PDH and DSn Test	
Test Port	· PDH: E1, E3, E4 1 port
	· DSn: DS1, DS3 1 port
	Connector: BNC, RJ48(Only for E1 interface)
Measurement Mode	· Out-of-Service Mode
	· In-Service Mode
General	· E1: Complies with latest version ITU-T G.703 for 2048kbps
	· DS1: Complies with latest version ANSI T1.102 for 1544kbps
	· E3: Complies with latest version ITU-T G.703 for 34368kbps
	· DS3: Complies with latest version ANSI for 44736kbps
	· E4: Complies with latest version ITU-T G.703 for 139264kbps
Impedance	· E1: 75Ω (unbalanced), 120Ω (balanced)
	· DS1: 100Ω
	· E3: 75Ω
	· DS3: 75Ω
	· E4: 75Ω
Line Code	· E1: HDB3, AMI
	· DS1: B8ZS, AMI
	· E3: HDB3
	· DS3: B3ZS,
	· E4: CMI
Framing	· E1: Unframed, PCM30, PCM31, PCM30CRC, PCM31CRC
	· DS1: Unframed, SF-D4, ESF
	· E3: Unframed, Framed (G.751)
	· DS3: Unframed, Framed
	· E4: Unframed, Framed (G.751)
Transmitter Clock	· Internal clock accuracy: 4.6 ppm
	Clock offset: ±125ppm (1 ppm steps)
	· Recovered clock
	· TTL Level external 2.048MHz clock
	· E1: 2.048Mbps, DS1: 1.544Mbps
Receive Single Rate	±150ppm
	Frequency deviation indication resolution: ±1ppm
Impedance Mode	· E1: Terminate, Monitor
	· DS1: Terminate, Monitor
	· E3: Terminate, Monitor
	· DS3: Terminate, Monitor
	· E4: Terminate
Alarms	Alarm generation and monitor
	· E1: LOS, LOF, OOF, RAI, AIS, CRCLOFM, MFASOOF, LOFMFAS, MFASRAI, LSS
	· DS1: LOS, LOF, OOF, RAI, AIS, LSS
	· E3: LOS, LOF, AIS, RDI

	· DS3: LOS, LOF, AIS, RAI, LSS, IDLE
	· E4: LOS, LOF, AIS, RAI, LSS
	Alarm generation:
	· Continuous
	· Alternate
	· Burst
Errors	Error injection and monitor
	· E1: FAS, CRC4, E-BIT, Code, Bit
	· DS1: FAS, Code, Bit, CRC6
	· E3: FAS, Bit
	· DS3: FAS, C-BIT, P-BIT, FEBE, BIT
	· E4: FAS, Bit
	Error injection:
	· Continuous
	· Alternate
	· Rate
	· Single
	· Burst
BER Test Pattern	Pattern generation and monitor for O.181 bulk test pattern
	Test patterns supported: PRBS9, PRBS11,PRBS15,PRBS20.PRBS23,PRBS31
	PRBS pattern support normal and inverted
	User defined patterns support 16-bit length step
PDH and DSn Results	
Status	Current information
	· Alarms and errors on monitored line
	· Input level indication
	· Actual bit rate
	· Frequency deviation
Statistics	Event log: Alarms (seconds and ratio), errors (count or count and rate), pointer operations, start/stop time, all events refresh with 1 second resolution
Histogram	All alarms and errors detected can be display in histogram, user can see all issues directly.
Error Performance	G.821/G.826/M.2100 analysis of received signals based on detected errors and alarms: ES, SES, BBE, AS, UAS and so on
APS	APS (Automatic Protection Switching) test and analysis
	· APS switching time is measured
	· Trigger events (user selectable)
	All PDH/DSn alarms and errors, Bit error, errors with threshold
	· Number of switchovers indicated by APS protocol
	· Resolution of PDH/DSn APS switching time measurement: 0.25ms
Propagation Delay Measurement	Resolution: 0.1us
	Measurement Max. time：10.0s