Anritsu

MP1595A

40G SDH/SONET Analyzer

(EU Only)

MP1595A 40G SDH/SONET Analyzer Product Introduction (EU Only)

Anritsu Corporation

What is MP1595A?

- With the rapid spread of high-speed broadband networks offering triple-play services, FMC, etc., core networks are moving to 40G. Anritsu's MP1595A is a next-generation 40G SDH/SONET analyzer that builds on Anritsu's broad experience in SDH/SONET analyzer technologies. It is an all-in-one solution supporting all measurements required for evaluation of 40G SDH/SONET/OTN networks and equipment.

- Supports new 40G I/F while keeping familiar GUI and operability of popular MP1590B for 10G SDH/SONET/OTN equipment

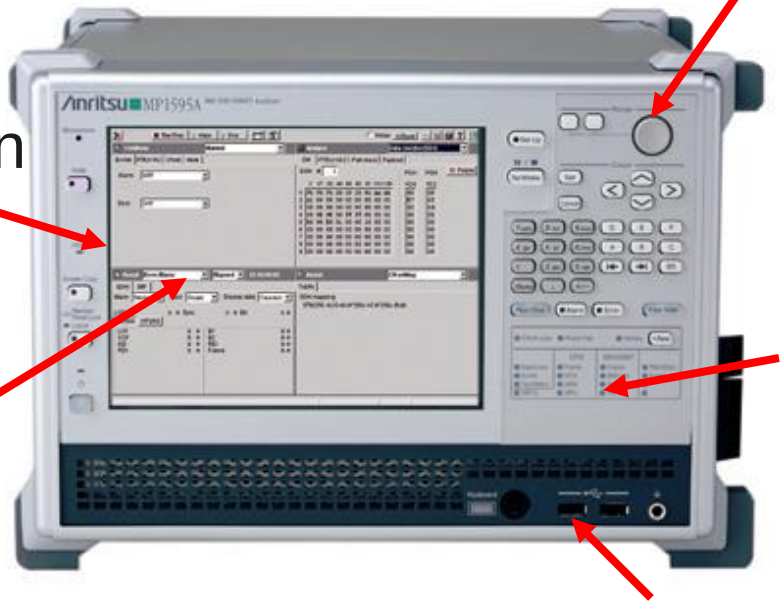
What is MP1595A?

- 1-Box Analyzer for STM-256/OC-768, OTU-3
- SDH/SONET/PDH/DSn/OTN support from 1.5Mbit/s to 10.7Gbit/s
- Error and alarm insertion/detection and in-service monitoring

MP1595A 40G SDH/SONET Analyzer

Outline

❑ Main Frame



Dimensions: 320(W) x 221(H) x 350(D) mm
Weight: 14 kg max. (excl. measurement units)

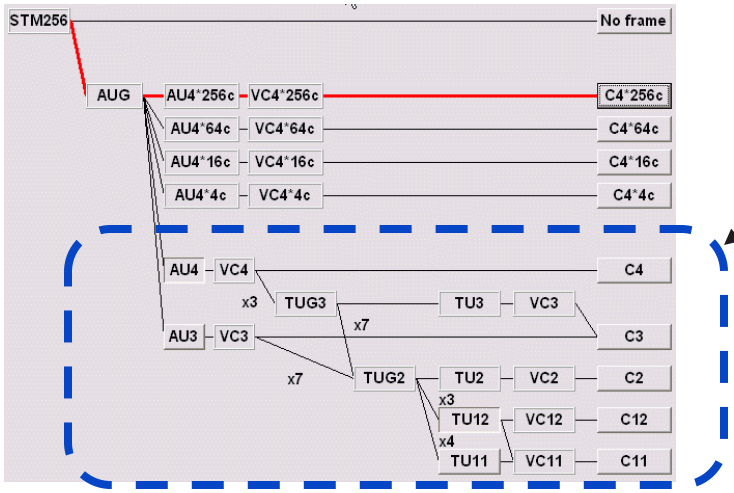
Outline

- **Supported Bit Rates**
  - **1.5 Mbit/s – 43 Gbit/s**
    - **SDH/SONET: STM-0/STS-1 to STM-256/STS-768**
    - **OTN: OTU1/OTU2/OTU3**
    - **PDH: E1/E2/E3/E4**
    - **DSn: DS1/DS3**
    - **Non Frame: Setting supported for all above bit rates**
- **Mapping (40/43G)**
  - **40G**
    - **VC4*256c/STS768c, VC4*64c/STS192c, VC4*16c/STS48c, VC4*4c/STS12c**
    - **Supports Low Order mapping in combination with MU150100A**
  - **43G**
    - **OTU3, ODTU23**

Outline

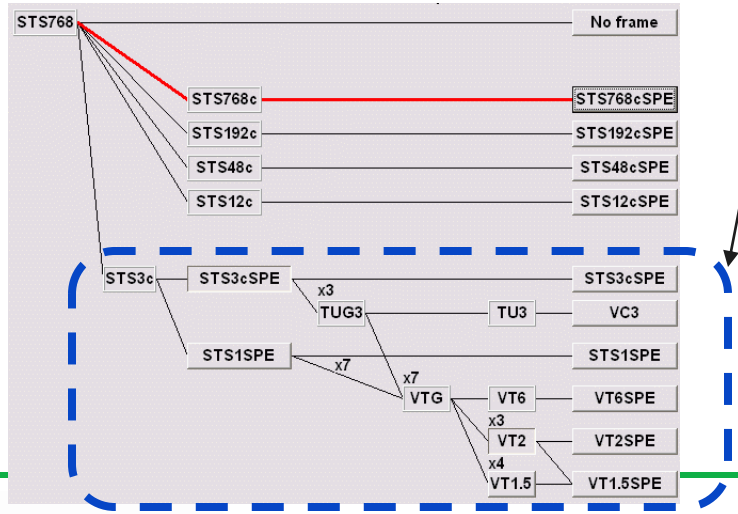
Mapping Setting Screens

SDH

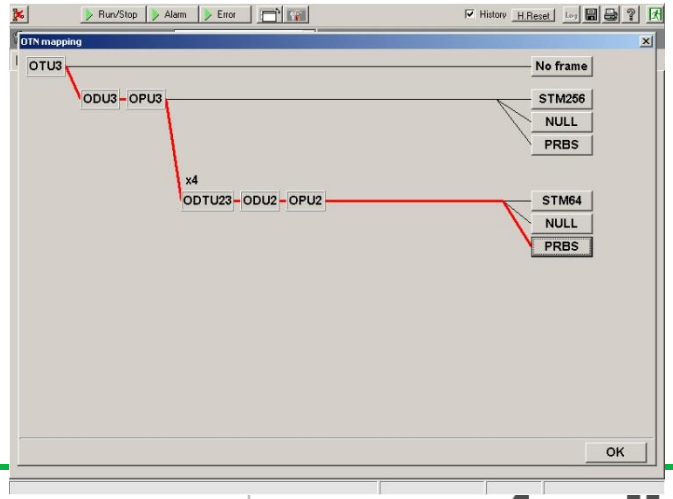


With MU150100A

SONET



OTN



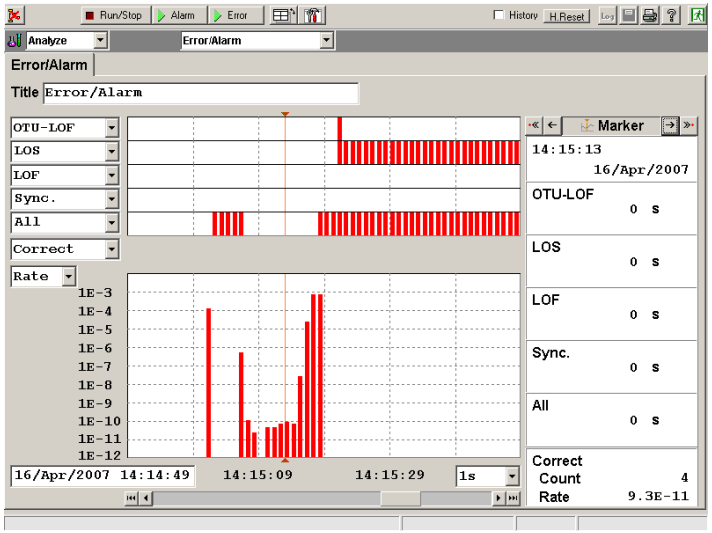
Main Applications

- Error/Alarm insertion and detection
- Monitoring
- APS Measurement
- Frame memory/capture
- Through mode
- Delay time measurement

Application Examples (1/7)

- **Error/Alarm Insertion**
  - Inserts **Errors, such as FAS, BIP-8, and B1/B2/B3**, as well as **Alarms, such as LOF, LOM, AIS**
  - Supports **selection of various insertion timings**, such as Rate, Alternative, Single, Burst, All, and Frame
  - Specifies error bit insertion position for B1/B2/B3, and BIP-2 errors

- **Error/Alarm Detection**
  - Count and Rate results at Result screen
  - Monitor generation history at Monitor screen

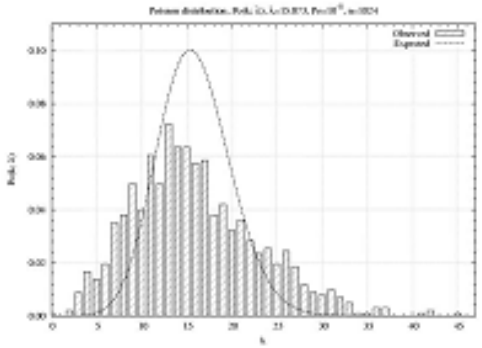


Error Alarm Monitor Screen

Application Examples (2/7)

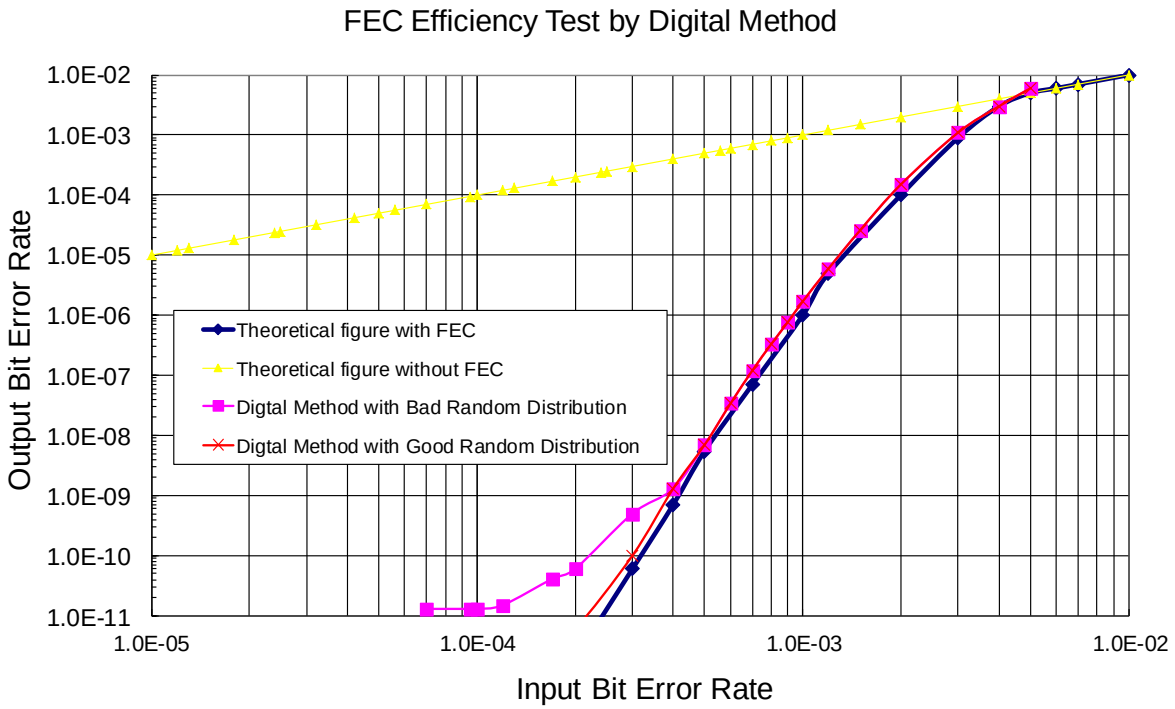
❑ Insert ITU-T O.182-compliant Random Errors

- ◆ Evaluates FEC efficiency using **ITU-T O.182-compliant error signal (errors fitting Poisson distribution)**



Bad Random Distribution

Good Random Distribution

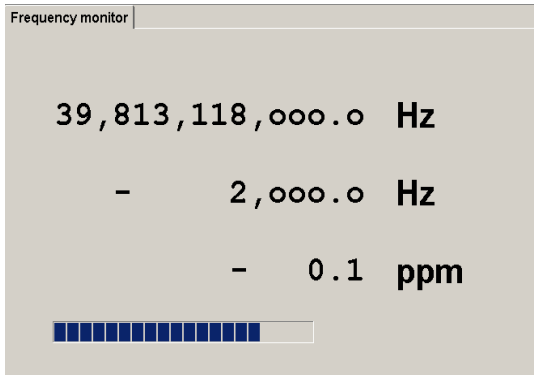


Error Correction Curves

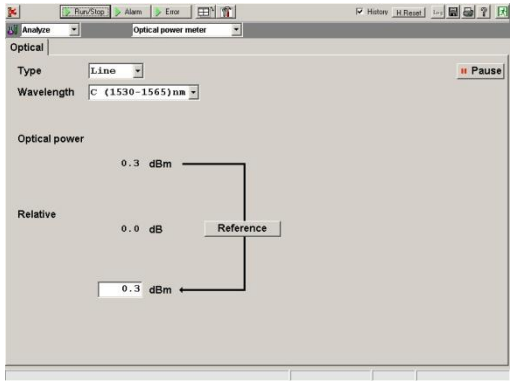
Application Examples (3/7)

Monitoring Functions

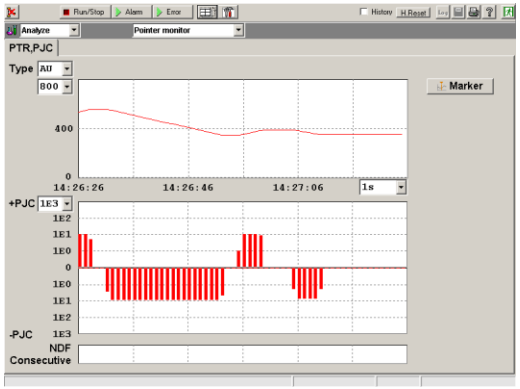
- Full Line of Versatile Functions for Network Monitoring
  - Error/Alarm monitor
  - Frequency monitor
  - Optical Input level monitor
  - Pointer monitor
  - OH Monitor
- Error/Alarm and Pointer Monitors Displayed as Graphical Log



Frequency



Optical Input Level

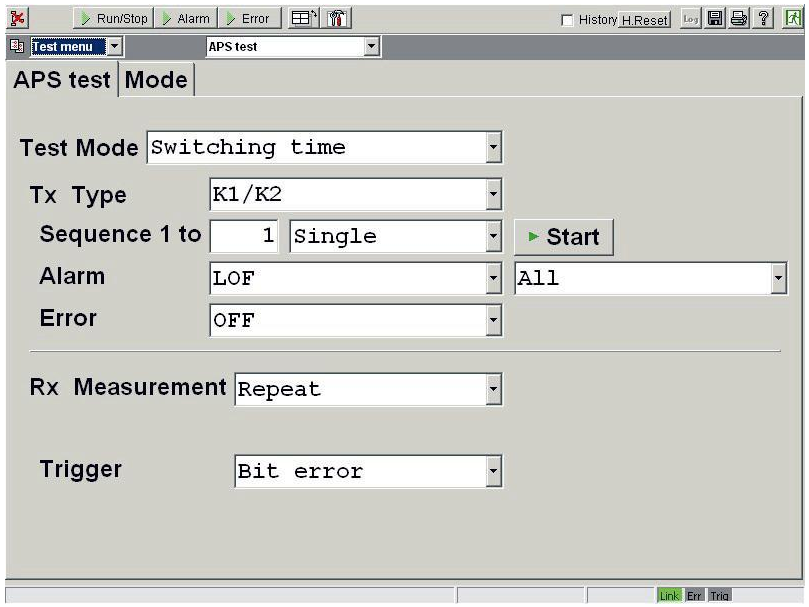


Pointer

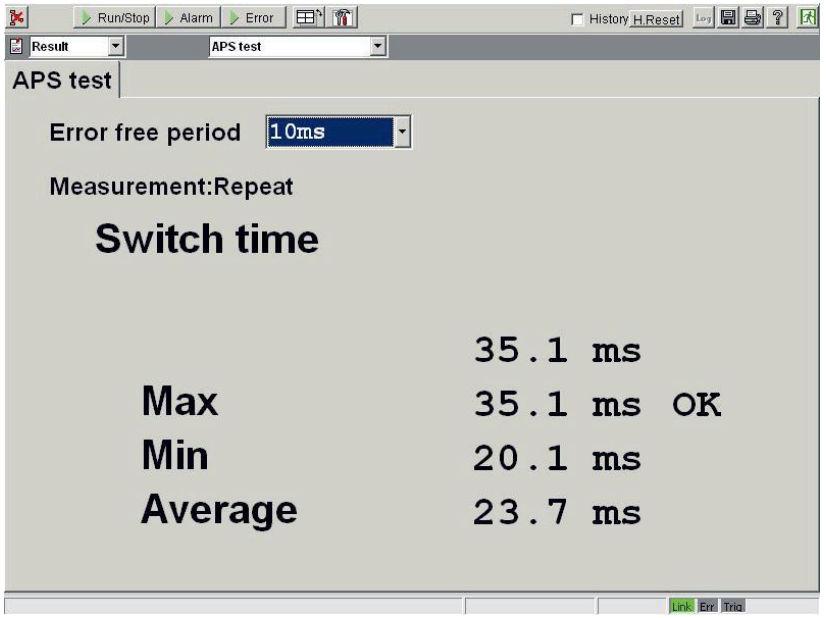
Application Examples (4/7)

APS (Automatic Protection Switch) Measurement

- Measures equipment circuit switching time with 0.1-ms resolution using any Error/Alarm as trigger



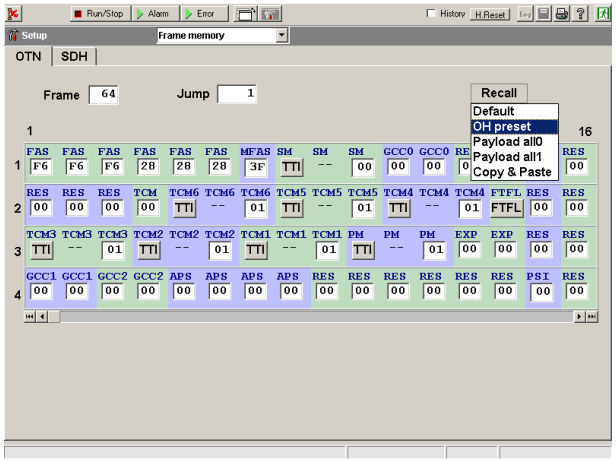
APS Measurement Setting Screen



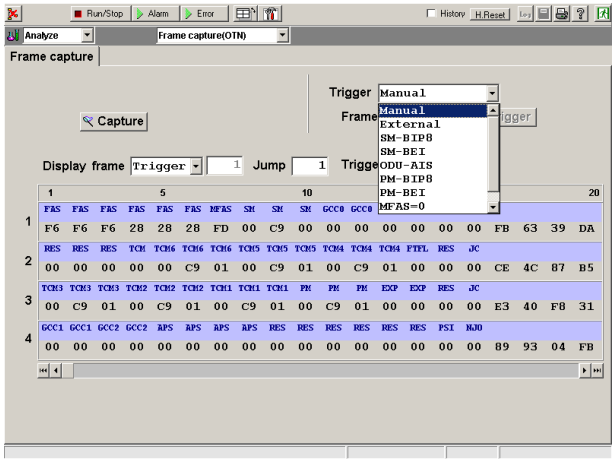
APS Measurement Results Screen

Application Examples (5/7)

- **Frame Memory/Capture Function (MU150140A-10)** **OPTION**
  - Demonstrates usefulness when collecting fault data to reproduce problem
  - Frame Memory Function
    - Set all bytes except B1, B2, HP-B3/B3-P, and Pointer
    - Set max. of 16 STM-256/STS-768 frames
    - Set max. of 256 OTU3 frames
  - Frame Capture Function
    - Set any Error/Alarm as trigger
    - Capture max. of 16 STM-256/STS-768 frames
    - Capture max. of 256 OTU3 frames



Frame Memory Screen



Frame Capture Screen

Application Examples (6/7)

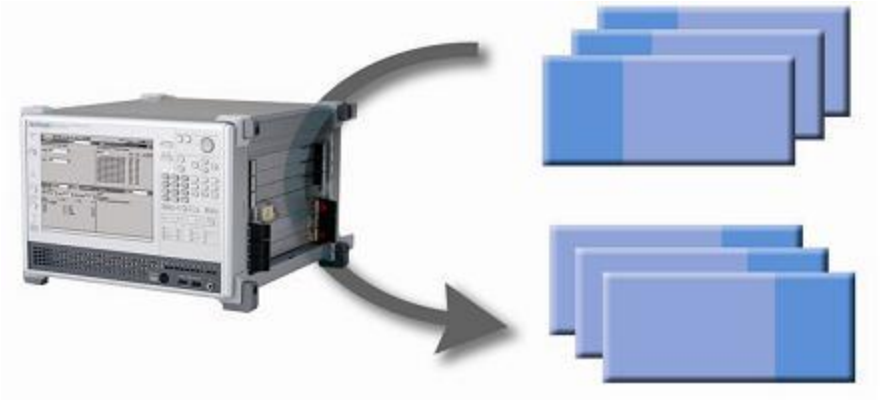
Through Mode Functions

Transparent Mode

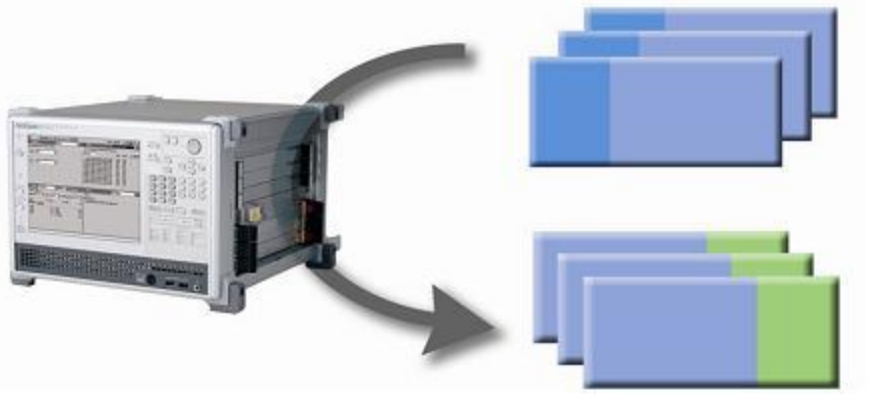
- Monitors circuit quality by outputting looped-back received signal
- **Emulates actual circuit** by inputting random errors

OH Overwrite Mode

- Overwrites OH part of received signal with OH specified at MP1595A and outputs signal
- Inserts various Errors/Alarms into in-service circuit



Transparent Mode

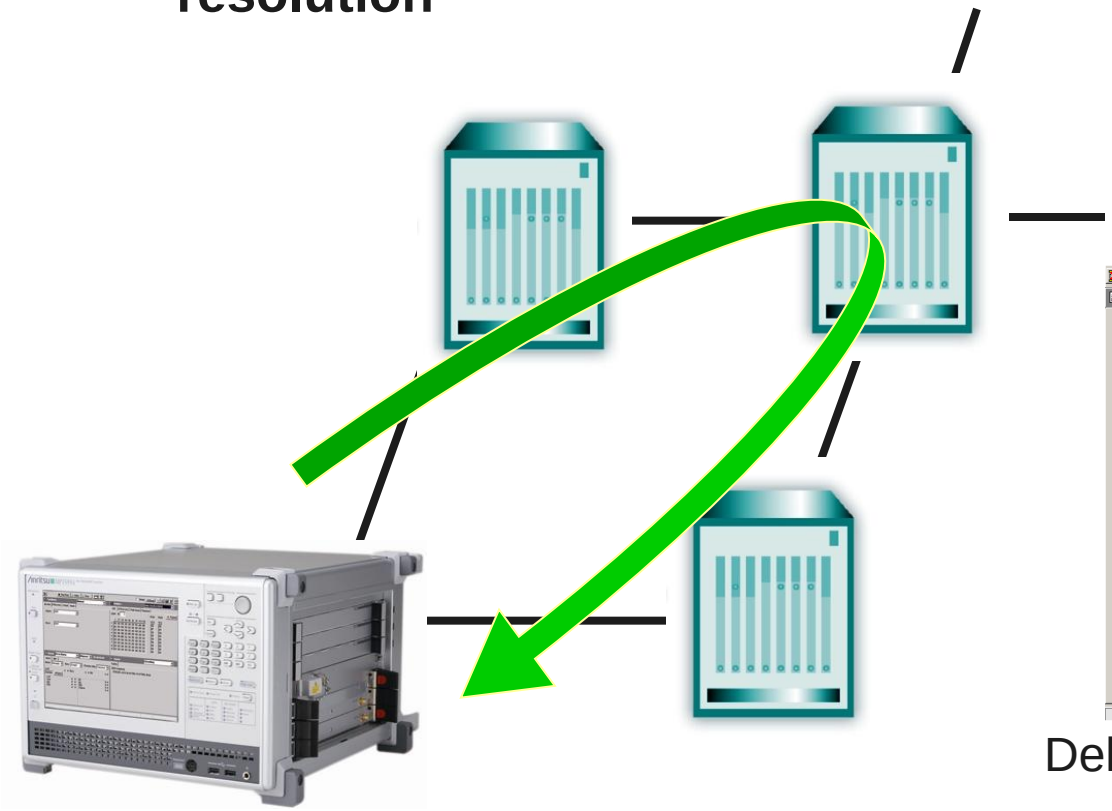


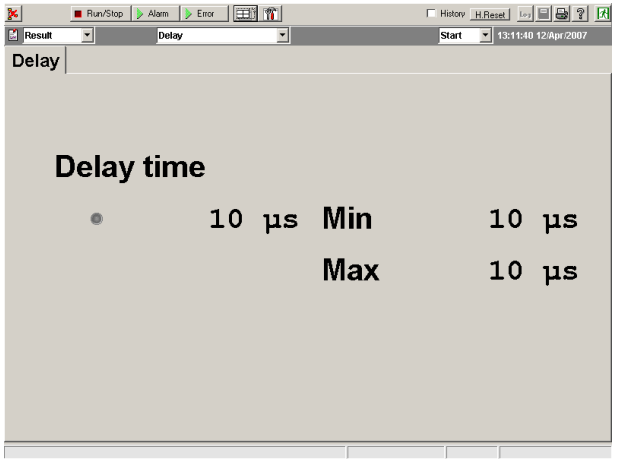
Overwrite Mode

Application Examples (7/7)

❑ Delay Time Measurement

- ◆ Supports measurement of network transmission delays with µs resolution





Delay Time Measurement Results

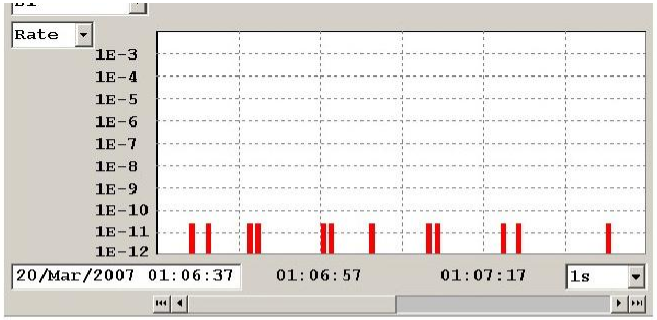
Other Applications

- OH BERTS Test
- OH Sequence Capture Function
- Pointer Generation Functions
  - NDF, ±Justification, Increment, Decrement
- Path Trace Function

Convenient Functions

Report Function

- Outputs settings and results in HTML format



Error/Alarm

No.	Date/Time	Error/Alarm	Second	Frame	Count	Rate
1	20/Mar/2007 01:06:37	All	0			
		All	0			
		All	0			
		All	0			
		All	0			
		B1			0	0.0E-11
2	20/Mar/2007	All	0			
		All	0			
		All	0			

Remote GUI

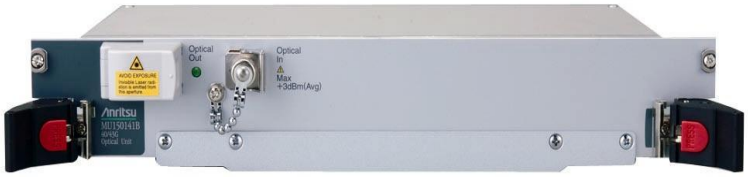
- Remote operation from PC via LAN using same GUI as main frame

Modules (1/2)

- **MU150140A 40G Unit**
  - 40/43G PPG/ED Unit
  - Installed in Slots 5 and 6
  - Required for 40/43G measurements

MU150140A

- **MU150141A 40G Optical Unit**
  MU150141B 40/43G Optical Unit
  - 40/43G Optical I/F Unit
  - Installed in Slot 4
  - At least one required for 40G measurements
  - MU150141B required for 43G measurement



MU150141A/B

Modules (2/2)

- **MU150100A 10G/10.7G Unit**
  - 1.5 Mbit/s to 10.7 Gbit/s Unit
  - Installed in Slots 1 and 2
  - Required for measurement at less than 10.7G and when using Low Order Mapping at 40G
  - Add/Drop function is disable.

- **MU150135A 10/10.7G Optical Unit**
  - 10/10.7G Optical I/F Unit
  - Installed in Slot 3
  - Required when using 10/10.7G optical I/F at MU150100A
  - Requires XFP sold separately

Module Composition

Main Module Composition

40G Optical	
1	
2	
3	
4	MU150141A
5	MU150140A
6	

40/43G Optical	
1	
2	
3	
4	MU150141B
5	MU150140A
6	

Multi Bit Rate	
1	MU150100A
2	
3	MU150135A
4	MU150141B
5	MU150140A
6	

Options/Software

- **Main Frame Options**
  - MP1595A-01 RS-232C
  - MP1595A-02 GPIB
  - MP1595A-03 LAN
- **Module Options**
  - MU150140A-05 OTU3
  - MU150140A-06 ODTU23 (requires MU150140A-05 sold separately)
  - MU150140A-10 Frame Memory/Capture (40/43G)
- **Software**
  - MX159501A 40G SDH/SONET Analyzer Control Software

Anritsu

Specifications are subject to change without notice.

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No. MP1595A-EMEA-E-L-1-(1.00) 公知 Printed in Japan 2011-10 MG