OFC 2020

Handheld Optical Fiber & Transport Testing

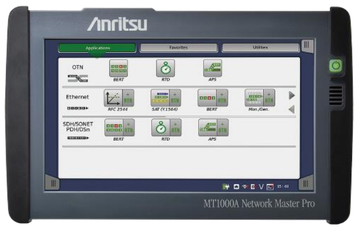
Network Master™ & Access Master™ Family

Anritsu
envision : ensure

400G Testing AND Beyond

4G/LTE Field Operations Use Test Cases

4G/LTE Field Operations Test Use Case

Use Case	Anritsu Solution		Test Requirements
Auto-focus Fiber Connector Inspection	**G0382 Video Inspection Probe** 		IEC 61300-3-35 Fiber Connector verification
OTDR, OLTS & Visual Fault locator	**Network Master MT9090A** 	**Access Master MT9085A** 	Fiber optical physical characterization for microbends, breaks & loss measurement
Pluggable Optics Module Verification	**Network Master Pro MT1000A** 		Test and verify SFP / SFP+ rate support, power Level & vendor info
Ethernet Frame traffic generator & monitor up to 10GbE			Traffic generator & monitor, pass/fail criteria with VLAN support
Cat 5E/6 Cable Test (TDR)			Test for shorts, open and distance to fault

2020 LIGHTWAVE 4.0 INNOVATION REVIEWS

Auto-Focus Fiber Optical Connector Inspection

G0382A High speed measurement with fully Automated one-button operation

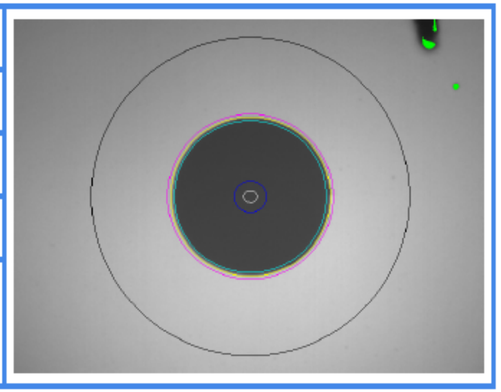
- ✓ Automated focus
- ✓ Automated image centering
- ✓ Automated analysis
- ✓ Automated image capture

G0382A

G0382A with Network Master Pro MT1000A

VIP Test Summary

Connector	LC_UPC
File Name	vip_190408_0001.vipi
Probe Model	G0382A
Test Profile	SM UPC >45
Result	PASS



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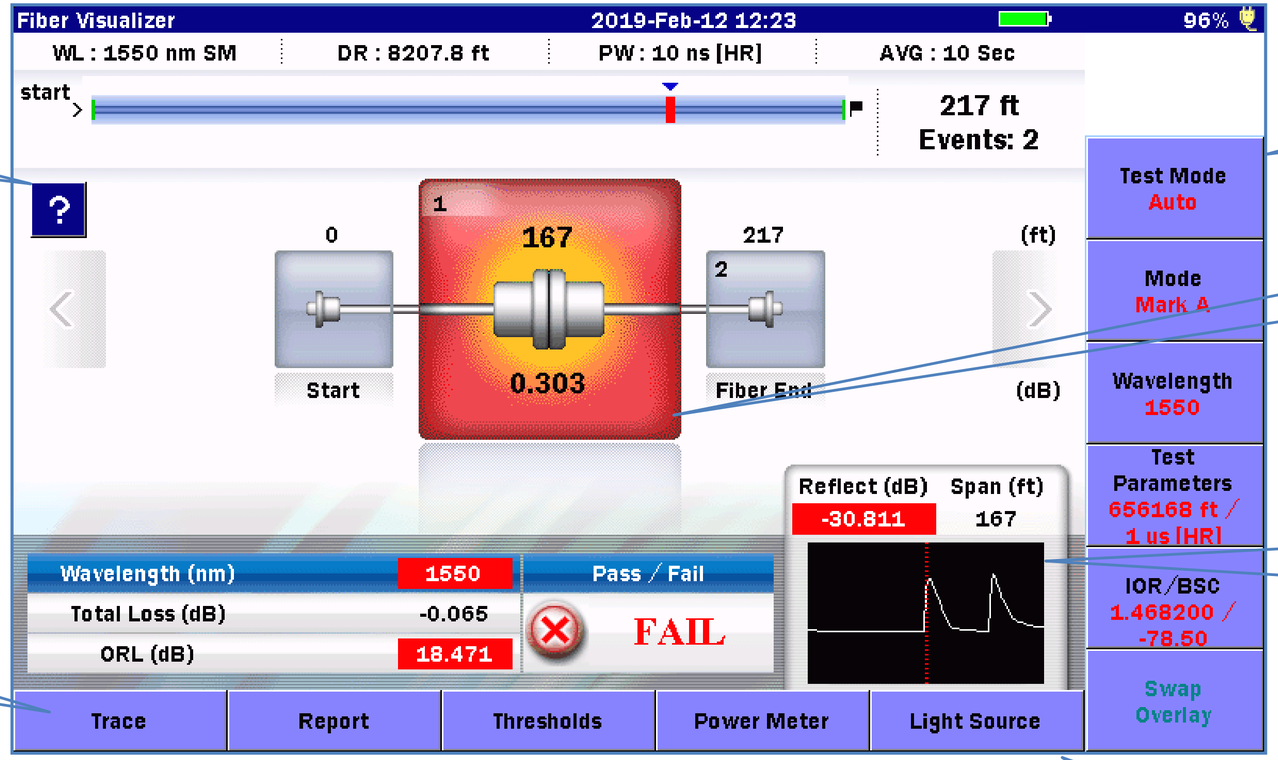
OTDR, OLTS & Visual Fault Locator

Expert Advice & Troubleshooting Identifies possible event failures & causes



Easy 1-button Auto Test Mode or Manual Test Mode Capable

Color-coded Pass/Fail events displayed in distance and loss (dB)

Event Preview window display trace, reflectance (dB) and distance

Toggle between OTDR measurements in both Fiber Visualizer© & Trace View

Visual Fault Locator and Optical Power Meter accessible during OTDR measurements

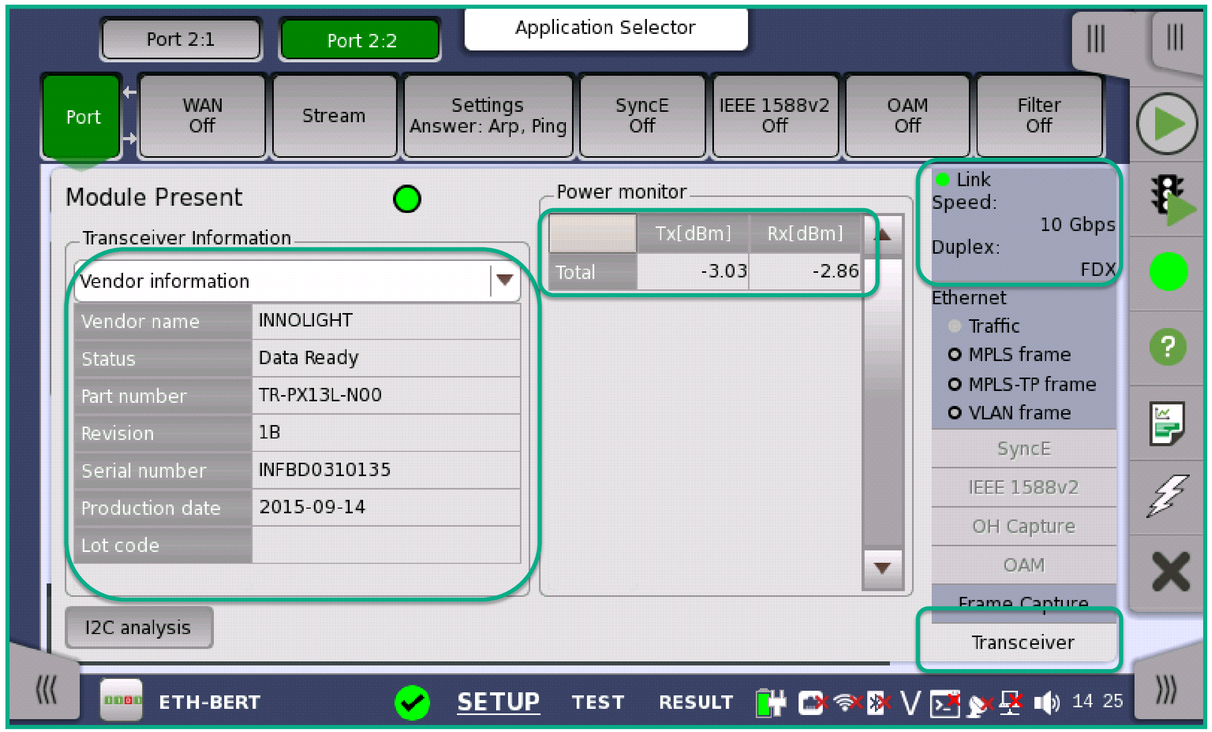
Fiber Visualizer© OTDR GUI software

MT9090A Network Master

MT9085A ACCESS Master

Fiber Optic Cable

Pluggable Optics Module Verification Test



Is it Single-mode or Multi-mode?
Does it support GbE Ethernet?
Does it support 10GbE?

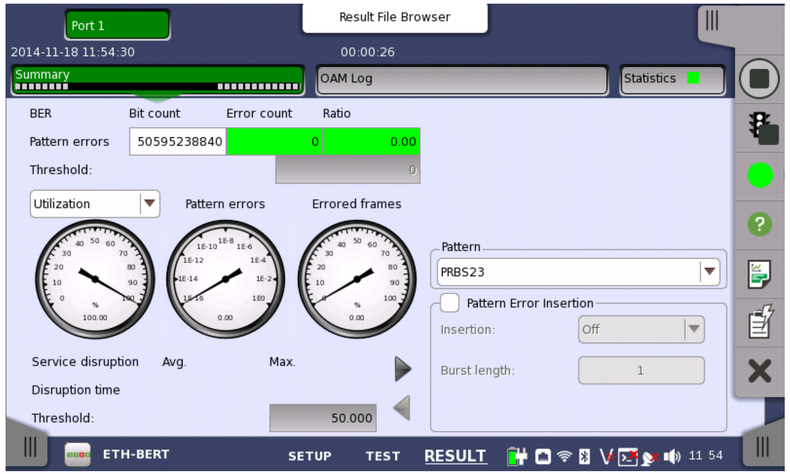
SFP/SFP+
QSFP+ / QSFP28
CFP4

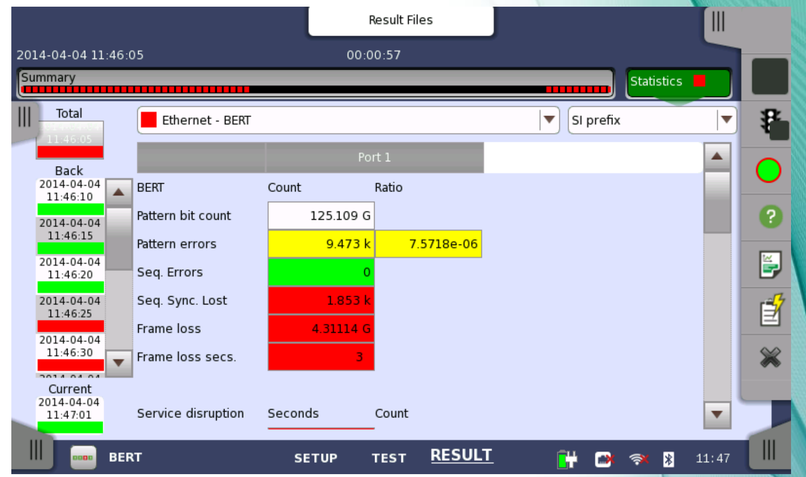
Network Master Pro
MT1000A
10 Mbps to 100 Gbps

2020 LIGHTWAVE 4.0 INNOVATION REVIEWS

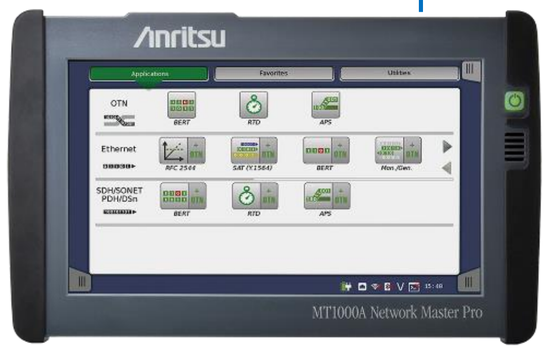
Ethernet Frame Generator & Monitor

- Traditional test of physical connection
- Generates and detects test patterns
- Counts errors in received test pattern
- Color-coded errors and alarms for easy overview
- Pattern generation:
  - Unframed
  - Layer 2 (Mac address)
  - Layer 3 (with IP header)
  - Layer 4 (with UDP/TCP header)
- Detects sequence errors and loss of sequence synchronization
- Frame loss count and frame loss seconds

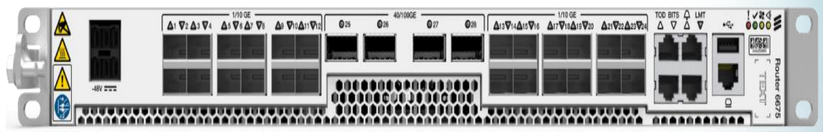




10Mbps to 100Gbps Ethernet connection



Network Master Pro MT1000A
10 Mbps to 100 Gbps



Network Switch / Router Device

2020 LIGHTWAVE 4.0 INNOVATION REVIEWS

5G/xHaul Field Operations Use Test Case

5G/xHaul Field Operations Test Use Case

Use Case	Anritsu Solution	Use Case
Ethernet / eCPRI High Resolution Latency	 **MU100011A: 100G Multirate Module**	Uni-directional Latency requirement for URLLC: 3GPP: 0.5ms IEEE 802.3cm: 100us (RU-CU) IEEE1913.1: 50us (RU-CU)
NGFI-I & NGFI-II high throughput requirements	 **MU10002xA: OTDR Modules**	25Gbps/RU * 3(RU/route) * 6(Route/NGFI-I) = 400Gbps / Ring
5G Network Transport Timing between EGM to gNB	 **MT1000A: Mainframe**	5G Network Timing Requirements Timing Error (TE) for each node by Category

2020 LIGHTWAVE 4.0 INNOVATION REVIEWS

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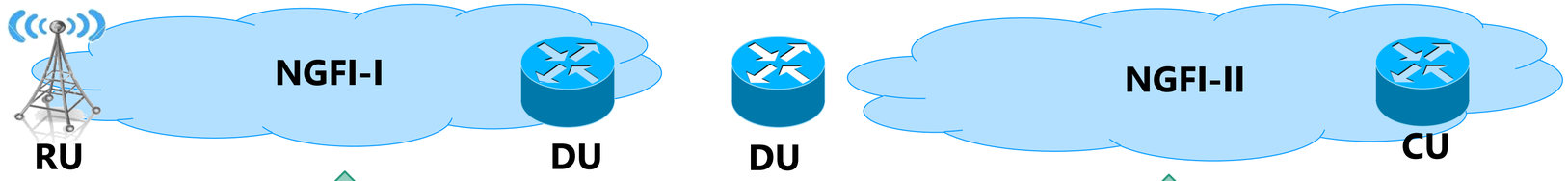
5G Mobile xHaul Transport Network Test Requirements

5G xHaul Transport

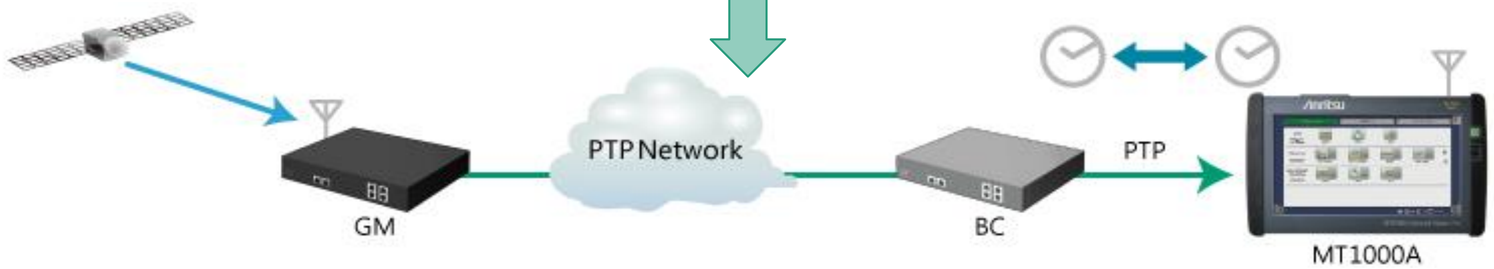
Network Elements



High Resolution Latency (delay) Measurements

eCPRI/RoE Throughtput Measurements

PTP-based Time Synchronous Measurements



ITU-T G.8275.1/2 Time Transfer Error measurement

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