

Simultaneous Measurement of up to 5,376 Channels on 10G (STM-64/OC-192)

Accurate SDH/SONET Measurements Cut Measurement Time

MP1590B Network Performance Tester MU150110A-010 Multichannel Measurement

Network speeds are becoming increasingly faster as demand for rich-content services grows, and more customers need assured high quality. Anritsu's MP1590B Network Performance Tester is a multifunction, high-performance tester supporting quality measurements of next-generation SDH/SONET, OTN, PDH/DSn, EoS, Jitter, Ethernet and IP networks at speeds from 1.5M/2M to 11.1G.

1. Introduction

Broadband communications lines are now carrying various Internet services, including voice, data, and video, requiring larger network capacity and higher speeds. More recently, assuring high-quality, long-distance transport is becoming increasingly important.

Core Metro networks are using multi-function transmission equipment, such as OXC (Optical Cross Connect), MSPP (Multi Service Provisioning Platform) and ROADM (Reconfigurable Optical Add/Drop Multiplexer) to meet these needs.

Securing high-quality data transport requires function and quality evaluations of equipment and networks, and performing accurate evaluations and measurements efficiently is a key theme for equipment vendors and network operators.

2. Applications

2-1 NGN Quality Assurance

Next generation networks (NGNs), such as ASON (Automatically Switched Optical Network) are the focus for improving network stability, cutting operation costs, and creating flexibility. These 'intelligent' networks automatically and dynamically switch the subscriber communication frequency band and path when a problem occurs, allowing the equipment vendor and network operator to maintain the assured quality.

Conventionally, line quality is measured on just one channel, but the MP1590B supports simultaneous measurement of up to 5,376 channels on 10G SDH/SONET networks, cutting development and evaluation times and improving quality with more accurate measurements.

<Multichannel Measurement Items>

- Errors/alarms
- Bit Error Rate (BER)
- Automatic Protection Switching (APS) path switching time
- Delay time
- Path trace

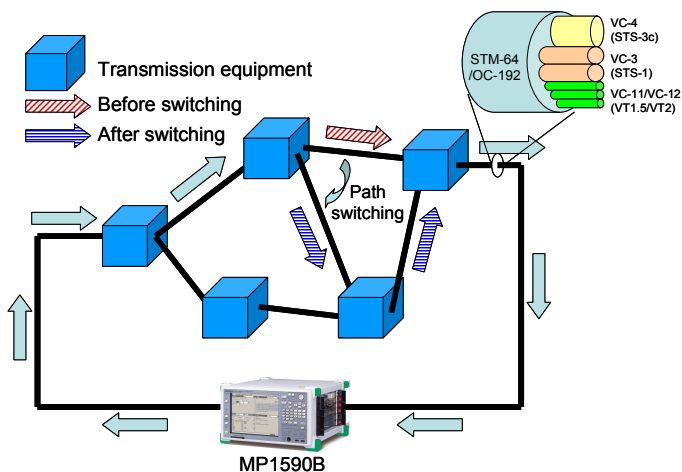


Figure 1 Path Switching

Structure	Switch time (ms)				Count			
	Last	Judge	Min.	Max.	Average	Total	OK	NG
All			25.6	1000.6	40.6	394	394	0
1 C4	25.7	OK	25.7	25.7	25.7	6	6	0
2 C4	25.7	OK	25.7	25.7	25.7	6	6	0
3 C4	25.7	OK	25.7	25.7	25.7	6	6	0
4 C4	25.7	OK	25.7	25.7	25.7	6	6	0
5 C4	25.7	OK	25.7	25.7	25.7	6	6	0
6 C4	25.7	OK	25.7	25.7	25.7	6	6	0
7 C4	25.7	OK	25.7	25.7	25.7	6	6	0
8 C4	25.7	OK	25.7	25.7	25.7	6	6	0
9 C4	1000.6	NG	25.7	1000.6	164.9	7	6	1
10 C4	1000.6	NG	25.7	1000.6	164.9	7	6	1
11 C4	25.6	OK	25.6	25.7	25.6	7	7	0
12 C4	25.6	OK	25.6	25.7	25.6	7	7	0
13 C4	25.6	OK	25.6	25.7	25.6	7	7	0
14 C4	25.6	OK	25.6	25.7	25.6	7	7	0
15 C4	25.7	OK	25.7	25.7	25.7	6	6	0

Figure 2 Switching Time Measurement Results

2-2 Fast SDH/SONET Line Troubleshooting

Troubleshooting problems on SDH/SONET networks requires connection of tester instruments for fault analysis. The tester mapping must be the same as the network mapping and can require a lot of time if the mapping configuration is unknown or complex; setting mistakes are common too.

The MP1590B auto-search function auto-detects the mapping configuration in Rx signals to start measurement, eliminating complex settings and allowing quick on-site analysis.

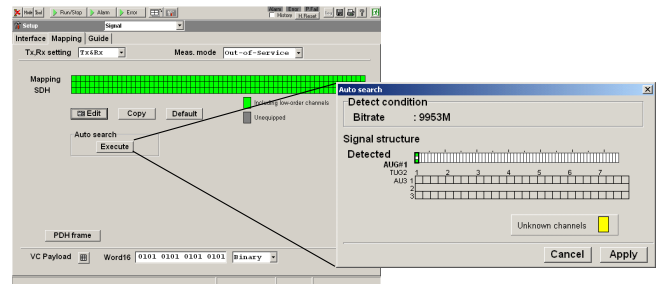


Figure 3 Mapping Automatic Search

2-3 Error/Alarm Monitoring

The R&D and manufacturing sections of SDH/SONET equipment vendors as well as the installation and verification sections of network operators must monitor all channels for errors and alarms to confirm that there are no problems with the equipment and network.

The MP1590B has built-in functions for counting errors and alarms on up to 5,376 VC11/VT1.5 channels and 4,032 VC12/VT2 channels as well as for monitoring and displaying the error and alarm status on one screen, making it easy to grasp the complete network picture at a glance. In addition, the history function means that even momentary errors and alarms are not missed.

Furthermore, the error and alarm occurrence and recovery times, names, alarm period, error count, and error rate can all be recorded by the log function to allow long-term fault trend and recovery analyses. The channel and error/alarm filter and display function supports easy confirmation of target errors and alarms on specific channels.

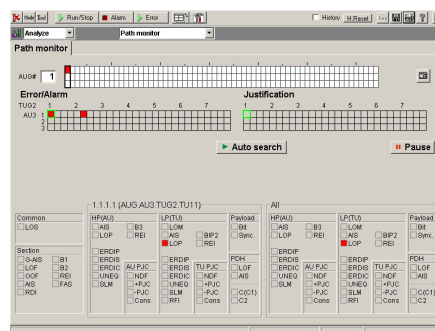


Figure 4 Path Monitor Screen

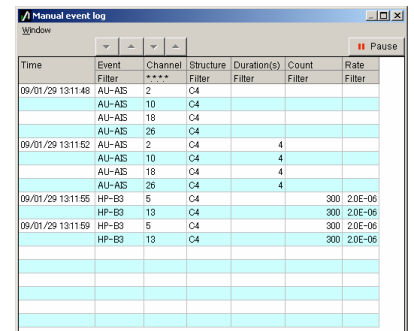


Figure 5 Event Log Screen

3. Summary

Multichannel measurements supported by the MP1590B slash 10G SDH/SONET (STM-64/OC-192) troubleshooting times with simultaneous, efficient, and accurate measurements of high- and low-order mappings.

4. Key Features (Multichannel Measurement)

- Supports SDH/SONET from STM-0/OC-1 to STM-64/OC-192
- Simultaneous measurements of all channels from high order to low order in 10G band (max. 5,376ch for VC11/VT1.5 and 4,032ch for VC12/VT2)
- Easy setting using mapping auto-search function
- Error/alarm, BER, APS switching time, and delay time measurements
- Path monitor function for checking errors and alarms on each channel
- Event log function to record fault times

5. Ordering Information

	Model	Name
Main frame	MP1590B	Network Performance Tester
Plug-in unit	MU150110A	Multirate Unit
Option	MU150110A-010	Multichannel Measurement
Optional accessory	G0194A	1310 nm XFP Module
	G0195A	1550 nm XFP Module



MP1590B
Network Performance Tester



MU150110A
Multirate Unit