

MTS/T-BERD Platforms

Ultra Long Haul (UHD) OTDR Module



Key Features

- Highest dynamic range with 50 dB at 1550 nm using a 20 μ s pulsewidth
- Best resolution/dynamic range compromise for accurate medium range measurement
- High performance testing (up to 128,000 acquisition points with 0.1 s real time sweep)
- Complete fiber characterization solution combining CD, PMD, and spectral attenuation testing capability in the MTS/T-BERD platform



The industry's first true 50 dB OTDR

The Ultra Long Haul (UHD) Optical Time Domain Reflectometer (OTDR) Module range provides the highest performance of any OTDR field instrument on the market.

The UHD OTDR testing capability, at wavelengths between 1310/1550/162 nm, delivers the highest dynamic range, the fastest speed, and the greatest accuracy for the installation and maintenance of optical fiber networks.

Multi-purpose application OTDR

Designed for very long distance testing, the UHD OTDR Module is also an essential tool when accuracy and testing speed are required in medium haul network measurements.

A powerful solution

The UHD OTDR Module's automation and rapid testing features offer impressive time savings for companies involved in commissioning and locating faults in optical fiber networks.

Housed in the MTS/T-BERD platform, the UHD OTDR testing solution offers a lightweight, handheld, and rugged field instrument suitable for any OTDR measurement constraints.

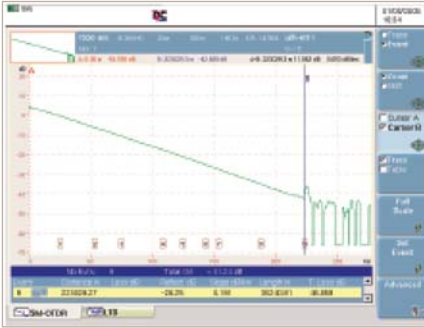


Figure 1 Ultra Long Haul network testing with the UHD OTDR module with a 20 μ s pulsewidth

Rugged field solution

Housed in the field dedicated MTS/T-BERD platform, OTDR measurements can be performed in Outside Plant (OSP), Central Office (CO), and harsh environmental conditions. This portable, battery-powered instrument is shockproof and drop tested for complete reliability in the field.

Enhanced testing time

The full dynamic range is reached in less than 30 seconds measurement time, allowing greater productivity in the field and faster return on investment.

Dedicated for very long haul networks

Transmission systems reach longer and longer distances, requiring high performance test solutions for characterization. Very long haul terrestrial and subterranean networks require OTDR solutions capable of providing the longest, most accurate measurements possible. The UHD OTDR Module offers this compromise where 50 dB dynamic range is reached at 1550 nm with only a 20 μ s pulsewidth, keeping sensible dead zones and optimum linearity.

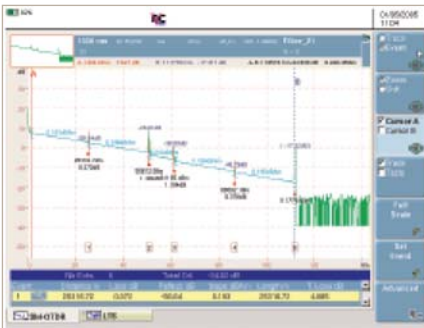


Figure 2 Very fast (<20 s) Medium haul network testing with 1 μ s pulsewidth

Also for medium range distances

Due to the important step-up in dynamic range, the UHD OTDR Module allows the technician to test the same fiber length with considerably reduced pulsewidths, compared to existing OTDRs. This dramatically improves the accuracy by shortening the attenuation dead zone, resulting in better event pin-points, distance location, and loss measurement.

OTDR Bellcore/Telcordia Trace format compatible

The UHD OTDR Module complies with GR-196-CORE issue 2, OTDR data standard revision 1.0/1.1/2.0. It is also fully compatible with the universal file exchange and export format.

FiberCable Software Solution

The PC-based software range, presented in a true Windows environment, offers a complete and detailed post-analysis OTDR results capability as well as the generation of professional acceptance reports.

Specifications

Technical Characteristics

Laser safety class (21CFR)	Class 1
Distance units	Kilometers, feet and miles
Group index range	1.30000 to 1.70000 in 0.00001 steps
Number of data points	Up to 128 000 data points
Distance measurement	
Automatic or dual cursor	
Display range	From 2.6 m up to 380 km
Display resolution	1 cm
Cursor resolution	From 1 cm
Sampling resolution	From 4 cm
Accuracy	$\pm 1 \text{ m} \pm \text{sampling resolution}$ $\pm 1.10\text{-}5 \times \text{Distance}$ (Excluding group index uncertainties)

Attenuation Measurement

Automatic, manual, 2-point, 5-point and LSA	
Display range	From 1.25 dB to 55 dB
Display resolution	0.001 dB
Cursor resolution	From 0.001 dB
Linearity	$\pm 0.05 \text{ dB/dB}$
Threshold	0.01 to 5.99 dB in 0.01 dB step

Reflectance/ORL measurements

Automatic or manual	
Display resolution	0.01 dB
Threshold	-11 to -99 dB in 1 dB step
Reflectance accuracy	$\pm 2 \text{ dB}$
Storage	Bellcore/Telcordia compatible Version 1.1 and Version 2.0

Ordering Information

Ultra Long Range	
1550 nm Module	E8115UHD
Ultra Long Range	
1310/1550 nm Module	E8126UHD
Ultra Long Range	
1550/1625 nm Module	E8129UHD
Ultra Long Range	
1310/1550/1625 nm OTDR Module	E8136UHD

OTDR Module Technical Specifications (typical at 25°C)

These are standard specifications, representing only a selection of JDSU's offerings. For specific requirements, please contact your local JDSU representative.

Central Wavelength ¹	Pulse Width	RMS Dynamic Range ²	Event Dead Zone ³	Attenuation Dead Zone ⁴	Continuous Wave Output Power	Application
1310 $\pm 20 \text{ nm}$	10 ns to 20 μs	45.5 dB	4.5 m	15 m	N/A	Metro/Long Haul/ Ultra Long Haul
1550 $\pm 20 \text{ nm}$		50 dB				
1625 $\pm 10 \text{ nm}$		45.5 dB				

¹Laser at 25°C and measured at 10 μs for singlemode and 50 ns for multimode

²The one way difference between the extrapolated backscattering level at the start of the fiber and the RMS noise level, after 3 minutes averaging and using the largest pulsewidth

³Measured at $\pm 1.5 \text{ dB}$ down from the peak of an unsaturated reflective event using the shortest pulsewidth

⁴Measured at $\pm 0.5 \text{ dB}$ from the linear regression using a FC/UPC reflectance and using the shortest pulsewidth

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