VIAVI Solutions

VIAVI
Passive Utility Module (mUTL-C1)
Simplified Component Test Management for MAP Series

The Multiple Application Platform (MAP series) Passive Utility Module, mUTL-C1, is designed to simplify the mechanical integration of passive optical components into large automated test systems and removes the "stray" optical components that are loose and often damaged during operation or transport. It is optimized for the industry-leading VIAVI Solutions MAP series platform.

A wide range of standard components are available:

- A range of single-mode and multimode optical couplers enabling power reference paths or tapping signals for in-line test. They are orderable with any of six types of optical connectors.

- 40G and 100G Ethernet standards have adopted WDM technology for single fibre interfaces. The mUTL-C1 provides Mux/Demux modules complying with the IEEE standards and are the ideal solution to isolate individual lanes for test access.

- LAN-WDM multiplexers to multiplex and de-multiplex 8 LAN-WDM channels as according to 400GBASE LR8/ FR8 supporting IEEE 802.3bs standard

- A quad wavelength filter for shaping ASE spectrum or reducing ASE in the standard 1310 / 1490 / 1550 / 1625 nm test windows

A bulkhead-adapters only module is also available for mechanical mounting of user supplied components. These cassettes are supplied with mounting hardware and twelve bulkhead adapters for ease of integration of up to four 3-port devices.

Each module has user definable data fields that can be accessed by the MAP series chassis to assist in module identification and displayed or recalled remotely.

The MAP series is the first photonic layer lab and manufacturing platform that is LAN eXtensions for Instrumentation (LXI)-compliant by conforming to the required physical attributes, Ethernet connectivity, and interchangeable virtual instrument (IVI) drivers. The MAP series platform is optimized for density and maximum configurability.

Figure 1: MAP series LightDirect Family of modules

Features and Benefits

- Mechanically robust integration of fiber optic couplers, splitters and mux/demux components into larger integrated test environments
- Compact design with 12 bulkhead connectors enables packaging of up to four 3-port couplers
- Bulkhead only versions available for mounting user supplied components
- Single-mode or multimode component options.
- Multimode components are modally transparent
- Ideal for individual lane testing of WDM signals for next generation Ethernet formats such as 100/200/400GE

Applications

- In-line tapping of signals for power and spectrum measurements
- Power reference branches for passive component test
- Splitting signals for parallel test applications

Compliance

- CE, CSA/UL/IEC61010–1, and LXI Class C requirements (when installed in a MAP series chassis)

Light Direct

Specifications

Coupler Parameters	Specification					
Fiber Type	Single-mode 9/125μm				Multimode 50/125μm	
Wavelength	1310/1550 nm				850/1310 nm	
Optical Power Handling	300 mW					
Coupler Type	10% / 90%	30% / 70%	50% / 50%	1 x 8 splitter	10% / 90%	50% / 50%
Insertion Loss (IL)	10% < 11.8 dB 90% < 1.2 dB	30% < 6.5 dB 70% < 2.4 dB	< 4.1 dB	< 11.5 dB	10% < 11.8 dB 90% < 1.2 dB	< 4.1 dB
Polarization Dependent Loss	10% < 0.1 dB 90% < 0.07 dB	30% < 0.1 dB 70% < 0.07 dB	< 0.05 dB	< 0.3 dB	N / A	
Return Loss	≥ 45 dB				≥ 25 dB	

Specialty Device Parameters		Specification
Fiber type	100GE MUX / DEMUX	Single-mode
Center Wavelength		1295.6, 1300.1, 1304.6, 1309.1 nm
Insertion Loss (IL)		< 2.0 dB
Pass Bandwidth		±1.50 nm
Ripple in Pass Bandwidth		< 0.5 dB
Return Loss		> 45 dB
Isolation adjacent channel		> 15 dB
Isolation non-adjacent channel		> 15 dB
Fiber type	40GE MUX / DEMUX	Single-mode
Center Wavelength		1271, 1291, 1311, 1331 nm
Insertion Loss (IL)		< 1.7 dB
Pass Bandwidth		±6.50 nm
Ripple in Pass Bandwidth		< 0.5 dB
Return Loss		> 45 dB
Isolation adjacent channel		> 30 dB
Isolation non-adjacent channel		> 40 dB
Fiber type	LR8 MUX / DMUX	SMF-28 compatible core 9 / 125 / 250μm with 900μm loose tube
Center Wavelength		1273.55, 1277.89, 1282.26, 1286.66, 1295.56, 1300.05, 1304.58, 1309.14 nm
Insertion Loss (IL)		< 3.4 dB
Pass Bandwidth		± 2.1 nm
Return Loss		> 45 dB
Isolation adjacent channel		> 25 dB
Isolation non-adjacent channel		> 35 dB
Directivity		> 50 dB
PDL		< 0.5 dB
Fiber type	SOURCE SHAPE & ASE FILTER	Single-mode
Wavelength		1310, 1490, 1550, 1625 nm
Bandwidth		±6.50 nm
Insertion Loss (IL)		< 1.5 dB
Return Loss		> 45 dB

Notes:

1. All optical measurements, excluding connectors, taken after temperature has been stabilized for minimum of one hour, at ambient room temperature between 20 to 30°C with a variation of less than ±3°C.

Specifications continued

Common Parameters	Specification
Maximum Bulkhead Connectors	12
Connector Types (one type per module)	FC/PC, FC/APC, SC/PC, SC/APC, LC/PC, LC/APC
Slot Width	1
Dimensions (W x H x D)	4.06 x 13.26 x 37.03 cm
Weight	1 kg
Operating Temperature	0 to 50°C
Operating Humidity	15 to 80% RH, 0 to 40°C noncondensing
Storage Temperature and Humidity	−30 to 60°C noncondensing

Part Numbers

Category	Splitter Type	Part Number	Description
Connectors Only	None	MUTL-C1000B-Mxx	12 bulkhead connectors For use with customer supplied components
Multimode 50/125µm Splitter Modules	10% / 90%	MUTL-C11000-M101-Mxx	Single 10/90 splitter, modally transparent
		MUTL-C12000-M101-Mxx	Two 10/90 splitter, modally transparent
		MUTL-C14000-M101-Mxx	Four 10/90 splitters, modally transparent
	50% / 50%	MUTL-C10010-M101-Mxx	Single 50/50 splitter, modally transparent
		MUTL-C10020-M101-Mxx	Two 50/40 splitters, modally transparent
		MUTL-C10040-M101-Mxx	Four 50/50 splitters, modally transparent
	Combination	MUTL-C11010-M101-Mxx	Single 10/90 splitter and single 50/50 splitters, modally transparent
		MUTL-C12020-M101-Mxx	Two 10/90 splitters and two 50/50 splitters, modally transparent
Single-mode 9/125µm Splitter Modules	10% / 90%	MUTL-C12000-M100-Mxx	Two 10/90 splitters
		MUTL-C14000-M100-Mxx	Four 10/90 splitters
	30% / 70%	MUTL-C10200-M100-Mxx	Two 30/70 splitters
		MUTL-C10400-M100-Mxx	Four 30/70 splitters
	50% / 50%	MUTL-C10020-M100-Mxx	Two 50/50 splitters
		MUTL-C10040-M100-Mxx	Four 50/50 splitters
	Combination	MUTL-C12020-M100-Mxx	Two 10/90 splitters and two 50/50 splitters
		MUTL-C10220-M100-Mxx	Two 30/70 splitters and two 50/50 splitters
		MUTL-C12200-M100-Mxx	Two 10/90 splitters and two 30/70 splitters
		MUTL-C11110-M100-Mxx	Single 10/90 splitter, single 30/70 splitter and single 50/50 splitter
	1 x 8	MUTL-C1SPL18-M100-Mxx	Single 1x8 splitter

Part Numbers continued

Category	Part Number	Description
Specialty Modules	MUTL-C1040GE-M100-Mxx	40GE standard MUX/DEMUX, single-mode 9/125µm fiber
	MUTL-C1100GE-M100-Mxx	100GE standard MUX/DEMUX, single-mode 9/125µm fiber
	MUTL-C1LR8DMUX-M100-Mxx	LR8 standard MUX/DEMUX, single-mode 9/125µm fiber
	MUTL-C1SMART-M100-MFA	Verification Artifact for mORL PCT, single mode 9/125µm fiber with FC/APC connectors
	MUTL-C1SWSRL-M100-MFA	Return Loss Artifact for mSWS, single-mode 9/125µm fiber with FC/APC connectors
	MUTL-C1OCETS-M100-MFA	Dual coupler and reflector for mOCETS, single mode 9/125µm fiber with FC/APC connectors
	MUTL-C1OCETS-M101-MFA	Dual coupler and reflector for mOCETS, multimode 50/125µm fibervwith FC/APC connectors
	MUTL-C1OCETS-M102-MFA	Dual coupler and reflector for mOCETS, multimode 62.5/125µm fiber with FC/APC connectors
	MUTL-C1SRCFLT-M100-MFA	Source shaping and ASE rejection filter 1310/1490/15/1625, single mode 9/125µm

Connector Options Codes

Mxx CODE	CONNECTOR TYPE	Mxx CODE	CONNECTOR TYPE	Mxx CODE	CONNECTOR TYPE
MFA	FC/APC	MLC	LC/PC	MSC[2]	SC/PC
MFP	FC/PC	MLU	LC/APC	MSU[2]	SC/APC

2. The SC connector option is only an external option and the connector internally is type FC (MFA or MFP)

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