

TestPoint 40Gbps V2



Highlights

High density solution for 40G testing

- Channelized OC-768 / STM-256 (down to STS-192 / VC-4-64c)
- OTU3 (43.018 Gbps) with SONET/SDH or Bulk PRBS client
- PRBS framed and unframed
- Clock rate variations
- Reporting of incoming optical power and clock offset
- G.828 / G.829 Performance Monitoring
- Service Disruption Time for both OTU3 and SONET / SDH
- Intrusive and transparent monitor connectivity modes



Applications

- SONET/SDH: OC-768 / STM-256
- Digital Wrapper and FEC: OTU3 (ITU-T G.709)

Compliance

- CSA Certificate of Compliance to CAN/CSA C22.2 No. 60950-1 (2003) and ANSI/UL 60950-1 (2003) with CSA Mark for Canada and USA
- CSA CB Certificate of Compliance to EN60950-1, IEC 60950-1 and National Deviations with CE Marking
- Class 1 Laser Product, with compliance to EN 60825, IEC 60825 and FDA/CDRH requirements

The TestPoint 40Gbps V2 two-slot module fits into both the TS-30 chassis and the TS-170 chassis. Channelized SONET / SDH testing is provided as standard functionality at OC-768 / STM-256 down to STS-192c / VC-4-64c. Traffic consists of a pseudo random binary sequence (PRBS) pattern.

The 40Gbps V2 Module also offers an option for Digital Wrapper and forward error correction (FEC) support at OTU3 (43.018 Gbps).

Up to eight 40Gbps V2 Modules can be inserted into a TS-170 chassis providing the industry's most dense and scalable 40G testing environment. Inserted into the TS-30 chassis the 40Gbps V2 Module provides a very compact solution.

With its multiple chassis options and comprehensive feature set, the 40Gbps V2 Module is a cost-effective and flexible test platform. Highlights of the 40Gbps V2 Module feature set include:

- Best in class Service Disruption Time Measurements
- Extensive alarm and error insertion and monitoring
- Robust and straightforward automation and scripting
- Easy-to-use graphical user interface (GUI)

2

INTERFACE SPECIFICATIONS

	Fixed Optics
Optical connector	LC
Wavelength	1550 nm
Optical output power (Rx power read)	0 to +3 dBm
Optical overload (min)	+3 dBm
Sensitivity (min)	-6 dBm
Clock out	LVPECL signal, AC coupled on SMA connector
LAN (Ethernet) Port	RJ 45 (10/100BASE-T)
Operator port	RJ 12 into RS-232 serial cable

LAN Management Port

Supports Simple Network Time Protocol (SNTP)
Configurable for Static IP address or DHCP

OPTICAL

Receive power measurement
Transmit laser on/off

LINE RATES

Reports PPM offset on receive interface
39.813 Gbps (SONET / SDH)
43.018 Gbps (OTU3)

CLOCKING

Internal (± 4.6 ppm accuracy)
Recovered from line
External via group controller (TS-30/170)
Clock rate variations ± 30 ppm
Clock output

LOGGING

Event log
Log injections

CONNECTIVITY

Terminal: Source and sink traffic
Transport monitor: Transparently monitors signal and retransmits unaltered
Intrusive monitor: Can inject layer 1 errors and pass traffic unaltered

APPLICATIONS

Descriptions of the applications:

SONET / SDH

OC-768: STS-786c / STS-192c
STM-256: VC-4-256c / VC-4-64c

DIGITAL WRAPPER AND FEC

OTU3 (ITU-T G.709): Client can be PRBS or SONET/SDH BERT

UNFRAMED

39.813 Gbps
43.018 Gbps

SONET/SDH

ALARMS

Alarm	Count	Ratio
LOS	0	0.0000E00
LOF	0	0.0000E00
OOE	0	0.0000E00
AIS-L	0	0.0000E00
RDI-L	0	0.0000E00
ERDI-P	0	0.0000E00
HP-REI	0	0.0000E00
UNEQ-P	0	0.0000E00

LOS / LOF / OOE / AIS-L / MS-AIS / RDI-L / MS-RDI / LOP-P / AU-LOP / AIS-P / AU-AIS / RDI-P / HP-RDI / UNEQ-P / HP-UNEQ / ERDI-P

ERRORS

Single / Rates for LOF / AIS-L / RDI-L / ERDI / REI-L / MS-REI / REI-P / HP-REI / B1 / B2 / B3 / Payload
Duration (in ms) for LOS / [AIS-L/MS-AIS] / [RDI-L/MS-RDI]

ENLARGED VIEW OF ERRORS & ALARMS REPORT

LOS	0.0000E00
LOP-P	0.0000E00
UNEQ-P	0.0000E00
B1 Ratio	0.0000E00

Up to 4 indicators of errors and alarms detected by the TestPoint. Object of each indicator can be chosen by user from the above list of alarms and errors.

OVERHEADS

Pointer adjustments: Increment/Decrement (single, rates) / NDF count / Pointer value / SS bits
Trace messages: J0/J1; 1, 16 or 64 bytes
Decoded bytes: K1/K2/S1/C2
Byte diagram: User editable overhead fields (includes B1, B2, B3 xor masks) in two alternating overhead banks. Interleaving and injection counts in frames / continuous injection support

TRAFFIC

PRBS 7 / 11 / 15 / 23 / 31 / 4-byte sequence / 16-byte sequence / pattern invert

OTU	LOS	LOF	OOE	AIS-L	RDI-L	ERDI-P	HP-REI	UNEQ-P
OTU	0	0	0	0	0	0	0	0
TOM 1	0	0	0	0	0	0	0	0
TOM 2	0	0	0	0	0	0	0	0
TOM 3	0	0	0	0	0	0	0	0
TOM 4	0	0	0	0	0	0	0	0
TOM 5	0	0	0	0	0	0	0	0
TOM 6	0	0	0	0	0	0	0	0
PM	0	0	0	0	0	0	0	0

PERFORMANCE MONITORING (G.828/G.829)

For Section / Regenerator section (near-end) and line / multiplex section (near-end; far-end): ES, ESR, SES, SESR, BBE, BBER, UAS
For Path (near-end; far-end): ES, ESR, SES, SESR, BBE, BBER, SEP, SEPI, UAS, Verdict
Threshold configuration

Section G.829	ES	0	0.0000E00	ESR	0	0.0000E00
Line G.829	ES	0	0.0000E00	ESR	0	0.0000E00
Path G.829	ES	0	0.0000E00	ESR	0	0.0000E00

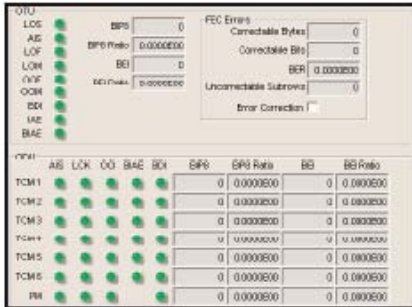
TEST REPORT

Contains performance monitoring settings and statistics

SIGNAL

Framed/unframed (raw pattern) at 39.813 Gbps

3

OTU3 DIGITAL WRAPPER AND FEC**ALARMS**

LOS/OOF/LOF/OOM/LOM/OTU-AIS (PN-11)/OTU-IAE /OTU-BDI/OTU-BIAE / ODU-AIS (PM/TCM1-6)/ODU-LCK (PM/TCM1-6) / ODU-OCI (PM/TCM1-6)/ODU-BDI (PM/TCM1-6) / ODU-BIAE (TCM1-6)

ERRORS

Single and rate for OUT-BIP8/ OTU-BEI/ODU PM & TCM1-6 BIP8/ ODU-BEI (PM/TCM1-6)/ Payload

OVERHEADS

Multi frame structures
OTU-TTI/ODU-TTI(PM/TCM1-6)/ODU-FTFL/PSI
Overhead message editor and viewer



Justification events: Sync (line-client locked) on transmit with PRBS client, client frequency offset
Error suppression: To optionally suppress incoming errors/alarms: FEC/PM errors

CLIENTS

SONET / SDH as described in SONET / SDH section
Bulk PRBS 7 / 11/ 15 / 23 / 31 / 4-byte sequence / 16-byte sequence / pattern invert

FEC

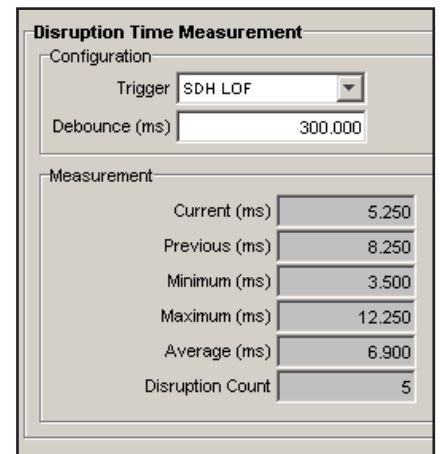
Settings: Standard FEC / All-zeroes FEC.
Enable/disable error correction
Injection: Single. Control of errored sub-row (including all) / errored bytes per sub-row / errored bits per byte / skipped rows between errors. Up to 16 symbol errors
Detection: Number of correctable byte errors / number of correctable bit errors / bit error rate / number of uncorrectable sub-rows

SIGNAL

Framed/unframed (raw pattern) at 43.018 Gbps

SERVICE DISRUPTION TIME

Measurement: μ s resolution
Statistics: Current / Previous / Minimum / Maximum / Average / Count
Event logging
Automatic re-triggering
Triggers:
SONET/SDH: LOS / LOF / PRBS Sync / AIS-L / MS-AIS / AIS-P/AU-AIS / OOF / RDI-L/MS-RDI / RDI-P/AU-RDI / B1 / B2 / B3
OTU3: LOS / AIS / LOF / LOM / OOF / OOM / SM-BDI / SM-BIP8 / ODU-AIS / ODU-LCK / ODU-OCI / PM-BDI / PM-BIP8 / PRBS Sync



ORDERING INFORMATION

N530-0292 40Gbps V2 Module with NRZ optics and SONET/SDH

N530-0292-UNF 40Gbps V2 Module with NRZ optics and unframed only

Options

OPT 0290-02 OTN 43G G.709 Digital Wrapper / FEC

Accessories

OPT 0100-10 Wheeled hard travel case accepting TS-10 or TS-30 chassis

Test & Measurement Regional Sales

NORTH AMERICA TEL: +1 866 228 3762 FAX: +1 301 353 9216	LATIN AMERICA TEL: +1 954 688-5660 FAX: +1 954 3454668	ASIA PACIFIC TEL: +852 2892 0990 FAX: +852 2892 0770	EMEA TEL: +49 7121 86 2222 FAX: +49 7121 86 1222	WEBSITE: www.jdsu.com/test
--	---	---	---	--