wavelength</th>
<th>8100 CWDM1E</th>
<th>8100 CWDM2E</th>
<th>8100 CWDM3E</th>
<th>8100 CWDM4E</th>
<th>8100 CWDM5E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wavelength</td>
<td>1551/1571/1591/1611 ±3 nm</td>
<td>1471/1491/1511/1531 ±3 nm</td>
<td>1431/1451 ±3 nm</td>
<td>1351/1371/1391/1411 ±3 nm</td>
<td>1271/1291/1311/1331 ±3 nm</td>
</tr>
<tr>
<td>Dynamic range</td>
<td>42 dB</td>
<td>42 dB</td>
<td>42 dB</td>
<td>42 dB</td>
<td>42 dB</td>
</tr>
<tr>
<td>Pulse width</td>
<td>3 ns to 20 µs</td>
<td>3 ns to 20 µs</td>
<td>3 ns to 20 µs</td>
<td>3 ns to 20 µs</td>
<td>3 ns to 20 µs</td>
</tr>
<tr>
<td>Event dead zone</td>
<td>0.8 m</td>
<td>0.8 m</td>
<td>0.8 m</td>
<td>0.8 m</td>
<td>0.8 m</td>
</tr>
<tr>
<td>Attenuation dead zone</td>
<td>4.5 m</td>
<td>4.5 m</td>
<td>4.5 m</td>
<td>4.5 m</td>
<td>4.5 m</td>
</tr>
</tbody>
</table>

**Continuous wave light source**
- **Wavelengths**: All listed above
- **Output power**: 0 dBm
- **Stability**: < ±0.1 dB at 25°C, over 1 hour
  - CW, 270 Hz, 330 Hz, 1 kHz, 2 kHz
- **Automatic traffic detection**: Yes

**Attenuation Measurements**
- **Mode**: Automatic, manual, 2-point, 5-point, and LSA
- **Display range**: 1.25 to 55 dB
- **Display resolution**: 0.001 dB
- **Cursor resolution**: From 0.001 dB
- **Linearity**: ±0.03 dB/dB
- **Threshold**: 0.01 to 5.99 dB in 0.01 dB steps

**Reflectance/ORL Measurements**
- **Mode**: Automatic or manual
- **Reflectance accuracy**: ±2 dB
- **Display resolution**: 0.01 dB
- **Threshold**: −11 to −99 dB in 1 dB steps

**Ordering Information**

<table>
<thead>
<tr>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>8100-Series CWDM OTDR EVO Modules</strong></td>
<td></td>
</tr>
<tr>
<td>CWDM OTDR 1551/1571/1591/1611 nm</td>
<td>E8140OTDRCWDM1E</td>
</tr>
<tr>
<td>CWDM OTDR 1471/1491/1511/1531 nm</td>
<td>E8140OTDRCWDM2E</td>
</tr>
<tr>
<td>CWDM OTDR 1431/1451 nm</td>
<td>E8120CWDMOTDR3E</td>
</tr>
<tr>
<td>CWDM OTDR 1351/1371/1391/1411 nm</td>
<td>E8140CWDMOTDR4E</td>
</tr>
<tr>
<td>CWDM OTDR 1271/1281/1311/1331 nm</td>
<td>E8140CWDMOTDR5E</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Interchangeable Optical Connectors</strong></td>
<td></td>
</tr>
<tr>
<td>Straight connectors</td>
<td>EUNIPFC, EUNIPSC, EUNIPCT, EUNIPCDIN, EUNIPCLC</td>
</tr>
<tr>
<td>8° angled connectors</td>
<td>EUNIAPFC, EUNIAPSC, EUNIAPCDIN, EUNIAPCLC</td>
</tr>
</tbody>
</table>

For more information about the T-BERD/MTS-6000A and -8000 test platforms, refer to their respective data sheets.

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