T-BERD®/MTS-8000

In-Service Polarization Mode Dispersion (I-PMD™) Test Solution

Key Benefits

- Measure PMD anytime, anywhere
  - Lessen engineering planning, advanced customer notifications, night-maintenance windows and technical-crew deployments
- Benefit from a single-ended, single-tech, and simultaneous-test solution
  - Halve the number of technicians you need; deploy one instrument instead of three
- Reduce time-to-identify and repair issues
  - Isolate faulty channels and get all relevant data in a single snapshot with five optical measurements including PMD and I-OSNR

Applications

- Upgrading high-speed networks up to 100 G
- Maintenance and troubleshooting of 10/40 G transmission systems

Test Features

- Measure PMD on live traffic
- Analyze live transmission signals with a high-resolution optical spectrum analyzer (OSA)
- Test in-band optical signal-to-noise ratios (I-OSNR) in DWDM/ROADM systems

Triple-play services, HDTV, smart phones, and tablets demand enormous bandwidth and create huge traffic spikes in the core network. To assure a high-quality customer experience, network service providers are increasing DWDM bandwidth capacity to prevent service degradations and minimize network downtime.

The I-PMD analyzer, deployed on the JDSU T-BERD/MTS-8000 test platform, is the industry's first solution to troubleshoot faulty DWDM channels and qualify fiber networks for future upgrade plans without turning the entire network down. This significantly reduces operating expenses for network service providers dealing with high-speed transmission or migrating to 10/40/100 G.

The I-PMD analyzer delivers:
- reduced system-upgrade costs
- optimized resource planning
- a fast return on investment
- increased profitability.

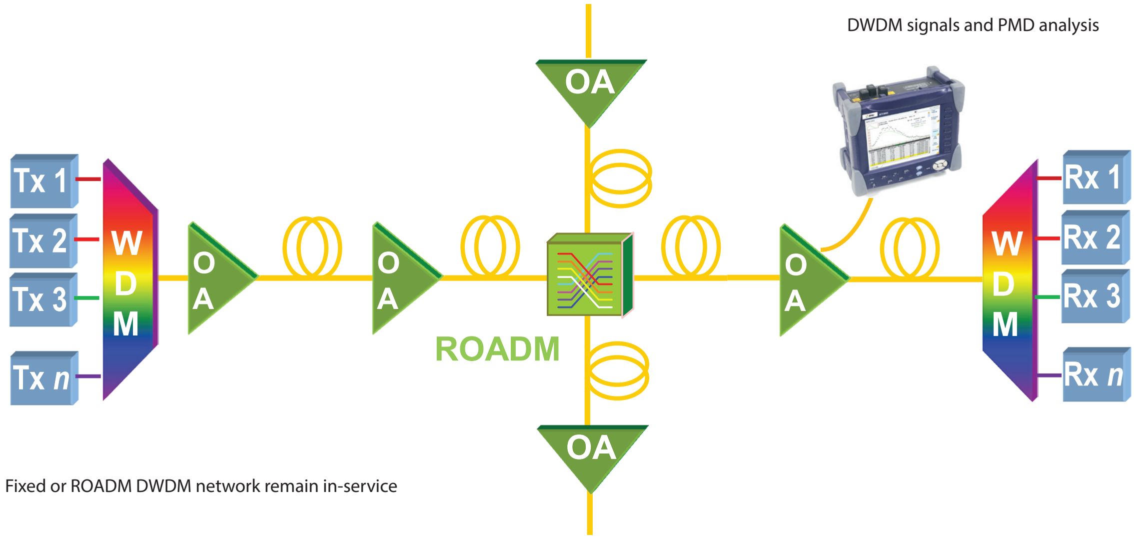
T-BERD/MTS-8000 platform

The T-BERD/MTS-8000 is the world's most scalable test platform for next-generation high-speed network deployment (40/100 G). It's a multi-application platform with comprehensive physical, optical, and transport/Ethernet testing capabilities.

JDSU

I-PMD reduces high-speed DWDM system-upgrade costs

- Quantify the PMD of fiber links without turning transmission down
- Monitor DWDM channels and maintain remote access to an on-site tester for long-term analysis
- Pre-qualify running DWDM systems for upgrade paths



Upgrade your network in three steps

I-PMD has no impact on network operation, eliminates several planning steps, and minimizes the resources needed to perform verification tests.

Step	Conventional network upgrade path
1	Advanced customer notice
2	Detailed planning-phase definition
3	Find temporary route
4	Re-route traffic during night maintenance window
5	Find and plan night maintenance window
6	Send two technicians onsite during night maintenance window
7	Perform PMD and power-level (loss) testing
8	If route is confirmed good, upgrade system

Step	Network upgrade path with I-PMD
1	Send a technician onsite
2	Perform PMD and power-level (loss) testing
3	If route is confirmed good, upgrade system

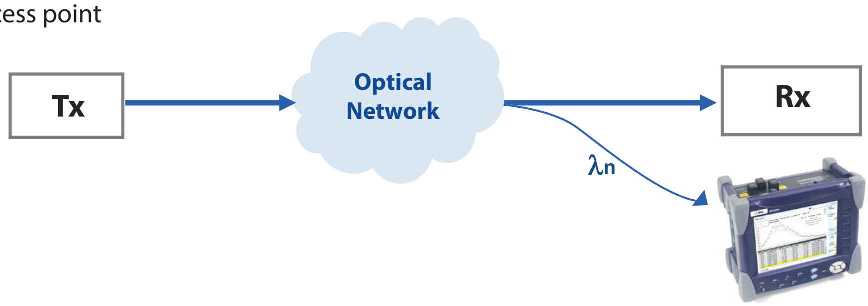
How does PMD affect 10/40/100 G transmission?

PMD, the average of differential group delay (DGD) values, causes temporal spreading of transmission signal pulses. This impacts high-transmission speeds such as 10 G with an increased bit error rate (BER). It is more severe for 40 G transmissions that tolerate 4x less PMD than 10 G signals.

DGD varies with time and optical frequency. Therefore, signals transmitted over different DWDM channels on a given fiber route usually experience different amounts of DGD. The resulting PMD in high-speed (10/40/100 G) networks reduces transmission reach.

I-PMD minimizes DWDM network downtime

- Isolate PMD or spectral issues on faulty DWDM channels
- Fully characterize DWDM channels by performing five optical measurements in one test sequence (total PMD, DGD per channel, power level, frequency, and I-OSNR)
- Test from any access point



One snapshot, five optical measurements

What is in-band OSNR (I-OSNR)?

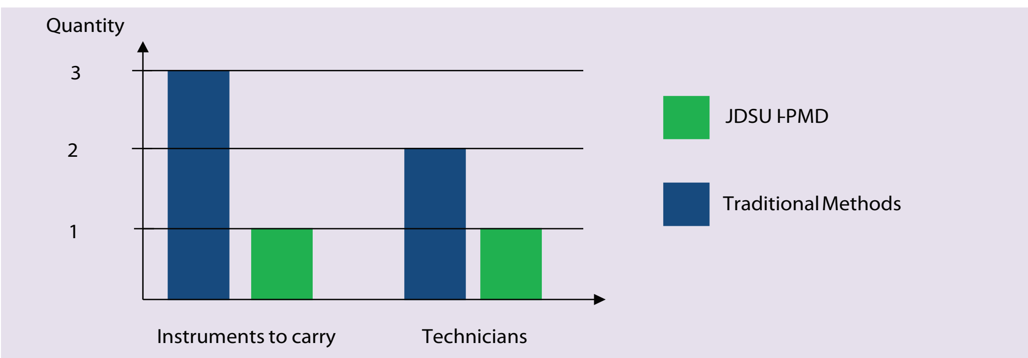
Optical signal-to-noise ratio (OSNR) is defined as the relationship between optical signal channel power and noise power. In high-speed 40 G and 100 G networks and in ROADM networks, noise power outside the optical channel is different to noise power inside an optical channel. The measurement of noise power inside an optical channel is defined as the in-band noise measurement. Based on the in-band noise, the in-band OSNR (I-OSNR) can be calculated for the "true-OSNR" of the optical channel.

T-BERD/MTS-8000 In-Service Polarization Mode Dispersion (I-PMD) Test Solution

I-PMD optimizes field dispatch

- Requires only one technician with a single-ended test solution
- Tests can be performed by any novice or expert technician
- Reduces the number of instruments to carry/turn-on/maintain/clean with three instruments combined into one (PMD analyzer, in-band OSA, and high-resolution OSA)

One test solution, one technician



JDSU dispersion and OSA test solutions

JDSU offers a complete range of out-of-service and in-service fiber-characterization and system-verification testers.

Fiber Installation	System Turn-up	Maintenance	Speed Upgrade

Fiber Characterization

Standard and ROADM OSA

I-PMD Analyzer

North America
Tel: 1 855 ASK-JDSU
1 855 275-5378

Latin America
Tel: +1 954 688 5660
Fax: +1 954 345 4668

Asia Pacific
Tel: +852 2892 0990
Fax: +852 2892 0770

EMEA
Tel: +49 7121 86 2222
Fax: +49 7172 86 1222

www.jdsu.com/test