Insertion Loss/Return Loss Testing Solution (mORL)

mORL with Passive Component Testing (PCT) Application for MAP-Series

VIAVI Solutions' Passive Component/Connector Test solution (PCT) is the fastest, smallest and most flexible solution for testing optical connectivity products, characterizing insertion loss (IL), return loss (RL), length, and polarity across various fiber types with best-in-class measurement precision.

The VIAVI PCT system tests optical cable assemblies faster than any competing platform — 0.2 seconds per channel for IL prescreening, as few as 2 seconds for full IL and RL, and with the world's first true parallel Remote Head Polarity Meter, a complete dual wavelength 24-channel MPO characterization — IL, RL, and polarity — in 44 seconds, or 12 channels in 23 seconds. There is no separate polarity step, no additional connection, and no change to the test procedure. Two clicks. One connection. Done.

PCT is built for every DUT format your production line will encounter today and the formats it hasn't invented yet. Single-mode, multimode, MPO, FAU, SN-MT, bare fiber via eTDR, 30 µm pitch, 1,000+ polarity channels — one platform, one interface, no reconfiguration. A picture-guided no-code operator workflow means production floor staff are productive in minutes, while a full SCPI command set gives automation engineers complete programmatic control over every measurement parameter and result.

Key Features

- Scalable modular platform
- Small footprint - 25% of competing solutions
- Integrated automation via SCPI and no-code scripting
- Database interface and report generation
- MPO and MTP capable with simultaneous polarity measurement
- Growth enabling - 1 to 1,000+ DUT channels

Applications

- IL, RL and length testing optical connectors and cable assemblies, structured-cabling solutions, and optical splitters
- Single-mode and multimode applications
- Multifiber assemblies automated testing
- Verifying continuity and polarity of large multifiber assemblies
- Measuring RL of line cards and receptacle-based transponders

Compliance

- MAP mORL-A1 modules installed in a MAP Series chassis comply with CE, CSA/UL/IEC61010-1, and LXI Class C requirements
- Multimode IL meets IEC 61280-4-1 Encircled Flux requirements

The MAP-Series "pay as you grow" architecture means you deploy the capability you need now and add switches, remote heads, and software licenses only when the need arises — no forklift upgrades, no rip-and-replace. A compact modular footprint requires 25% of the bench space of competing solutions, and a Linux-based platform eliminates the maintenance overhead of legacy Windows instruments. When defects are caught on the production floor rather than returned from the field, the total cost of test drops — and so does everything downstream.

Production speed. Not lab speed.

Prescreen DUTs

0.2 s

per channel

12 channel prescreen in < 4 seconds.

24 channel prescreen in < 8 seconds.

Increase throughput by over 90% in real production environments.

Fastest Full IL + RL + Polarity

0.9 s

per channel per wavelength

Patented Parallel Test Capability.

Insertion loss, return loss and polarity. The complete quality picture in under a second.

Best Throughput

3700

Units of Test Capacity Per Day (12F, 2λ)

Faster test – more product gets shipped.

IL, RL, and polarity simultaneously. 24 channels, fully done. No separate polarity step.

No other IL/RL test system on the market delivers all three.

2379.900.0626

Specifications

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.

Parameter	Single-Mode mORL-A1	Multimode mORL-A1
Source		
2-Wavelength Version	1310, 1550 nm	850, 1300 nm
4-Wavelength Version	1310, 1490, 1550, 1625 nm	–
Fiber Types		
Single Fiber	Single-Mode 9 µm core	50 µm core (OM3)
Dual Fiber	–	50 µm core (OM3) and 62.5 µm core (OM1). Software selectable
Measurement Time		
Initializing Time	< 4s	
Averaging Options Per Wavelength	0.5, 1, 2, 5, 10s	
Total Time (IL, RL, Polarity) for 2 wavelengths	23s (12 channels) 44s (24 channels)	
Insertion Loss		
Modes	–	LED or laser (software selectable)
Display Resolution	0.001 dB	
Total IL Uncertainty[1,3,4]	± 0.02 dB	± 0.05 dB
Additional Uncertainties Due to 1xN Switching (if mOSW-C1 added)	± 0.01 dB	
Additional Uncertainties Due to Fiber Position in the Integrating Sphere[2]	± 0.03 dB	
Return Loss		
Display Resolution	0.01 dB	
Recalibration Period	1 year	
Environmental Specifications		
Warm-up Time	20 min	
Operating Temperature, Humidity	25 ± 5°C non-condensing humidity	
Storage Temperature	- 30 to + 60°C	
Physical Specifications		
Size (W x H x D)	4.06 x 13.26 x 37.03 cm (1.6 x 5.22 x 14.58 in)	
Weight (Approximately)	1.2 kg (2.65 lb)	

[1] After valid zero loss, total expanded uncertainty (2σ), and reconnecting the same connector and OPM adaptor, temperature ±1°C, using internal source

[2] 24-channel ribbon fiber

[3] For LED mode, after valid zero loss, total expanded uncertainty (2σ), and reconnecting the same connector and OPM adaptor, temperature ±1°C, using internal source

[4] IL uncertainty from launching condition is not included

mOPM-C1RHPM Remote Head Polarity Meter

Requires MAP-300 FW 13.0+ with PCT

Parameter	Single-Mode mORL-A1	Multimode mORL-A1
Timing		
Time Penalty Measuring IL/RL	0s	
Prescreening with FastIL	0.2s per channel	
Fiber Types		
Multi Fiber	All connector formats – MPO, MXC, SN-MT, FAU types, Proprietary Lensed Connectors, Multicore	All fiber core sizes
Minimum Resolvable Fiber Pitch	30 µm	40 µm
Maximum Tolerance for IL in Polarity	> 20 dB	
Accuracy		
Accuracy Impact (RL)	0 dB	
Accuracy Impact (IL, compared to RHIP)	0 dB	

Ordering Information

Insertion Loss and Return Loss Modules

All PCT systems will require and IL/RL meter in a MAP-Series platform. Please consult the MAP-300 and the MAP-200 data sheets for more information on the platforms.

Type	Part Number	Description
Single Mode IL/RL Meter	MORL-A13500-STD-M100-MFA	IL/RL Meter 1310 /1550nm SMF FC/APC
	MORL-A13500-BID-M100-MFA	IL/RL Meter 1310/1550nm SMF Bidirectional FC/APC
	MORL-A13456-STD-M100-MFA	IL/RL Meter 1310/1490/1550/1625nm SMF FC/APC
	MORL-A13456-BID-M100-MFA	IL/RL Meter 1310/1490/1550/1625nm SMF Bidirectional FC/APC
Multimode IL/RL Meter	MORL-A11308-STD-M101-MFA	IL/RL meter 850/1300 nm 50um OM3 MMF FC/APC
	MORL-A11308-BID-M101-MFA	IL/RL meter 850/1300nm 50um OM3 MMF Bidirectional FC/APC
	MORL-A11308-BID-M112-MFA	IL/RL meter 850/1300 nm Dual Output OM3/OM1 MMF Bidirectional FC/APC
	MORL-A11308-STD-M112-MFA	IL/RL meter 850/1300 nm Dual Output OM3/OM1 MMF FC/APC

MAP-Series Switch Configurations

All mOSW-C1 switches are configured by a single part number that defines the function and options of the module. The **XXX** code defines the fiber type, as seen in Table 1, and the **YY** code defines the connector type, as seen in Table 2. For more switch options and specification details consult the mOSW-C1 data sheet.

Part Number	Description
MOSW-C111C004B0-MXXX-MYY	Single 1 x 4 switch, bulkheads
MOSW-C111C008B0-MXXX-MYY	Single 1 x 8 switch, bulkheads
MOSW-C111C012B0-MXXX-MYY	Single 1 x 12 switch, bulkheads (Dual width module)
MOSW-C111C024B0-MXXX-MYY	Single 1 x 24 switch, bulkheads (Dual width module)

Table 1

XXX code	Fiber Type
M100	9 µm Single Mode
M101	50 µm (OM3)
M102	62.5 µm (OM1)
M105	100 µm

Table 2

YY Code	Connector Type
MFP	FC/PC
MFA	FC/APC
MSC	SC/PC
MSU	SC/APC
MLC	LC/PC
MLU	LC/APC

MAP-Series Remote Power Head Configurations

Optional mOPM remote head can be added to the PCT system. The available configurations are in the table below. For more power meter options and specification details consult the mOPM-C1 data sheet.

Type	Part Number	Description
Remote Head Base Cassette	MOPM-C1RH1	Single channel remote interface cassette
	MOPM-C1RH2	Dual channel remote interface cassette
	MOPM-C1RH4	Quad channel remote interface cassette
Remote Head Options	MOPM-C1RHPCT	2mm InGaAs PCT system remote head
Integrated Remote Head Options	MOPM-C1RHIP	Integrated PCT system remote head
Remote Head Polarity Mapper	MOPM-C1RHPM	Remote Head Polarity Mapper

Software Options

VIAVI offers software licenses that can accompany your PCT system

Type	Part Number	Description
MAP-300 Family	MSUP-300A-FIT	MAP-300 fiber connector inspection app - requires probe
	MSUP-300A-PCTMAPPING	MAP-300 PCT polarity and port mapping application add-on
	MSUP-300A-PCTREMDB	MAP-300 PCT remote centralized database connection key
	MSUP-300A-SBSC	MAP-300 PCT driver for legacy SB/SC series switches
	MSUP-BIDIUPG	MAP-300 mORL Bi-di upgrade license - requires high directivity mOSW 2x2
	MSUP-300A-PCT-TDR	MAP-300 Enhanced PCT TDR License
	MSUP-300A-PCTCASCADE	MAP-300 PCT Switch Cascade
	MSUP-300A-PCTLOGGING	MAP-300 PCT Continuous Mode Logging License

Accessories

Accessories (Optional)	Product and Description	
Inspection and Cleaning Tools	CleanBlastPRO	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.
	FVAi/FVDi Benchtop Microscopes	Digital benchtop microscopes are the ideal inspection solution for fiber connector production by giving users a single system that is scalable to optimize throughput at any stage of the production process.
Replacement Parts	Mating Sleeves	AC500;FC/PC-FC/PC Universal Connector Adapter
		AC501;FC/PC-SC/PC Universal Connector Adapter
		AC502;FC/APC-FC/APC Universal Connector Adapter
		AC503;FC/APC-SC/APC Universal Connector Adapter
Detector Adaptors	A complete range of single ferrule, duplex, and bare fiber power meter adaptor are available at VIAVI including MPO, FC, LC and Integrating spheres. Refer to the AC adaptor selection guide for more information.	

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.

Contact Us: +1 844 GO VIAVI | (+1 844 468 4284). To reach the VIAVI office nearest you, visit viavisolutions.com/contact

morl-ds-lab-nse-ae
30194352 901 0726