VIAVI
VIAVI Solutions

Data Sheet

VIAVI
T-BERD/MTS COSA-4055 CWDM Optical Spectrum Analyzer Module

For T-BERD/MTS-2000, –4000 V2, –5800 and OneAdvisor-800 Platforms

The VIAVI Solutions® COSA-4055 module offers a new generation of coarse wavelength division multiplexer (CWDM) analyzers. Until now, large and expensive optical spectrum analyzers (OSA) were used to precisely test wavelength and power levels in CWDM networks, and optical channel checkers were used to verify optical channel presence. The VIAVI COSA-4055 module offers the functionality and speed of an OSA in a handheld form factor at a fraction of the price.

Housed in a T-BERD/MTS-2000, -4000 V2, -5800 or OneAdvisor-800 platform, the VIAVI COSA-4055 is the ideal handheld CWDM analyzer for field service groups to install, maintain, and upgrade CWDM systems.

T-BERD/MTS-2000

One-slot handheld modular platform for testing fiber networks

T-BERD/MTS-4000 V2

Two-slot handheld modular platform for testing fiber optic networks

T-BERD/MTS-5800

Handheld tester for fiber, 5G, Ethernet up to 100G, OTN, and legacy networks

OneAdvisor-800

All-in-One Cell-site Installation and Maintenance Test Solution

Benefits
- A low-cost alternative to standard OSA
- Measure spectrum on the full CWDM wavelength range with complete spectral trace and wavelength/power results in under 4 seconds

Features
- 1260 to 1625 nm wavelength range
- 8 nm minimum channel spacing
- ITU-T G. 694.2 CWDM wavelength and customized grids
- Power and wavelength drift test application
- Compliant with ITU-T G.695 and G674.2 standards
- Slots for up to two SFP CWDM transceivers

Applications
- Verify metro access network performance
- Maintain and troubleshoot CWDM networks
- Conduct spectral and drift testing on CWDM sources

beyond borders
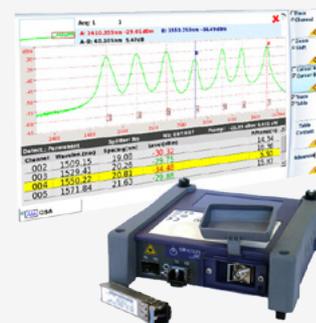
Testing CWDM Networks with a COSA-4055 Module

CWDM Multivendor Compatibility

The ITU-T G.695 recommendation promotes vendor interoperability by specifying transmitter/multiplexer characteristics at one end of the CWDM link and the demultiplexer/receiver at the other end. ITU-T G694.2 recommendation specifies the spectral grid for CWDM applications with 18 channels from 1271 to 1611 nm, with a 20 nm channel spacing. To guarantee multivendor compatibility it is important to verify the optical interface parameters according to these recommendations. The COSA-4055 is the ideal tool for checking the critical parameters such as Tx output power and Rx input power and the central wavelengths when installing, commissioning, and troubleshooting CWDM networks as well as for ensuring interface compatibility with different vendors.

Transmitter Wavelength and Output Power

In CWDM networks, transmitter lasers are not equipped with a cooling system, thus temperature variations can cause a drift of the central wavelength and the power level. Every channel wavelength must be checked to verify possible wavelength shifts or power loss. The COSA-4055 module can determine the compliance to the CWDM system specifications.

Mux/Demux/OADM

Transmitters with a wavelength offset can create additional attenuation in the multiplexers and demultiplexers. When test access points are available, technicians can check a wavelength's presence and its associated power level to verify that all transmitted wavelengths have been correctly multiplexed without excess power loss on one of the channels.

### Receiver Wavelength and Input Power

Similar tests like those conducted at the mux/demux must be performed to verify channel wavelengths and power levels. A wavelength drift in the transmitter can also create power drift which can cause bit errors; therefore, it is important to monitor the evolution of channel power and wavelength over time.

Continuity

The pluggable SFP transceivers in the COSA can be used to test the link between the headend and the end customer, when a system transceiver is unavailable. It is important to verify the link loss per wavelength and guarantee the continuity of the connection over multiplexers, demultiplexers, and optical add-drop multiplexers (OADMs).

OSNR Testing

CWDM networks are for shorter-distance applications that do not require amplified links, thus enabling the use of a wider transmission window between 1270 and 1610 nm where amplifiers are unavailable. In non-amplified passive CWDM links, the OSNR remains unchanged on both the transmitter and receiver sides, eliminating the need to measure OSNR.

CWDM Network
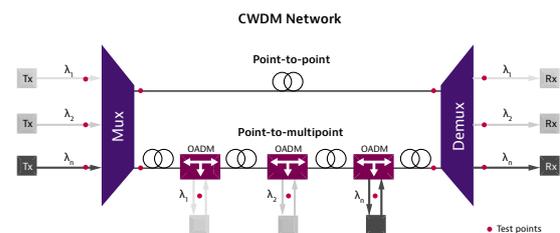
Ease of Use

One-button auto-testing guarantees that technician needs no special training to carry out a CWDM test, making the VIAVI instrument suitable for both novice and expert technicians. An Auto-Test mode automatically identifies WDM channels, selects the appropriate wavelength range, and provides auto scaling and system qualification according to pre-defined parameters.

COSA set-up menu

beyond borders

Flexible Measurement Capability

In-depth analysis, featuring statistical, continue or single evaluation with automatic storage capabilities, is provided. Different measurement functions such as automatic channel detection, and pass/fail analysis against user-settable limits are available on the COSA-4055.

Furthermore, its tunable channel grid allows not only to measure according to the ITU-T G.694.2 CWDM wavelengths but also to use your own customized grid.

Spectral measurement displays trace and table

High Performance CWDM Testing

Full wavelength range 1260 to 1625 nm (Full band CWDM tester)

Fast scanning speed (<4 s)

Real spectral measurements with:

• Complete spectral trace

• Tabular results of power and wavelength

• Zoom and marker functions

Automatic pass/fail results

Drift Measurement for Wavelength and Power

For optical performance monitoring it is essential to measure the key parameters over time. The built-in drift test application provides the result of power and wavelength over a customer definable time in a graphical and numerical format. Drift measurements are important in CWDM networks with uncooled laser, which have a typical wavelength drift of 0.1 nm/°C.

Drift power measurement

SFP Slot for CWDM Transceivers

The COSA-4055 provides an integrated SFP slot to host up to 2 SFP CWDM transceivers.

The transceivers can be used to simulate CWDM transmitters for testing insertion loss per wavelength, and end-to-end continuity of a link in CWDM networks with mux/demux and OADMs.

beyond borders

Specifications

Modes

Operating modes	CWDM, drift
Display modes	Graph (trace + overview) CWDM table and graph + table
Measurement parameters	Channel #, power, wavelength, drift

Spectral Measurement Ranges

Wavelength range	1260 to 1625 nm
Wavelength accuracy[1]	±0.5 nm
Readout resolution	0.001 nm
Resolution bandwidth FWHM[1]	Typ. 4 nm
Minimum channel spacing[4]	8 nm

Power Measurement Ranges

Dynamic range	−55 to +10 dBm
Noise floor RMS	−55 dBm
Absolute accuracy[2]	±0.5 dB
Linearity[3]	±0.1 dB
Readout resolution	0.01 dB
Scanning time	< 4 s

Optical Port

Input port	SM/PC
Switchable optical adapters	FC/SC/LC and ST
Optical return loss	>35 dB
Total safe power	+15 dBm

SFP Bay

Can host up to two SFP transceivers (not included)

General

Weight	0.35 kg (0.7 lb)
Dimensions (W x H x D)	128 x 134 x 40 mm (5.04 x 5.28 x 1.57 in)

Temperature

Operation	−5 to +50°C (23 to 122°F)
Storage	−20 to +60°C (−4 to 140°F)

1. At 23°C ±5°C
2. Typical at −6 dBm at CWDM wavelength grid including PDL
3. −45 dBm to +5 dBm, at 23 °C
4. Two channels at equal power level

Ordering Information

Description	Part Number
COSA-4055 CWDM analyzer with SFP bay[5]	2301/02
Application Software	
Optical fiber trace for post-analysis	EOFS100
Optical fiber trace for cable acceptance report	EOFS200
Adapters	
Switchable ST adapter	2155/00.32
Switchable FC adapter	2155/00.05
Switchable SC adapter	2155/00.06
Switchable LC adapter	2155/00.07

5. Each COSA module comes with a SC switchable adapter mounted on instrument and a FC switchable adapter as spare part.

03/26 / V4 / WF-IF / viavi/mts2000-4000/cosa-4055-cwdm-optical-spectrum-analyzer-module-4100-series

/ Germany and Other Countries   LASER COMPONENTS Germany GmbH   Tel +49 8142 2864 – 0   info@lasercomponents.com   www.lasercomponents.com

/ 4

beyond borders

VIAVI Care Support Plans

Increase your productivity for up to 5 years with optional VIAVI Care Support Plans:

• Maximize your time with on-demand training, priority technical application support and rapid service.

• Maintain your equipment for peak performance at a low, predictable cost.

For more Information: go to viavisolutions.com/viavicareplan

Features

*5-year plans only

Plan	Objective	Technical Assistance	Factory Repair	Priority Service	Self-paced Training	5 Year Battery and Bag Coverage	Factory Calibration	Accessory Coverage	Express Loaner
BronzeCare	Technician Efficiency	Premium	✓	✓	✓				
SilverCare	Maintenance & Measurement Accuracy	Premium	✓	✓	✓	✓*	✓		
MaxCare	High Availability	Premium	✓	✓	✓	✓*	✓	✓	✓

VIAVI Solutions

beyond borders