VIAVI Solutions

Data Sheet

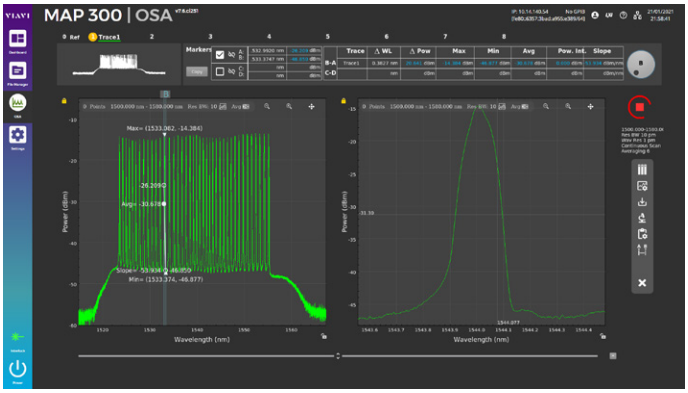
VIAVI

Wideband Optical Spectrum Analyzer (mOSA-C1)

MAP Series Optical Spectrum Analyzer

The Multiple Application Platform (MAP) Optical Spectrum Analyzer (mOSA-C1) is an optical grating-based spectrum analyzer with lab-grade spectral performance and the size and speed to deploy in production

The MAP Series Optical Spectrum Analyzer (mOSA-C1) is a diffraction grating based spectral measurement system. Based on a next generation monochromator design, the OSA is designed to operate over the full single-mode fiber range. For the first time, measurement specifications associated with laboratory applications are available in an ultra-compact and modular measurement system. The industry leading 15 pm resolutions bandwidth coupled with measurement scan speed of 250 ms over > 400 nm allows this mOSA to operate in both the lab and on a production line.



MAP-300 mOSA super application user interface

Benefits

- Laboratory performance with the size and speed for production
- Single slot MAP-300 module; the most compact in its class
- Low PDL eliminates need for additional SOP scrambler.
- Flexible analysis function licensing
- Embedded wavelength calibration artifact

Features

- 15pm resolution bandwidth
- 4Hz rep rate at full span and at full 1pm resolution
- Full single-mode fiber range
- > 75 dB dynamic range
- PDL <0.05 dB

Applications

- DWDM Coherent module test
- IEEE client module test (O-band)
- Gain and Noise figure measurements
- CWDM and DWDM component test
- CW Source characterization

INVISIBLE LASER RADIATION
DO NOT VIEW DIRECTLY WITH
OPTICAL INSTRUMENTS
CLASS 1M PRODUCT
(IEC 60825-1)

As part of the VIAVI Solutions MAP mainframe (now on its 3rd generation), the mOSA-C1 can be combined with the over 15 optical application modules to provide a complete solution across a large range of optical telecom technologies. This includes coherent and client transceivers, source lasers optical amplifiers and passive components. The VIAVI MAP mainframe now boasts two industry leading Spectrum Analyzers. The full-band, ultra-fast, ultra-compact grating based mOSA-C1 is complimented by the C-band focused, high resolution coherent measurement based mHROSA-A1.

Safety Information

- When installed in a MAP mainframe, complies to CE, CSA/ UL/IEC61010–1, LXI Class C requirements, meets the requirements of Class 1M in IEC 60825–1 (2014), and complies with 21 CFR 1040.1 except deviations per Laser Notice No. 50

A web accessible, simple, and intuitive graphical user interface redefines the user experience and is quick for new users to learn, while boasting advanced features expected by the most demanding users. Remote automation has been dramatically simplified to enable quick, simple integration into PC based automated test environments.

The mOSA is currently compatible with the MAP-300 mainframe family.

Figure 1: The mOSA-C1 is a member of the MAP LightDirect family. The flexibility of the MAP platform enables users to deploy the same OSA in multiple environments. Modules can be combined to build powerful measurement solutions for technology across telecom photonics.

Module Details

VIAVI has been a leader in the design of optical test systems for over 30 years dating back to its heritage as JDSU. Decades of geometric optics, alignment, system control and analogue measurement are critical. Leveraging advanced optical components and next generation system on a chip technology, the mOSA-C1 re-imagines the control, speed and just how compact a performance monochromator can be.

Speed

The direct monochromator drive has been optimized for over 10 years of continuous use with measurements as fast as 250 ms over the full 450 nm of measurement range. Next generation power measurement sub systems allow spectral traces at a full 1pm resolution, at maximum speed (scanning at 1800 nm/s). Combined, the measurement speed, resolution and available memory give users access to all the data, all the time. Zooming and panning to find regions of interest without having to guess ahead of time simplifies trouble shooting complicated systems. Scanning over smaller ranges is possible and can be used to optimize measurement time.

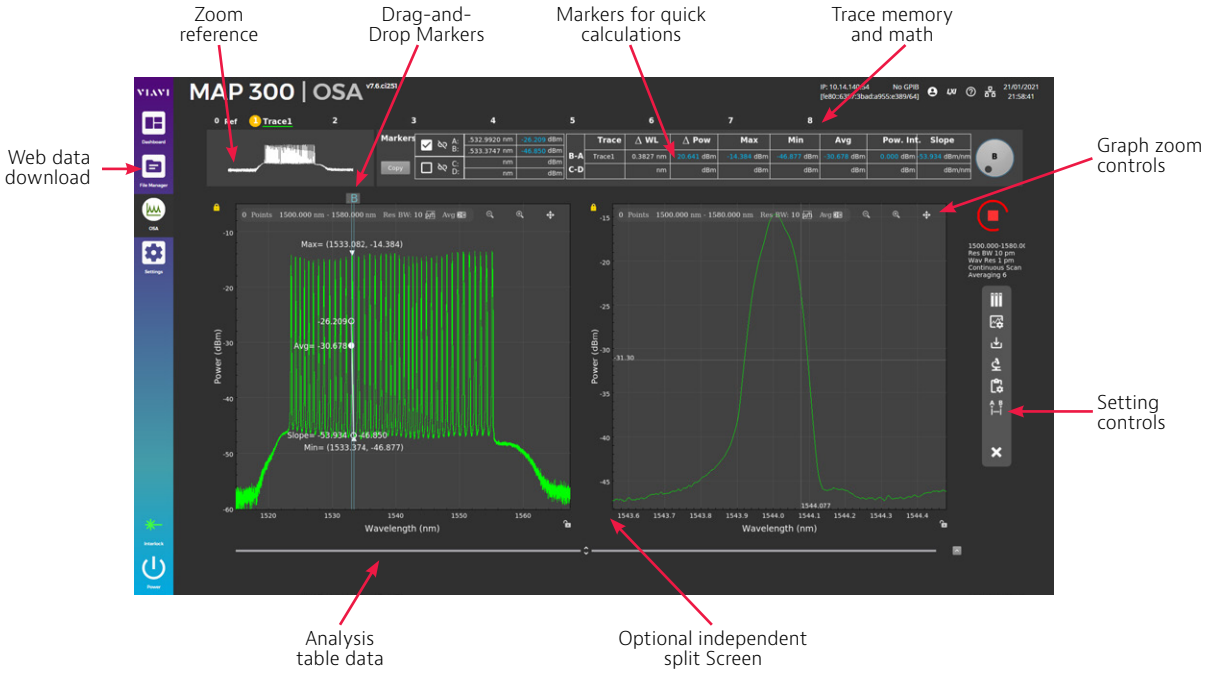
Measurement Performance

The mOSA-C1 takes the guess work out of creating the optimal settings. OSA performance is both fast and sensitive with enough memory that no longer requires painful trade-offs between power sensitivity, spectral resolution, measurement speed, and close-in dynamic range.

- Increased memory allows the measurement to be acquired at full resolution. Intuitive markers and zoom controls, make it easy to find the data you are looking for.
- Averaging low power signals is performed by averaging multiple individual scans allowing the user to see a region of interest almost immediately. Do not waste time waiting for measurements to complete.
- Industry leading polarization sensitivity over the entire range of 0.05 dB
- 15 pm resolution bandwidth ensures OSNR measurements are not impacted by tightly packed channels or long tails in the resolution bandwidth at low power.

Simple and Powerful User Interface

The mOSA-C1 has a powerful yet simple user interface. Users can either access the GUI remotely over a simple web connection, use an HDMI monitor, or order a version with an integrated touchscreen.

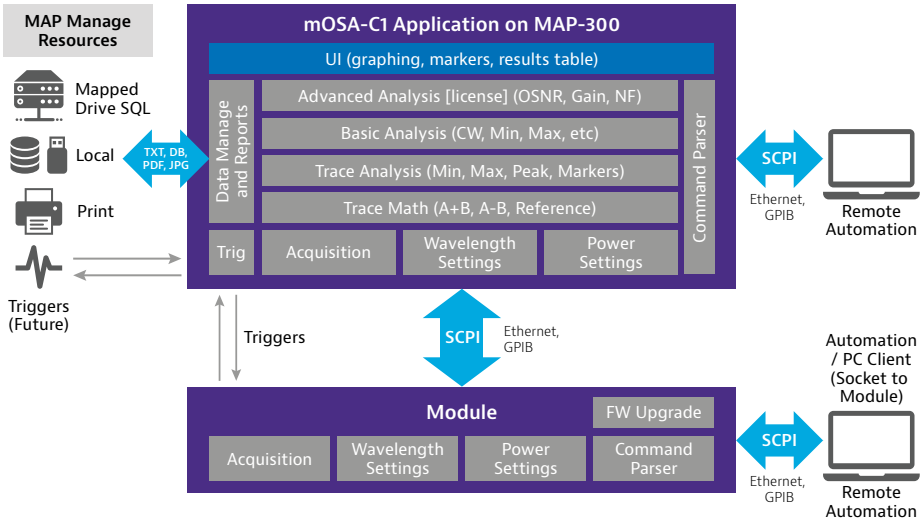


Markers and built-in analysis tools simplify system measurements across all types of technology classes. Trace math and automated referencing can be accomplished with a few simple settings. Optional analysis modules can be added to supplement the standard on board calculations, they include:

Optional Analysis Modules	DUT	Example Measurements
Passive Components	CWDM, DWDM	Filter parameters
Amplifiers and CW sources	Amplifier, FP lasers, DFB lasers	Gain, NF, SMSR, CW
Transceiver (Client and Lineside)	Coherent Optics, Client Optics	CW, OSNR

Remote Automation

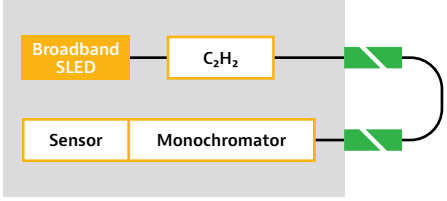
Remote automation that is simple, intuitive, and fast to implement is a recognized benefit of all MAP modules. The mOSA-C1 has been developed with these ideas at its core. Using SCPI compliant commands over Ethernet has proven to be simple and efficient. The MAP may be ordered with an optional GPIB port if that is the preferred interface.



The mOSA-C1 has two remote automation methods. The "Direct-to-Module" method creates a simple set of commands to set-up, initiate and download trace data. This simple data acquisition centered approach is ideal for applications where customer developed analysis will be performed. The low overhead and simple command structures are designed to minimize delays and maximize data collection efficiency. The use of the "Application Environment" interface introduces new advanced function that can be leveraged to simplify extraction of key parameters and data.

Automated Calibration

Ambient temperature change, vibrations, and shock affect the measurement accuracy of high precision products such optical spectrum analyzers. The internal calibration source has both an acetylene gas cell and broadband light source. A simple connection on the faceplate is required to connect the input to the mOSA-C1. The calibration process is fully automatic and only takes a few minutes to perform.



Mainframe and Modular Family

The VIAVI Multiple Application Platform (MAP) is a modular, rack mountable or benchtop, optical test and measurement platform with mainframes that can host 2, 3 or 8 modules. The LightDirect family of modules are characterized by their simple control and single function nature. Individually or together, they form the foundation of a diverse array of optical test applications.

Light Direct

Specifications

Parameter	Specification
Fiber type	SM 9/125
Connector	FC/APC & SC/APC (Requires replacing mating sleeve)
Spectral	
Wavelength range	1255 to 1660 nm
Wavelength resolution accuracy	5%
Wavelength repeatability	0.005 nm (single scan) 0.002 nm (5 averages)
Wavelength accuracy	±10 pm between 1277–1653 nm
Wavelength linearity	±10 pm between 1277–1653 nm
Resolution bandwidth	0.015 to 1 nm
Min. sampling resolution	0.001 nm
Sweep time (Full wavelength range)	0.25 sec
Built-in calibration light source	Yes
Power	
Maximum input power per channel	+20 dBm
Maximum safe input power	+25 dBm total input power
Level sensitivity	-60 dBm (single scan) -65dBm (5x averaging) -70 dBm (20x averaging)
Max. dynamic range	65 dB
Level accuracy -20dBm	±0.3dB
Level linearity	±0.03 dB
Level flatness	0.2 dB
Polarization dependence	< 0.05dB
Optical return loss	> 55 dB
Other	
Warm-up time	1 hour
Humidity	15 to 80% RH
Operating Temperature	15 to 35°C
Dimensions	4.1 x 13.3 x 37.0 cm (1.6 x 5.22 x 14.58 in)
Weight	1.3 kg (2.8 lb)
Calibration Period	1 year
Reliability/Lifetime	$1X10^9$ scans of continuous operation
Mainframe Compatibility	MAP-300 Series

Ordering Information

For more information on this or other products and their availability, please contact your local VIAVI account manager or VIAVI directly at 1-844-GO-VIAVI (1-844-468-4284) or to reach the VIAVI office nearest you, visit viavisolutions.com/contacts.

Module Part Numbers

Order Code	Description
MOSA-C1A1P1A-M100-MFA	MAP-Series OSA all-band premium performance with gas cell calibration source

Software Analysis Packs Part Numbers

Order Code	Description
MOSA-AN-PCOMP-A	Passive Components
MOSA-AN-ACWS-A	Amplifiers and CW sources
MOSA-AN-TX-A	Transceiver (Client and Lineside)

Accessories

Accessories (Optional)	Product and description	
Inspection and Cleaning Tools	CleanBlast Pro	The patented VIAVI Solutions® CleanBlastPRO fiber end-face cleaning system provides a fast, effective, and cost-efficient solution for removing dirt and debris from connectors in most common applications.
	FiberChek probe microscope	One-button FiberChek Probe delivers a reliable, fully autonomous, handheld inspection solution for every fiber technician.
	P5000i fiber microscope	Automated Fiber Inspection & Analysis Probe provides PASS/FAIL capability to PC, laptops, mobile devices and VIAVI test solutions.
Replacement Parts	Mating sleeves	AC502;FC/APC-FC/APC Universal Connector Adapter
		AC503;FC/APC-SC/APC Universal Connector Adapter

A wider range of inspection tools are available at VIAVI. More information about the products and accessories can be accessed through our website at www.viavisolutions.com. For further assistant please contact your local VIAVI account manager or VIAVI directly at 1-844-GO-VIAVI (1-844-468-4284) or to reach the VIAVI office nearest you, visit viavisolutions.com/contacts.

VIAVI Solutions

Contact Us **+1 844 GO VIAVI**
(+1 844 468 4284)

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30193102 900 521