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VIAVI Solutions 5G

Enabling Australia's Field Technicians to build, troubleshoot and maintain better communications networks.

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T-BERD®/MTS-4000 Platform

OLP-4057 PON Selective Power Meter Module

Key features

- **The market's first BPON/EPON/GPON power meter module**
- **Selective FTTx power meter with pass-through mode**
- **Simultaneous measurement of these wavelengths: 1310, 1490, 1550 nm**
- **Easy pass/fail analysis, via user adjustable, pre-defined thresholds per wavelength**
- **Store multiple user-defined profiles on the instrument**
- **Combine with an OTDR for an ideal all-in-one FTTx/PON-based access network test device**
- **Broadband power meter port expands the range of applications**

Applications

- Access/FTTx Networks turn-up and maintenance
- Enables OLT and ONT testing
- Enables downstream and upstream traffic testing

The JDSU OLP-4057 Passive Optical Network (PON) selective power meter module adds high performance optical fiber-to-the-home (FTTH) testing capabilities to the T-BERD/MTS-4000 for testing, turning-up, and maintaining various fiber (FTTx)/PON-based systems.

The Through mode allows simultaneous measurement of all three fiber wavelengths: 1490 and 1550 nm downstream and 1310 nm upstream. The 1310 nm channel provides accurate power measurements of burst-type upstream PON signals.

The built-in broadband power meter interface provides flexibility to handle other applications such as fiber installation and verification testing.

The T-BERD/MTS-4000 is a dual-modular, handheld test instrument. This rugged, versatile, and portable instrument is ideal for testing a broad array of access network technologies from the physical layer through to the service/application layer. The T-BERD/MTS-4000 can be built to your configuration and may be quickly and easily upgraded with new modules as application and technology needs change.

Functional Overview

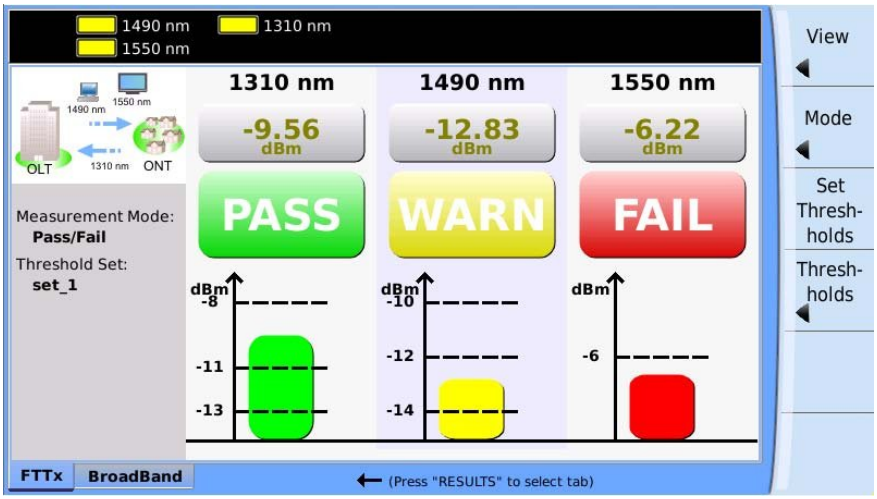
Optical power level measurement is critical when turning-up and troubleshooting PON-based FTTx Triple-Play services. The T-BERD/MTS-4000 OLP-4057 module provides the capability to simultaneously evaluate the power levels of all three wavelengths present in PON architectures. The OLP-4057 offers:

- Simultaneous Through mode measurements in both directions
- Support for burst mode analysis of the 1310 nm upstream signal

T-BERD/MTS-4000 with OLP-4057 module

User-Defined Thresholds

The power measurements on all three wavelengths can be evaluated automatically against user-entered, pre-defined, storable pass/fail criteria. The user can enter the pass/fail thresholds using the keypad in combination with the touch screen— without requiring external software. This capability simplifies testing and reduces the potential for errors in assessing whether acceptable optical power levels are present.



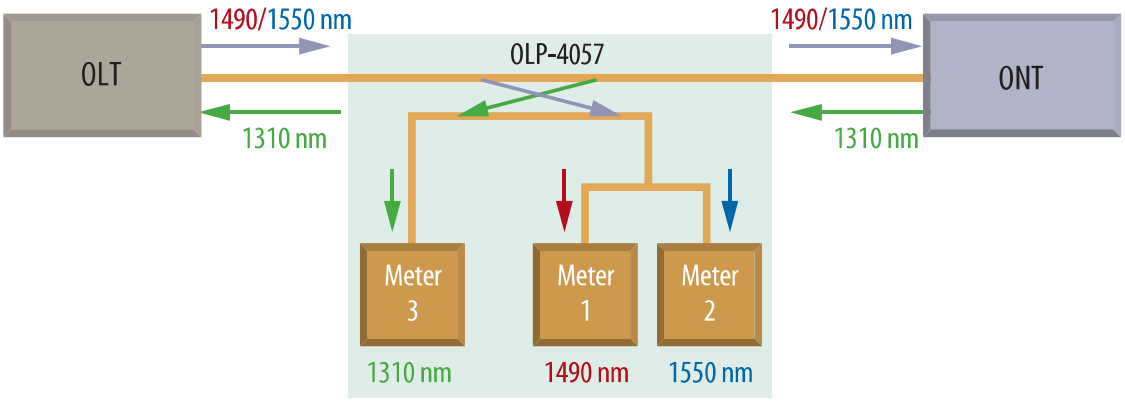
Display of the OLP-4057 module

Turning-Up PON Systems

Turning-up new services on operating PON networks requires additional fiber connections between the splitter and the new Optical Network Terminal (ONT). It is important to check the power level from the Optical Line Terminal (OLT) at each ONT location through the fiber coupler before connecting fiber to the ONT. Technicians must test each new connection without interfering with service to existing customers.

The OLP-4057 addresses these tasks by providing:

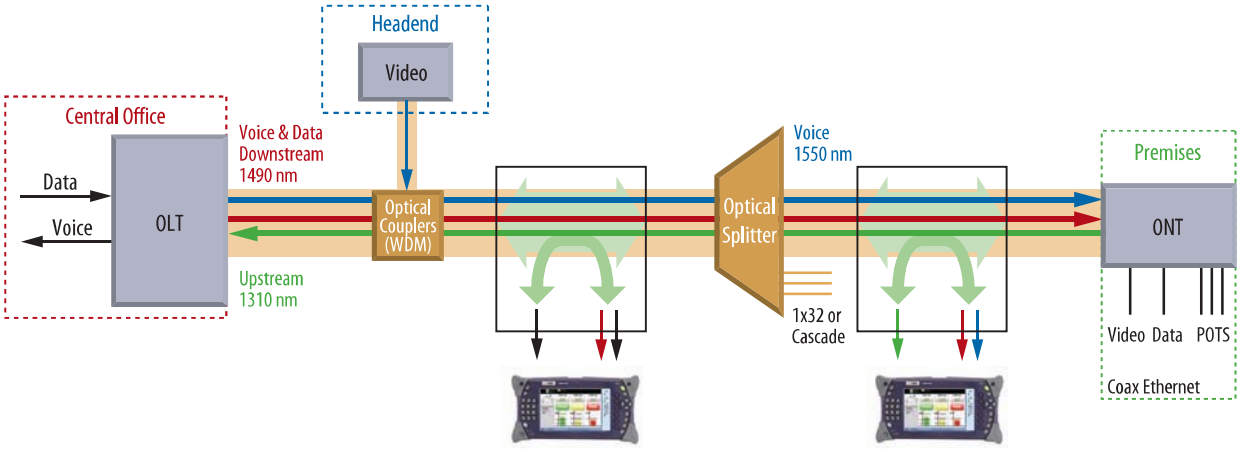
- A selective power meter for measuring individual wavelengths
- Through mode for testing live PON receivers



Through mode capability

Troubleshooting PON Systems

Failures that occur at a single ONT may be the result of a fiber break or macrobend, power outage, or a bad ONT. Performing a power measurement at the ONT lets technicians isolate the problem.



1310/1490/1550 nm on one fiber
T-BERD/MTS-4000 with OLP-4057 Selective Power Meter module

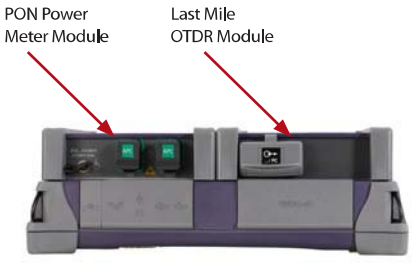
Testing Automation

The script function of the T-BERD/MTS-4000 simplifies field testing by letting field technicians define a customized testing procedure to fully automate testing and data reporting.

Optical Full Test Set

The T-BERD/MTS 4000 offers a full range of fiber characterization test modules, including Optical Time Domain Reflectometer (OTDR) and PON Power Meter. The T-BERD/MTS 4000 also provides a complete set of optical test capabilities such as a loss test set, a visual fault locator (VFL), a light source (continuous wave [CW], 270 and 330 Hz, and 1 and 2 kHz), a power meter (either through the OTDR port or on the base unit itself), and a video inspection probe.

These capabilities let technicians accurately, completely, quickly, and cost-effectively characterize the fiber link from OLT to ONT during installation, turnup, and maintenance. As a result, the T-BERD/MTS-4000 is the ideal tool for the qualification and the maintenance of any type of Access/FTTx optical network.



T-BERD/MTS-4000 with LM OTDR and PON Power Meter—an all-in-one FTTx unit

Error-Free Professional Reporting

A complete Microsoft Windows software application offers generation of detailed professional OTDR trace reports.

- Proof of performance
- Fully customizable reports
- Dedicated tables for each test result
- Out-of-range value summary with pass/fail indicators
- Analysis of macrobends

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Specifications

General Specifications

Physical

Weight	0.3 kg (0.55 lb)
Dimensions (W x H x D)	128 x 134 x 40 mm (5.04 x 5.28 x 1.58 in)

Optical Interfaces

Applicable fiber	SMF 9/125 µm
Interchangeable optical connectors	FC, SC, DIN, LC, and ST (PC or APC type)

Broadband Power Meter

Display range	–60 to +5 dBm
Maximum permitted input level	+10 dBm
Wavelength range	800 to 1650 nm
Calibrated wavelengths	850/980/1310/1550/1625 nm

Accuracy

Intrinsic uncertainty(1)	± 0.20 dB (± 5%)
Linearity	± 0.06 dB (–50 to +5 dBm)
Wavelength and modulation detection	270 and 330 Hz, 1 and 2 kHz
Connectable fiber types	9/125 to 100/140 µm

Wavelength Selective Characteristics

Measurement of 1310 nm (upstream)

Pass band	1260 to 1360 nm
Isolation of 1490/1550 nm bands(1)	>40 dB
Maximum permitted input level	+17 dBm
Measurement range	Burst: +13 to –40 dBm

Measurement of 1490 nm (downstream)

Pass band	1480 to 1500 nm
Isolation of 1550 nm band(1)	>45 dB
Isolation of 1310 nm band(1)	>45 dB
Maximum permitted input level	+15 dBm
Measurement range	+13 to –50 dBm

Measurement of 1550 nm (downstream)

Pass band	1535 to 1565 nm
Isolation of 1490 nm band(1)	>45 dB
Isolation of 1310 nm band(1)	>40 dB
Maximum permitted input level	+22 dBm
Measurement range	+26 to –50 dBm

Measurement accuracy

Intrinsic uncertainty(2, 3, 4)	± 0.5 dB
PDL	<0.25 dB
Linearity(2, 5)	± 0.06 dB
Through path insertion loss(2, 4)	<1.5 dB @ 1490, 1550 nm <2 dB @ 1310 nm

General data

Result displayed in	dBm, dB,mW,µW, pass/fail
Resolution(6)	0.01 dB/0.001 µW

Electromagnetic compatibility

Corresponds to EN 50081-1 and EN-50082-1 (CE conformance)

Calibration

Suggested calibration interval	3 years

Ambient temperature

Normal range of use	–10 to +55°C
Storage and transport	–40 to +70°C

(1) Isolation is defined as rejection of neighbor signals in relation to the measurement signal
(2) Under reference conditions: –20 dBm (CW) 1310 nm ± 2 nm, 23°C ± 3 K, 40 to 75% relative humidity
(3) At –7 dBm, excluding uncertainity of input connector
(4) With DIN connector
(5) +15 to –30 dBm at 1490 nm, 1550 nm
+10 to –20 dBm at 1310 nm upstream
+10 to –40 dBm at broadband mode (only versions 2289/04 and 2289/24)
(6) For power >40 dBm

Ordering Information

Product Code	Description
2295/03	1310/1490/1550 nm wavelengths with PC interface
2295/23	1310/1490/1550 nm wavelengths with APC interface
2295/04	1310/1490 nm wavelengths with PC interface
2295/24	1310/1490 nm wavelengths with APC interface

For more information on the T-BERD/MTS-4000 Test Platform, please refer to the separate datasheet and brochure.

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