Network Master Pro MT1000A Network Master Flex MT1100A Release Note





Network Master 📼

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Anritsu Corporation

Introduction

These materials explain:

- ✓ Key added features
- ✓ Fixed bugs
- ✓ Errata

For the Network Master Pro MT1000A, and Network Master Flex MT1100A.

Latest Software version: MT1000A Ver. 11.06 MT1100A Ver. 11.06

Note: Do not return the software once updated to an older version. The phenomenon of it becoming impossible to read the saved configuration file etc. occurs.

The software and release notes can be downloaded freeof-charge from the Anritsu Web site.

- MT1000A library: Firmware / Driver / Operation Manual download
- MT1100A library: Firmware / Driver / Operation Manual download



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Key Added Features



new_cover_01

Ver. 11.06/10.03/10.02

Version	Contents	Model	Slide
11.06 Updated	[Framework] Added WLAN communications function using USB WLAN dongle.	MT1000A MT1100A	None
2020 Dec.	[ETH] Added OAM function for Reflector application.	MT1000A-Transport MT1100A	None
	[OTDR] Added fiber length check Enable/Disable function. When this setting is Enable, the fiber length is examined prior to measurement and if it exceeds the distance range, the optical pulse output interval is adjusted automatically to prevent generation of unwanted reflections from points other than the event point. When this setting is Disable, the time until measurement starts is shortened. This function is always enabled for versions after V9.13, but can be enabled/disabled in this version. When the language setting is not Japanese, the Enable default is set automatically at a version upgrade.	MT1000A-OTDR	None
10.03	[ETH] Improved Latency and Packet Jitter measurement accuracy at RFC2544 and SAT (Y.1564) measurement.	MT1000A-Transport	None
	[ETH] Added following functions to RFC2544 Application - Added Latency, Jitter, Throughput Pass/Fail threshold value - Support for simultaneous Latency and Packet Jitter measurement - Added Threshold Frame Loss tolerance setting	MT1000A-Transport	<u>new_slide_</u> <u>10_03_01</u>
	[OTDR] Added Korean language GUI descriptions.	MT1000A-OTDR	None
10.02	Added support for Site Over Remote Access MX109020A installing MT1000A-011 option enables remote control and file access using MX109020A.	MT1000A	<u>new_slide_</u> <u>10_02_01</u>
	[VIP] Added support for selection of all G0382A option tips.	MT1000A	None
	[VIP] Added message display when pass/fail analysis results range off screen edge.	MT1000A	None



Ver. 10.00/9.13/9.12

Version	Contents	Model	Slide
10.00	[New HW] Added new MU100023A OTDR 1.31/1.55/1.65 μm SMF module to product line	MT1000A-OTDR	<u>new_slide_</u> <u>10_00_01</u>
	[OTDR] Added "Launch Length Correlation" and "Receive Length Correlation" items to Patch Cord settings	MT1000A-OTDR	None
	[OTDR] Added 200 ns Pulse Width to 0.5 km Distance Range	MT1000A-OTDR	None
	[OTDR] Added function for batch creation of reports (pdf, xml, or csv) using ".sor" file data saved in built-in or USB memory; function enabled only at Standard OTDR and FTTA applications	MT1000A-OTDR	None
	[OTDR] Added function for outputting loss table results (pdf, xml, or csv) at OLTS application	MT1000A-OTDR	<u>new_slide_</u> <u>10_00_02</u>
	[OTDR] Improved splitter detection accuracy at auto-measurement	MT1000A-OTDR	None
	[OTDR] Added SCPI command remote control function at OLTS application	MT1000A-OTDR	None
	[SEEK] Added support for outputting each application measurement result as one report (pdf, xml, or csv) for measurement sequence including several applications	MT1000A	<u>new_slide_</u> <u>10_00_03</u>
	[SEEK] Added function for describing scenarios such as branch conditions based on information loaded from data described in text file	MT1000A	None
	[SEEK] Added OLTS application support for MU100020A/21A/22A/23A OTDR modules	MT1000A	None
9.13	[OTDR] Added Pass/Fail function for measured Loss results based on either ISO/IEC or JIS standards	MT1000A-OTDR	<u>new_slide_9</u> _13_01
9.12	[ETH] Added Link fault signaling (LFS) emulation function for MU100011A module interfaces of 10GbE or faster.	MT1000A-Transport	<u>new_slide_9</u> _12_01



Version	Contents	Model	Slide
9.10	[ETH] Added function to IEEE1588v2 screen to display Clock Class level delivered by network; in addition to Class level, added display of QL value following existing ITU-T conversion rule.	MT1000A-Transport, MT1100A	None
	[ETH] Added G8275.2 to IEEE1588v2 profile.	MT1000A-Transport, MT1100A	<u>new_slide_</u> <u>9_10_01</u>
	[ETH] Added function for editing PTP message joint header flagField and displaying decode results. Added screen for changing master port flagField to IEEE1588v2 settings and screen for displaying code result in the IEEE1588v2 monitor; additionally, flagField value is correctly initiated following the Clock Class setting.	MT1000A-Transport, MT1100A	<u>new_slide_</u> <u>9_10_02</u>
	[ETH] Increased SyncTest maximum measurement time to 3 days. Added function for auto-saving all measurement results to CSV file for measurement times exceeding 12 hours that cannot be saved to display memory.	MT1000A-Transport,	None
	[ETH] For Y.1564, increased decimal points from 0 to 4 places for Availability threshold value and increased measurement result decimal points from 0 to 5 places to support 5G network measurements requiring 99.9999% availability.	MT1000A-Transport, MT1100A	None
	[ETH] Added function in Statistics for switching units between byte and bit display.	MT1000A-Transport, MT1100A	None
	[ETH] Added function for outputting Statistics in CSV format to simplify analysis of long-term measurement results with external software, such as Excel.	MT1000A-Transport, MT1100A	<u>new_slide_</u> <u>9_10_03</u>
	[MxH] Added 12G (Option 9) and 25G (Option 10) to CPRI BERT line rates.	MT1000A-Transport	<u>new_slide_</u> <u>9_10_04</u>
	[RemoteGUI] Added function for placing remote MT1000A into standby mode using MX100001A software.	MT1000A-Transport, MT1100A	<u>new_slide_</u> 9_10_05



Version	Contents	Model	Slide
9.09	 [ETH] Added following functions to each BER, MonGen, and SyncTest application. 1. IGMP/MLD Join/Leave function 2. Support for SMTPE 2059 IEEE1588v2 profile 	MT1000A-Transport	<u>new_slide_</u> 9_09_01
	[ETH] Added Burst Length/Gap input function in the Burst settings of both MonGen and ChannelStat application	MT1000A-Transport MT1100A	<u>new_slide_</u> <u>9_09_02</u>
	[ETH][MxH] Added IPv6 Gateway function for Ethernet and MxH categories.	MT1000A-Transport MT1100A	None
	[MxH] Added option to eCPRI/RoE application to use 25G eCPRI on two ports simultaneously.	MT1000A-Transport	<u>new_slide_</u> <u>9_09_03</u>
	[Framework] Added function to measurement results statistical display to automatically display k/M/G value matching measurement value.	MT1000A-Transport MT1100A	None
	[Framework] Added progress bar during application startup.	MT1000A-Transport MT1100A	None
	[OTDR] Added function for outputting OTDR measurement results in JSON format.	MT1000A-OTDR	None



Version	Contents	Model	Slide
9.07	[ETH] Added function to RFC2544 application allowing multiple setting of any frame size.	MT1000A-Transport MT1100A	<u>new_slide_</u> <u>9_07_01</u>
	[ETH] Added ON/OFF function for [Remote Fault] display at negotiation status of BERT/Mon/Gen application.	MT1000A-Transport MT1100A	None
	[MxH] Added function to CPRI/OBSAI BERT application for generating/analyzing OBSAI frame.	MT1000A-Transport MT1100A	<u>new_slide_</u> <u>9_07_02</u>
	[Framework] Added function to show who are using the port on the resource monitor screen of MT1000A/MT1100A	MT1000A-Transport MT1100A	<u>new_slide_</u> <u>9_07_03</u>
	[Framework] Added Finnish to GUI languages.	MT1000A, MT1100A	None



Version	Contents	Model	Slide
9.06	[ETH] Added function for synchronizing time of two MT1000A units using 1PPS and 10MHz for Latency when MU100011A installed.	MT1000A-Transport	<u>new_slide_</u> 9_06_01
	[ETH] Improved PTP measurement results Accuracy and Latency results Accuracy and Resolution.	MT1000A-Transport	<u>new_slide_</u> <u>9_06_02</u>
	[ETH] Added support for RFC6349 over IPv6.	MT1000A-Transport MT1100A	<u>new_slide_</u> 9_06_03
	[ETH] Added second (sec) units display to vertical axis in the Latency/Jitter sections of the BERT and RFC2544 applications.	MT1000A-Transport MT1100A	None
	[Framework] Increased maximum number of alphanumeric characters from 32 to 64 for PSK (WPA and WPA2) WLAN connection authentication.	MT1000A, MT1100A	None
	[FC] Added Block Error detection and insertion functions for 10GFC and 16GFC in the BERT application.	MT1000A-Transport MT1100A	None
	[Remote] Supported the optical transceiver simple check SEEK scenario.	MT1000A-Transport	None



Version	Contents	Model	Slide
9.05	[ETH] Added 25 GbE interface to SyncTest application.	MT1000A-Transport	<u>new_slide_</u> <u>9_05_01</u>
	[OTN] Added OTU2e-FC1200 mapping for MU100011A module.	MT1000A-Transport	<u>new_slide_</u> <u>9_05_02</u>
	[MxH] Added eCPRI/RoE BERT application used by installing Ethernet option.	MT1000A-Transport MT1100A	<u>new_slide_</u> 9_05_03
	[Framework] Added Korean language to Transport functions.	MT1000A-Transport MT1100A	None



Version	Contents	Model	Slide
9.01	[ETH] Added function for selecting MDI/MDI-X/Auto at 10M/100M/1000M Ethernet electrical interface	MT1000A-Transport MT1100A	<u>new_slide_</u> <u>9_01_01</u>
	[ETH] Added In-band Remote Function including Discovery application to MT1100A	MT1100A	<u>new_slide_</u> <u>9_01_02</u>
	[NOFRAME] Added 4LaneBER measurement function to MU100011A	MT1000A-Transport	<u>new_slide_</u> <u>9_01_03</u>
	[FTTA] Added function for loading CFG file to FTTA application	MT1000A-OTDR	None
	[Construction] Added function to Construction application to reflect cursor position set at first wavelength at waveforms for other wavelengths when measuring several wavelengths	MT1000A-OTDR	None
	[Framework] Added function for avoiding problem of delayed main unit start- up resulting from saving of multiple files in internal storage of measuring instrument	MT1000A, MT1100A	<u>new_slide_</u> <u>9_01_04</u>
	[Remote][VIP] Added function for automatically appending .vipi extension even when specifying output file name without extension description when using [Save with File Name] at MMEM:STOR remote command	MT1000A, MT1100A	None



Version	Contents	Model	Slide
9.00	[New HW] Added CPRI RF Module MU100040B to measurement module product line	MT1000A	<u>new_slide_</u> <u>9_00_01</u>
	[ETH] Added FEC On/Off function to 25G Ethernet settings	MT1000A-Transport	None
	[ETH][OTN] Added CFP2-QSFP28 Adaptor J1756A	MT1100A	None
	[ETH][OTN][SDH][CPRI][FC] Added I2C analysis function for SFP/SFP+/SFP28 Module	MT1000A-Transport MT1100A	<u>new_slide_</u> <u>9_00_02</u>



Ver. 8.02

Version	Contents	Model	Slide
8.02	[ETH][SDH] Added Line Rate Frequency deviation (Max., Min., Avg.) to the measurement items	MT1000A-Transport MT1100A	None
	[SDH] Added MS-AIS/AIS-L alarms into the Insert Alarm function during Through Mode operation of the BERT application	MT1000A-Transport MT1100A	None
	[NOFRAME] Added No Frame application supporting the following functions to the MU100011A Module - 25G BER for SFP28 - 10G x4 Iane BER for 40G QSFP+ - 10G x20 Iane BER for 100G CFP4/QSFP28	MT1000A-Transport MT1100A	<u>new_slide_</u> <u>8_02_01</u>
	[SEEK] Added Loop function and character divider command for the MX100003A	MT1000A, MT1100A	<u>new_slide_</u> <u>8_02_02</u>



Ver. 8.01

Version	Contents	Model	Slide
8.01	[ETH] Added function for stopping stream sending when Pause Frame received at 100GbE/40GbE/25GbE.	MT1000A-Transport MT1100A	<u>new_slide_</u> <u>8_01_01</u>
	[ETH][OTN][SDH][FC][CPRI] Added function to support the Tunable SFP/SFP+. (9473)	MT1000A-Transport MT1100A	<u>new_slide_</u> <u>8_01_02</u>
	[ETH][OTN][SDH][FC][CPRI] When the threshold value is set, the color of the test result value is reflected in the PDF report.	MT1000A-Transport MT1100A	<u>new_slide_</u> <u>8_01_03</u>
	[ETH] At SyncTest application, changed so that PacketTE and OWD graph magnified display performed within significant digit range.	MT1000A-Transport	None
	[OTDR] [FTTA] In Fiber Visualizer mode, added function for displaying help to resolve issues when selecting Fail event icon.	MT1000A-OTDR	<u>new_slide_</u> <u>8_01_04</u>
	 [SEEK] Added following functions at scenario execution function. Function for editing header information used at report output. Function for outputting results after scenario execution directly to USB memory. 	MT1000A MT1100A	None
	[VIP] Added exposure-compensation function to G0382.	MT1000A MT1100A	None



Ver. 8.00

Version	Contents	Model	Slide
8.00	[New HW] Added the 100G Multirate Module MU100011A to the product line.	MT1000A-Transport	<u>new_slide_</u> <u>8_00_01</u>
	[Framework] Increased battery charging upper temperature limit.	MT1000A	None
	 [ETH] Added following functions to Sync Test Application : Terr (min), Terr (max), max Terr measurement results 1PPS Mode for measuring packet base TE by the external 1PPS Function to reflect the UTC offset valve the Grand Master announces in broadcast message, when the network master emulates PTP slave. 	MT1000A-Transport	<u>new slide</u> <u>8_00_02</u>
	[CPRI] Separated CPRI and OBSAI GUIs for easy-to-understand operation.	MT1000A-Transport	<u>new_slide_</u> <u>8_00_03</u>
	[OTDR] Added Real-Time Check function to OTDR Construction application.	MT1000A-OTDR	None
	[SEEK] Changed the response time-out default value after sending a remote command to 30 s from 10 s.	MT1000A	None



Version	Contents	Model	Slide
7.05	[Framework] Added Quick Matrix to File input screen.	MT1000A MT1100A	<u>new_slide_</u> 7_05_01
	[Framework] Added support for saving/loading file names with period (.) in file name.	MT1000A MT1100A	None
	[ETH] Added In-Band control function and Discovery application.	MT1000A-Transport MT1100A	<u>new_slide_</u> 7_05_02
	[ETH] In RFC2544 application, upgraded to display a total of up to 500 steps for measurement results, previously only displayed up to 100 steps for each measurement.	MT1000A-Transport MT1100A	None
	[ETH] Added support to RFC2544 application Burst test, allowing configuration and displaying results in Burst seconds.	MT1000A-Transport MT1100A	None
	[ETH] Added support for Category 6/6a to Cable Test application.	MT1000A-Transport MT1100A	<u>new_slide_</u> <u>7_05_03</u>
	[ETH] [OTN] [SDH] [FC] [CPRI] On the SFP module information display screen, change the wavelength display when mounting Bi - Direction SFP to "Tx wavelength (Nominal)".	MT1000A-Transport MT1100A	None
	[FC] For FC, added performance test application(Perf. Test) to run RFC2544-like benchmark tests.	MT1000A-Transport MT1100A	<u>new_slide_</u> 7_05_04
	[FC] For FC, added support for setting in Mbps units to Frame Tx function.	MT1000A-Transport MT1100A	None
	[OTDR] Construction application, changed to output to only be in SOR format files.	MT1000A-OTDR	None
	[Remote][ETH][OTN][SDH] Added transceiver control remote commands support.	MT1000A-Transport	None



Version	Contents	Model	Slide
7.05	 [SEEK] Added the following functions to MX100003A. VIP application Save file function by using a Variable Quick Matrix function when specifying file name Custom Application to Command Selection Remove command allowing deleting of delete any characters in a string 	MT1000A	None
	[VIP] Added support for G0382A auto-focus VIP.	MT1000A MT1100A	<u>new_slide_</u> 7_05_05
	 [VIP] Added following functions to VIP application. Auto-measurement function (auto-focus, auto-capture) Auto-recognition of probe connected to main frame (supports G0382A, and G0306A/B; G0382A only supports auto-focus) 	MT1000A MT1100A	<u>new_slide_</u> 7_05_06



Version	Contents	Model	Slide
7.03	[ETH] Added support for two stacked VLAN to the Ping application.	MT1000A-Transport MT1100A	None
	[Construction] Added setting for File Number Digit length	MT1000A-OTDR	None
	[FTTA] Added Manual measurement ability	MT1000A-OTDR	None
	[OLTS] Added Wave Code mode for auto measurement of multiple wavelengths.	MT1000A-OTDR	<u>new_slide_7</u> _03_01
	[OTDR][OLTS][FTTA][Construction] Added support for German language in Optical fiber test applications.	MT1000A-OTDR	None
	[OTDR] Added support for PDF report generating for Bi-Directional analysis result.	MT1000A-OTDR	None
	[OTDR] Added settings on Preference for Realtime measurement.	MT1000A-OTDR	None



Version	Contents	Model	Slide
7.02	[ETH] Added the "Symbol errors rate" counter for FEC	MT1100A	<u>new_slide_7</u> _02_01
	[ETH] Added I2C analysis function for QSFP28 module	MT1100A	<u>new_slide_7</u> _02_02
	[GPS][MU100090A] Added function for displaying elapsed time after lock to GPS	MT1000A-Transport	<u>new_slide_7</u> _02_03
	[NoFrame] Added function for setting different PRBS pattern at each lane for 4Lane BER measurement function	MT1100A	<u>new_slide_7</u> _02_04
	[NoFrame] Added ability to save measurement results as Report file to NoFrame application.	MT1100A	None
	[OTN] Supported QSFP28 interface at OTU4 rate	MT1100A	None
	[Remote][SEEK] Added command copy and paste functions for MX100003A	MX100001A	None
	[Remote][SEEK] Add support for OTDR application at scenario creation using MX100003A	MT1000A-OTDR MX100001A	<u>new_slide_7</u> _02_05
	[SDH] Added "Any Error" to APS application trigger	MT1000A-Transport MT1100A	None
	[SDH] Added M0, M1 and Z2 byte setting and capture for OH Preset and OH Capture function	MT1000A-Transport MT1100A	None



Version	Contents	Model	Slide
7.00	 [New HW] Added new modules for MT1000A. MU100022A OTDR Module 1310/1550/1623 nm SMF MU100040A CPRI RF Module 	MT1000A-OTDR MT1000A-CPRIRF	<u>new_slide_7</u> _00_01
	[Framework] Supports simultaneous installation of three module types.	MT1000A	<u>new_slide_7</u> _00_02
	[OTDR] Added Construction function.	MT1000A-OTDR	<u>new_slide_7</u> _00_03
	[OTDR] Added Bi directional mode.	MT1000A-OTDR	<u>new_slide_7</u> _00_04
	[ETH] Separated [Profile] and [Measurement Settings] tabs included in [Stream] tab at BERT test into two separate tabs labelled [Stream/Profile] and [Stream/Measurement Settings]	MT1000A-Transport MT1100A	<u>new_slide_7</u> _00_05



Ver. 6.02

Version	Contents	Model	Slide
6.02	[ETH] Changed specification for PRBS Sync Alarm and PRBS Pattern Error detection immediately after measurement start at BER measurement using Ethernet BER application Cross PRBS pattern	MT1000A-Transport MT1100A	None
	[OTN][SDH] Added measurement ON/OFF setting for following items: OTN: PLM SDH/SONE: HP=PLM, LP-PLM, Threshold Alarm	MT1000A-Transport MT1100A	None
	[SDH] Added Generic-AIS detection function	MT1000A-Transport MT1100A	None



Ver. 6.00

Version	Contents	Model	Slide
6.00	[New HW] Added MU110013A module and dedicated option	MT1100A	<u>new_slide</u> <u>6 00 01,</u> <u>6 00 02</u>
	[Framework] Added auto-save function for MT1100A CFP/CPF2 Interface transceiver settings	MT1100A	None
	[ETH] Added following settings to Stream for MonGen ApplicationBurst Tx SettingFrame Length Increment Tx	MT1000A-Transport MT1100A	<u>new_slide</u> _6_00_03
	 [ETH] Added following settings to Stream for BERT Application Burst Tx Setting Frame Length Increment Tx Tx Rate Inter-Frame Gap Specification Tx Rate Millisecond Unit Lamp Tx Setting Tx Rate over 100% stream Setting Cross PRBS pattern setting to Payload patterns 	MT1000A-Transport MT1100A	<u>new_slide</u> <u>6 00 04</u> <u>new_slide</u> <u>6 00 05</u> <u>new_slide</u> <u>6 00 06</u>
	[ETH] Added function for automatically allocating IPv6 Tx source address using RS/RA function	MT1000A-Transport MT1100A	<u>new_slide</u> _6_00_08
	[OTDR] Added function for SCPI Remote command control to OTDR application	MT1000A-OTDR	None



Key Added Features - Ver. 5.04 -

Version	Contents	Model	Slide
5.04/5.03	[Framework] Added One-Button test Mode	MT1000A-Transport MT1100A	<u>new_slide_</u> <u>5_04_01</u>



Key Added Features - Ver. 5.01 -

Version	Contents	Model	Slide
5.01	[Framework] Added to fiberscope with 60 degrees tip	MT1000A MT1100A	<u>new_slide_</u> <u>5_01_01</u>
	[OTDR] Expanded maximum settable pulse width for each distance range	MT1000A-OTDR	None
	[OTDR] Changed dummy fiber (launch spool) display color to clearly show the start of the fiber under test.	MT1000A-OTDR	None
	[ETH] Added auto MAC address resolution function when a generating IPv6 Stream (NDP NS/NA)	MT1000A-Transport MT1100A	<u>new_slide_</u> <u>5_01_02</u>
	[ETH] Added possibility to ignore Frame loss seconds count by Ethernet BERT application	MT1000A-Transport MT1100A	<u>new_slide4</u> _5_01_03
	[ETH] In SyncTest application, added calibration parameter for GPS antenna cable length.	MT1000A-Transport	None
	[ETH] In SyncTest application, added high-resolution frequency counter function	MT1000A-Transport	None
	[OTN] Added LOS insertion function	MT1000A-Transport MT1100A	<u>new_slide_</u> <u>5_01_04</u>
	[OTN] Added following APS trigger items OTU3x/4: FAS-OTL, LOF-OTL, OOF-OTL, LOR-OTL, OOR-OTL, OTU1x/2x/3x/4 OTU-AIS, OOM	MT1000A-Transport MT1100A	None
	[SDH] Added possibility to disable the display of Pointer Movement measurements	MT1000A-Transport MT1100A	<u>new_slide_</u> <u>5_01_05</u>



Key Added Features - Ver. 5.00 -

Version	Contents	Model	Slide
5.00	[ETH] Added IEEE1588 Time error measurement function.	MT1000A-Transport	<u>new_slide_</u> <u>5_00_01</u>
	[ETH] Added ITU-T8275.1 profile for IEEE1588 functions	MT1000A-Transport MT1100A	<u>new_slide_</u> <u>5_00_02</u>
	[CPRI] Added APS measurement function to BERT application	MT1000A-Transport MT1100A	<u>new_slide_</u> <u>5_00_03</u>
	[Framework] Expanded MDIO Analysis functions for CFP/CFP2/CFP4	MT1100A	<u>new_slide_</u> <u>5_00_04</u>
	[OTN] Added mappings for packet based client signal	MT1000A-Transport MT1100A	<u>new_slide_</u> 5_00_05~09
	[OTN][SDH] Added BERT/APS/RTD switch mode to BERT application	MT1000A-Transport MT1100A	<u>new_slide_</u> 5_00_10
	[OTN][SDH] Added SDH Transparent mapping for SDH over OTN start	MT1000A-Transport MT1100A	<u>new_slide_</u> <u>5_00_11</u>
	[Remote] Added support for VNC control via HTTP with JAVA 1.8	MT1000A-Transport MT1100A	None
	[Remote] Added support for simultaneous SCPI and Remote GUI control	MT1000A-Transport MT1100A	None



Key Added Features - Ver. 5.00 -

Version	Contents	Model	Slide
5.00	[Remote][ETH] Added remote command for specifying save destination for IEEE1588/SyncE Frame capture data - ETH:PORT1:PTP:FCAP:DIR	MT1000A-Transport MT1100A	None
	[Remote][ETH] Added following remote commands for performing IEEE1588 ARP analysis and querying analysis results - ETHernet:PORT <pt>:PTP:MAC:ARP - ETHernet:PORT<pt>:PTP:MAC:ARP:RESult?</pt></pt>	MT1000A-Transport MT1100A	None



Key Added Features - Ver. 4.00 -

Version	Contents	Slide
4.00	[OTDR][FTTA][OLTS] Added New OTDR Module for MT1000A - MU100020A OTDR Module 1310/1550 nm SMF - MU100021A OTDR Module 1310/1550/850/1300 nm SMF/MMF	<u>new_slide_</u> <u>4_00_01-03</u>



Key Added Features - Ver. 3.03 -

Version	Contents	Slide
3.03	[Remote] Added Remote Commands and Application Parts.	<u>new_slide_</u> <u>3_03_01</u>
	[ETH] Added Function for Custom Editing of Ethernet Header.	<u>new_slide_</u> <u>3_03_02</u>
	[ETH] Added Function for Validating PCS at 10 GbE.	<u>new_slide_</u> <u>3_03_03</u>
	[ETH] Added Function for continues Stream address Creation.	<u>new_slide_</u> <u>3_03_04</u>
	[OTN] Added Null to Client Signals for OTN Mappings.	<u>new_slide_</u> 3_03_05 to 09
	[ETH] Enhanced RFC2544 GUI for Easier Access and Better Overview.	<u>new_slide_</u> <u>3_03_10</u>
	[ETH] Enhanced RFC2544/Y.1564 Reporting Providing More Information.	<u>new_slide_</u> <u>3_03_11</u>
	[ETH] Renamed 'CFI' bit in VLAG tag to 'DEI' according to 2015 version of IEEE802.1Q.	<u>new_slide_</u> <u>3_03_12</u>
	[Framework] Improved Report Layout: Better Look and Distinct Header Styles.	<u>new_slide_</u> <u>3_03_13</u>
	[Framework] Added Function for Filtering Results Display at Report Output.	<u>new_slide_</u> <u>3_03_14</u>



Key Added Features - Ver. 3.01 -

Version	Contents	Slide
3.01	[All] Added Error/Alarm indication summary.	<u>new_slide_</u> <u>3_01_01</u>
	[All] Added Performance Verification date in test report.	<u>new_slide_</u> <u>3_01_02</u>
	[All] Added Spanish Language support.	<u>new_slide_</u> <u>3_01_03</u>
	[Framework] Added the functionality of Storage formatting.	<u>new_slide_</u> <u>3_01_04</u>
	[RemoteGUI] Added "Settings Editor" and "Result Viewer" on MX100001A (Windows application).	<u>new_slide_</u> <u>3_01_05</u>
	[ETH] Added the functionality of "Answering ARP/PING request" and reflector MAC/IP address settings on Reflector application.	<u>new_slide_</u> <u>3_01_06</u>
	[OTN] Added the client signal frequency result.	<u>new_slide_</u> <u>3_01_07</u>
	[OTN] Added "Pattern Bit Error Trigger" and "LOS Trigger" on APS application.	<u>new_slide_</u> <u>3_01_08</u>
	[ETH] Added "LOS" as a Ethernet Service Disruption test type for optical interfaces	<u>new_slide_</u> <u>3_01_09</u>



New Function

Key Added Features - Ver. 3.00 (1/2) -

Version	Contents	Slide
3.00	Added CPRI applications	<u>new_slide</u> _3_00_01
	Added following functions to Ethernet applications: • Added RFC6349 application.	<u>new_slide</u> _3_00_02
	 Supported Layer 2 frame format on Y.1564 application. Added automatic service name on Y.1564 application. Added "Include addresses in frame filter on receiver ON/OFF" on RFC2544/Y.1564/MonGen applications. 	No
	Added following functions to OTN applications: • Added 3 stage mapping on OTU3/4.	<u>new_slide</u> _3_00_03
	Added BMP mapping of SDH client.	<u>new_slide</u> _3_00_04
	 Added FTFL alarm insertion/detection. Improved the setting order of OTN Client. Supported GFP-F Client signal up to 100G. Added Error/Alarm statistics on APS application. Added following functions to SDH applications: Added Pattern Error Trigger on APS application. Added Error/Alarm statistics on APS application. Added Error/Alarm statistics on APS application. Added Following functions to FC applications: Added Following functions to FC applications: Added Frequency offset Insertion/Monitor. Added Reflector application 	No



New Function

Key Added Features - Ver. 3.00 (2/2) -

Version	Contents	Slide
3.00	Added following common functions: • Added GUI remote functionality from PC.	<u>new_slide_</u> <u>3_00_05</u>
	Added Event Log functionality.	<u>new_slide_</u> <u>3_00_06</u>
	Added VIP application on Utility.	<u>new_slide_</u> <u>3_00_07</u>
	Added MDIO analysis functionality for CFP module.	<u>new_slide_</u> <u>3_00_08</u>
	 Added electrical extender module support. Added external 10MHz clock support. Added Emphasis and Equalizer functionality for CFP/CFP2. Added Swedish keyboard input support. 	No
	Added CSV format report support.	<u>new_slide_</u> <u>3_00_09</u>
	Added Improved Utility Icon visualization support. (New Option)	No
	G0306A Video Inspection Probe (New Accessory)	<u>new_slide3_00_10</u>
(No version dependency)	J1665A CFP2-CFP4 Adaptor (New Accessory)	<u>new_slide_</u> <u>3_00_11</u>



Key Added Features - Ver. 2.04, Ver. 2.03 -

Version	Contents	Slide
2.04	[SCPI] Added the launching GUI command and the functionality of switching control between the GUI and Remote.	<u>new_slide</u> 2_04_03 _2_04_04
	[PDH] Added the PRBS31 test pattern on E3.	<u>new_slide_</u> 2_04_05
(No version dependency)	MZ1223C 10 Lanes Extender Support (New Hardware)	<u>new_slide_</u> <u>2_04_01</u>
	B0705A Rack Mount Kit Support (New Accessory)	<u>new_slide_</u> 2_04_02
2.03	[OTN] Added some Errors (LLM-OTL, MFAS-OTL).	<u>new_slide_</u> 2_03_02
	[OTN] Added some Error Trigger Type on APS measurement.	None



Key Added Features - Ver. 2.01 -

Version	Contents	Slide
2.01	Support for the following products: • MT1100A Network Master Flex Mainframe • MU110010A 10G Multirate Module • MU110011A 100G Multirate Module • MU110012A 40/100G Module CFP2	<u>new_slide_</u> 2_01_01
	Added Fibre Channel applications	<u>new_slide</u> <u>2_01_02</u> <u>2_01_03</u> <u>2_01_04</u>
	Added following functions to Ethernet applications: • Support for WAN-PHY interface	<u>new_slide</u> <u>2 01 12</u> <u>2 01 13</u> <u>2 01 14</u> <u>2 01 15</u>
	Frame capture include Wireshark	<u>new_slide_</u> 2_01_10 _2_01_11
	Channel Statistics	new_slide 2_01_05 2_01_06 2_01_07 2_01_08 2_01_09



Key Added Features - Ver. 2.01, Ver. 1.00 -

Version	Contents	Slide
2.01	 Added following functions to OTN applications: GFP-F mapping FC client mapping 	<u>new_slide</u> <u>2 01 16</u> <u>2 01 17</u> <u>2 01 18</u> <u>2 01 19</u> <u>2 01 20</u> <u>2 01 21</u>
1.00	 Initial release. Support for the following products: MT1000A Network Master Pro Mainframe MU100010A 10G Multirate Module 	None





[ETH] Added Pass/Fail evaluation criterion for RFC2544 application

Ver. 10.03 Update

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- The Pass/Fail threshold value can be set for the following test at the RFC2544 application.
 - Throughput



- <u>Useful Point !</u>

Previously, the test was passed only when the results were 100%, but the user can now set any Pass/Fail conditions to perform Pass/Fail evaluation at each location without changing the test conditions.
Support for Site Over Remote Access MX109020A



Ver.10,2

Using the Site Over Remote Access MX109020A (SORA hereafter) software measuring instruments can be remotely controlled easily anywhere. The SORA cloud-based service allows office users to log-in to an Internet webpage to control the measuring instrument from the office via a smartphone.





[OTDR] Added MU100023A OTDR Module

MT1000A-OTDR

Ver. 10.0

		Result File Browser			111
Fiber V	isualizer		Trace	5	-
WL : 1550 nm SM	DR : 50 km	PW : 100 ns	AVG : 30 Sec	Test Mode	
Start			21.1586 km	Auto	0
			Events: 10	Wavelength 1550nm	0
	0.5	327		Parameters	
0.0981	0.1281 7	0.7783	1.1855 (km) 0.4072 9 19.9730	0.5km/Jns	-
<				Overlay	2
0.227	0.093	0.191	0.096 (dB)		112
			Beflect(dB) dB/km		
And and the other designs of t	14 14	11 miles	** *** 0.181		R'A
Wavelength (nm)	1550	Pass/Fail			~
Total Loss (dB)	6.619	DA PASS		_	~
ORL (dB)	35.991	0		Off	

The MU100023A(1310/1550nm, 1650nm) has been added to the product line as a maintenance model.

Useful Point !

This model support OTDR measurement of live fiber. Any optical wavelength currently being used for communications received at the OTDR output port is removed by the built-in cut filter.



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MT1000A-OTDR

[OTDR] Added Report Output Function to OLTS Application

Ver. 10.0

Outputs Loss Table Measurement Results to PDF File_ Useful Point !



The loss measurement results (pass / fail judgment results) of multi optical fibers can be easily managed with a single report.



Can Output Data Matched with VIP Measurement Data

	Module	Information								
PDF Report		N	lodel Name		Serial Numb	er				
		N	1U100020A		620158278	7				
Output	Test Inf	ormation								
		File Nam	ie				Loss-test1	.CSV		
	LessTa	ble Result S	ummary							
	No	WL (nm)	Reference (dBm)	Power (dBm)	Loss (dB)	Pass/Fail	Modulation (Hz)	Average (times)	Comment	Threshold (dB/dBm)
Text shranes Text lines Text lines Set Text lines S	1	1310	-5.93	-6.05	0.12	PASS	CW	1		0.50
Xe R(1) Decembra (Br) Decembra <thdecembra (br)<="" th=""> <thdece< td=""><td>2</td><td>1310</td><td>-5.93</td><td>-6.15</td><td>0.22</td><td>PASS</td><td>CW</td><td>1</td><td></td><td>0.50</td></thdece<></thdecembra>	2	1310	-5.93	-6.15	0.22	PASS	CW	1		0.50
1 101 4.40 4.44 0.40 102 0.4 1 0.10 1 101 4.40 4.25 2.34 MAIL 0.44 1 0.10 1 101 4.40 4.25 2.34 MAIL 0.44 1 3.35 1 102 4.35 2.34 3.42 0.44 1 3.35 1 102 4.35 2.34 6.31 0.44 1 3.35	3	1310	-5.93	-6.58	0.65	FAIL	CW	1		0.50
L OP 4.00 6.00 MML OP 1 1.00 2 OP 4.00 6.00 4.00 1 6.03 1 OP 4.00 6.00 0.00 1 6.03	4	1310	-5.93	-6.29	0.36	PASS	CW	1		0.50
	5	1310	-5.93	-6.26	0.33	PASS	CW	1		0.50
	6	1310	-5.93	-6.25	0.32	PASS	CW	1		0.50
	7	1310	-5.93	-6.53	0.60	FAIL	CW	1		0.50
	8	1310	-5.93	-6.05	0.12	PASS	CW	1		0.50
	9	1310	-5.93	-6.06	0.13	PASS	CW	1		0.50
- 1970 	10	1310	-5.93	-6.05	0.12	PASS	CW	1		0.50

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new_slide_10_00_02

[SEEK] Output Measurement Results for Each Application as One Report

Added support for outputting each application measurement result as one report (pdf, xml, or csv) for measurement sequence including several applications



*The OLTS SEEK measurement and report creation functions are supported from version 10.00 and later.

Useful Point !

Measurement results for related measurement sequences can be output as one report.

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MT1000A

Ver. 10.0



[OTDR] Added Pass/Fail Function Based on Either ISO/IEC or JIS Standards (1/2)

Ver. 9.13

MT1000A-OTDR

Pass/Fail evaluations based on either the ISO/IEC or JIS standards are implemented for the following two optical fiber connection loss and total loss measurements.

- ✓ Channel Attenuation
- ✓ Permanent Link Attenuation



MT1000A-OTDR

[OTDR] Added Pass/Fail Function Based on Either ISO/IEC or JIS Standards (2/2)

Ver. 9.13

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[ETH] Added a Link Fault Signaling (LFS) Emulation

- Ver. 9.12
- Enables/disables LFS Emulation for MU100011A 10GbE and faster interfaces
 - When enabled
 - A) Sends RF when LF detected (LF Rx or Link down, etc.)
 - B) Sends Idle signal when RF detected during Tx streaming; sends stream when RF released





- When disabled (or using V9.11 or earlier)
 - Does not send RF when LF detected (LF Rx or Link down, etc.); Tx side unaffected
 - Tx side unaffected whether RF detected or not

Technology	Application	10GbE	25GbE	40GbE	100GbE
Ethorpot *1	RFC2544	✓ □	✓	~	~
	SAT(Y1564)	✓	✓	✓	~
	RFC6349	✓	_	-	-
	BERT	✓	v	✓	~
	Mon/Gen	✓	v	✓	~
	Pass Through		_	-	-
	Reflector	✓	√	✓	~
	Channel Stat	✓	_	-	-
	Ping	✓	v	✓	~
	Traceroute	✓	v	✓	~
	Sync Test	✓	✓	-	-
	Discovery				
Mobile xHaul	eCPRI BERT	✓	~	~	~

- b: Supported – : Bit rate when application not supported Blank: No supported
- *1: The LFS Emulation function does not operate at Mapping to OTN.

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[ETH] Added G8275.2 to IEEE1588v2 Profiles

MT1000A-Transport MT1100A

Ver. 9.10

Although ITU-T G8275.1 profiles are standardized for network clock synchronization, they assume that all network equipment supports PTP. In contrast, the new G8725.2 standard permits a mixed network with some equipment not supporting PTP. In line with this change, the G8725.2 standard has been added to the IEEE1588v2 profiles in the MT1000A/MT1100A.



The MT1000A/MT1100A support Protocol evaluation and Time Error measurement for PTP networks with both FTS (Full Timing Support) and PTS (Partial Timing Support).

- <u>Useful Point !</u>

Configuring PTP networks using G8275.2 cuts equipment cost-of-entry. The PTP status can be confirmed at a glance on the MT1000A/MT1100A screen and the burden of confirmation work for Time Error measurement is reduced.



Back

[ETH] Added functions for editing PTP message common header flagField and displaying decode Ver. 9.10

A function for setting the flagField has been added to the IEEE1588v2 frame settings. Using this function supports free changes to the grand master clock characteristics for evaluating network behavior. In addition, a flagField evaluation screen has also been added to the

Class

new_slide_9_10_02

monitor screen grand master clock status.

Port + WAN Off	Stream	Se Answer	ttings : Arp, Ping	SyncE Off	IEEE 1588v2 Unicast	OAI Ofi
Enable IEEE 1588	v2 🗸 E	xt. log		Cap	oture	
Setup Clock Timin	g Advanced I	Profile O	ptions			
flagField: 0x0400 _Octet:0			_Octet:1_			
bit0 alternate	MasterFlag:	0	bit0	leap61:		0
bit1 twoStepFl	ag:	0	bit1	leap59:		0
bit2 unicastFla	ig:	1	bit2	currentUtcOffs	etValid:	0
bit3 (reserved):	0	bit3	ptpTimescale:		0
bit4 (reserved):	0	bit4	timeTraceable	:	0
bit5 PTP profile	e Specific 1:	0	bit5	frequencyTrac	eable:	0
bit6 PTP profile	e Specific 2:	0	bit6	synchronizatio	nUncertain:	0
bit7 (reserved):	0	bit7	(reserved):		0

Useful Point !

envision: ensure

/Inritsu

Since parameters can be changed easily using the GUI, PTP network anomaly testing is easy. In addition, realtime monitoring of the status of the clock distribution to the network helps cut maintenance work times.





date/time

21/6/2019 16:00:47

21/6/2019 16:00:52

21/6/2019 16:00:57

21/6/2019 16:01:02

21/6/2019 16:01:07

21/6/2019 16:01:12

21/6/2019 16:01:17

21/6/2019 16:01:22

21/6/2019 16:01:27

21/6/2019 16:01:32

21/6/2019 16:01:37

21/6/2019 16:01:42

/Inritsu

[ETH] Ethernet Statistics Export

Ver. 9.10

- Export all Ethernet Statistics per interval setting 1, 2, 5 sec etc.
- Select required sections to export into CSV format
- Open CSV file in Excel (or of
- Analyze stat's for required da
- Graph statistical results

Relative time

0:00:00

0:00:05

0:00:10

0:00:15

0:00:20

0:00:25

0:00:30

0:00:35

0:00:40

0:00:45

0:00:50

0:00:55

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Graph and compare different results over time

layer-Max.

Throughput(bps)-Link

5476196592

5476196592

5476196592

5476196592

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5476196592

5476196592

Throughput(bps)-

Phys.(-preamble)-Ma

7619056128

	_									
to					Result File Browser	J				
· · ·		2019-06-21	16:00:47				2019-06-	21 16:01:45		
		Summary					.og Sta	tistics	\triangleright	
		16:00:47	21 Ethernet - BERT		!▼] [SI prefix		CSV export	P:	
or oth	nor)	Back			Port :	1:1				
		2019-06-2 16:00:52	BERT	Count	R	atio				
	4 -	2019-06-2	Pattern bit count		111.31 G				?	
a da	ta	2019-06-2	Pattern errors		0					
		2019-06-2	21 Seq. sync. lost						Ē.	_
		16:01:07	7 Frame loss	2019-0	6	Result Fi	le Browser		×	
		2019-06-2 16:01:12	²¹ Frame loss secs.	Summ	Port	Select iter				
vront		2019-06-2 16:01:17	21 7	III 200	Port 1:1					8
		2019-06-2	²¹ W.2100	Se	Bi Ethernet					
			ETH-BERT	20.	BERT	Performano Size Distrib	tion	Frame Transmit		
				201	Latency	Jitter		PCS		
				201	Conditions					
(hns)-	Throughput(hps))_	Throughput(hps)-	1	Frrored Frames-Frr	ored				Z
mble)-Max	Physical laver-M	ax	Utilization laver-M	lax	frame-Count	orcu				X
7619056128	8571	438144	100000	11168		0			Cancel OK	
7619056128	8571	438144	100000	11168		0 1	ST <u>RESULT</u> [🕂 🖸 🦘 🗗 V	🔀 yy 🕂 16:02	>>>>
7619056128	8571	438144	100000	11168		0				
7619056128	8571	438144	100000	11168		0				
7619056128	8571	438144	100000	11168		0				
7619056128	8571	438144	100000	11168		0				
7619056128	8571	438144	100000	11168		0				
7619056128	8571	438144	100000	11168		0				
7619056128	8571	438144	100000	11168		0				
7619056128	8571	438144	100000	11168		0				
7619056128	8571	438144	100000	11168		0				

10000011168

8571438144

0 0



[MxH] Added 12G (Option 9) and 25G (Option 10) to CPRI BERT line rates.

new_slide_9_10_04

Ver. 9.10

Added 12G and 25G line rates to MU100011A CPRI BERT application

Port 1:1	Port 1:2 Application Selector		
Port +	Unframed - PRBS15 Inverted		
Port mode: Normal	Transceiver		
Line rate	Line Rate Setup	nal loss	?
_Clock Configuration	Mode		
Timing source:	Line rate	OBSAI	-
	614.4 Mbps	os	£
	614.4 Mbps	DF	
	1228.8 Mbps	ss	
	2457.6 Mbps		X
	3072.0 Mbps	attern error	
	4915.2 Mbps	ransceiver	
CPRI/OBSAI BERT	6144.0 Mbps	13 33	>>>>
	9830.4 Mbps		
	10137.6 Mbps		
	12165.12 Mbps		
	24330.24 Mbps		
Line rate 🔅 CPRI : :	24330.24 Mbps		
_Clock Configuration			
Timing source:	nternal 💌 🔹		
_FEC			
FEC enable	Sets FEC ON/OFF at 250	j	

envision: ensure

Following mobile network speed increases, speeds between base stations and antennas are increasing too. Using this option, supports all CPRI interfaces in actual use.

<u>Useful Point !</u>

TRx settings can be confirmed at one screen for easy evaluation of connection status in line with status information. Additionally, maintainability is excellent and costs are cut because one unit has all the required functions for MFH field tests using the SEEK function installed simultaneously with the OTDR module.



[RemoteGUI] Added function for placing remote MT1000A into standby mode using MX100001A software. Ver. 9.10

If the IP address of MT1000A/MT1100A connected to the network is known, it can be powered-on/off by remote control from the MX100001A (only when connected to AC adapter).



Useful Point !

Since the remote MT1000A/MT1100A can be operated only when necessary, power-on/off transit times can be reduced, power consumption can be reduced, and the impact of operation errors.





[ETH] Added functions for measuring broadcast packet networks to each BER, MonGen, and SyncTest application. Ver. 9.09

The following functions are also supported in addition to the present Frame Tx analysis function for measuring broadcast packet networks.

- IGMP/MLD client function for multicast group Join/Leave
- IEEE1588V2 (PTP) SMPTE 2059-2 profile for video streaming IP upgrade



Useful Point !

Adding end-to-end test for broadcast packet networks assures QoS evaluations using throughput and one-way latency measurement at network installation, as well as easy and efficient network maintenance.

Only one unit is all that is necessary to evaluate video streaming network time synchronization performance and check time synchronization protocols.

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V9.09 GUI

[ETH] Added Burst Length/Gap input function in the Burst settings of both MonGen and ChannelStat application Ver. 9.09

 Extended Burst frame generation function for MonGen and ChannelStat applications

Mon./Gen.

Support for setting Burst Length

Mon./Gen.	-							Port 1:1		Applica	ation Selector		
Port 1	.1	Applic	ation Selector					Control	Generator	Streams	- Profile	Streams - Meas.	Thresh
Control Profile Setup Transmitting r Burst mode Burst mode:	Generator	Streams	Frame Size: Utilization: Total:	64 39.622642 39.6227	Thresholds bytes %	£.	1	Profile Setup Transmitting mode Burst mode Burst mode:	e: Burst		Frame Size Utilization: Total:	e: 64 : 39.622642 39.6227	bytes %
Duty Duty: Period:	39.622642 0.00136	9% ms				2 3 X		Burst length Burst length: Gap length: Duty Duty:	8 1024 39.622642) frames ▼ bytes ▼ %)		
(((Етн	-Mon./Gen.	SETUP	<u>TEST</u> RESULT	r	14:1	s6)))	((ETH-Mo	n./Gen.	SETUP	TEST RES	ULT	

Previous GUI

- Different settings for each stream
- Easy-to-visualize Burst Frame generation
 by showing in-burst Length value

Useful Point !

envision: ensure

The network tolerance and device buffering functions using multistream signals can be confirmed.



Enhancement

MT1000A-Transport

[MxH] Added option to eCPRI/RoE application to use 25G eCPRI on two ports simultaneously Ver. 9.09

Conventional fronthaul and backhaul network configurations are being re-examined to support 5G services and a switchover to eCPRI and RoE (Radio over Ethernet) packet-based protocols is being examined as part of this change. The MT1000A/MT1100A bring early support for eCPRI and RoE measurements as the 'Mobile xHaul' solution for this market trend.



Mobile xHaul application

- With dual-port 25G eCPRI/RoE measurement support, the MU100011A offers efficient signal generation and analysis plus precision one-way latency measurement of Transport networks, supporting tests for implementing ultra-Reliable Low-Latency Communications (uRLLC).
- This will play a key role in Next Generation Fronthaul Interface (NGFI) network configurations and Fronthaul Transport Node (FTN) evaluations.

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- <u>Useful Point !</u>

Using the dual-port 25G eCPRI/RoE function helps to optimize testing while cutting the number and cost of required test instruments.

[ETH] Added function to RFC2544 application allowing multiple setting of any frame size.

riune si	ze (Bytes)		Condion		ougnput	and frame loss
Mode: C	Constant		_Frame Siz	ze (Bytes)		
Frame siz	re: 10000		Mode: F	lexible		
2	Control Throughput	t and frame loss				
	Frame Size (Bytes)		Count:	10		
	Mode: User defined		#1	123	#6	357
	64 128	256	#2	456	#7	468
		O	#3	789	#8	579
	✓ 512 768	1024	#4	135	#9	15999
		15000	#5	246	#10	0000

- 10 Types Max.
- Setting range of 50 ~ 16000 bytes
- Ideal for Latency and Burst measurements

Can flexibly measure multiple Frame sizes with one sequence to check device-unique properties for Frame-size related specifications, such as Maximum Transmission Unit (MTU), etc., to support easy Boundary Testing of Frame size-dependent properties.

<u> Useful Point !</u>

Although only one size can be measured in the Constant mode, measuring multiple sizes shortens the measurement time and simplifies comparison of measurement results between sizes.



[MxH] Added function to CPRI/OBSAI BERT application for generating/analyzing OBSAI frame. Ver. 9.07

Easy-to-use GUI for OBSAI Frame Commissioning Test, Error/Alarm analysis, and APS and Delay measurements

- Helps cut costs of MFH I&M
- Ideal low-cost signal source and measuring instrument for developing and evaluating MFH transmission equipment



<u>Useful Point !</u>

Supports confirmation of Tx/Rx settings at one screen and simplifies evaluation of connection conditions with status information. Moreover, simultaneous installation of OBSAI function, SEEK function, OTDR module and CPRI module combines all functions required by MFH onsite tests in one unit for excellent maintainability and reduced costs.



[Framework] Added function to input client user details in MX100001A remote operation initial screen, displayed in resource monitor screen of MT1000A/MT1100A. Ver. 9.07



new_slide_9_07_03

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MT1000A-Transport

[ETH] Added function for synchronizing time of two MT1000A units using 1PPS and 10 MHz for Latency when MU100011A installed. Ver. 9.06

One MU100090A can be used to synchronize time between two MT1000A units with MU100011A *. Up to 4 ports can be used to measure the one-way delay time of interfaces up to 10G, while up to 2 ports can be used for 25G/40G/100G interfaces.



<u>Useful Point !</u>

By synchronizing the time of the two MT1000A, one-way delay of 25G / 40G / 100G can be measured.

*Requires two BNC dividers, two 1-m BNC cables, two J-J BNC connectors, two 20-cm BNC cables and J1705A

/Incitsu envision : ensure

new_slide_9_06_01

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MT1000A-Transport

[ETH] Improved PTP measurement results Accuracy and Latency results Accuracy and Resolution. Ver. 9.06

eMBB for 5G uses technologies such as massive MIMO, beam forming, etc., assumes each of the many wireless units share the same precisely synchronized time. For URLLC to implement low-latency services on the order of 1 ms, a one-way delay time of less than 100 μ s is specified for the wired sections of mobile fronthaul networks.

The MT1000A has long supported time synchronization accuracy tests using PTP and delay measurements. This update improves the synchronization measured results by up to 2.8 times compared to previously, and also improves 10GbE latency measurement results by 2.2 times, both playing a key role in evaluating 5G networks and equipment.

Moreover, the resolution of delay measurement results is increased from 100 ns to 5 ns.

Example of network far-end one-way delay measurement: The clocks of two MT1000A units are synchronized using GPS and the one-way delay from the DU to the CU is measured.



<u>Useful Point !</u>

Supports time synchronization measurement as well as IEEE1588v2 and SyncE protocol verification for 25G Ethernet expected to spread as core of 5G networks

*Varies with measurement interface

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Incitsu envision : ensure

[ETH] Added support for RFC6349 over IPv6.

Ver. 9.06

The RFC6349 standard defines network performance test procedure at the TCP layer. Until now, since managed networks are different from the Internet, many carrier IP networks have been operating using IPv4. However, 5G and IoT deployments are driving carrier networks to switch to IPv6. This update supports RFC6349 tests using IPv6.



new_slide_9_06_03

Back to Added Features Lists Back to Index page



MT1000A-Transport

[ETH] Added 25 GbE interface to SyncTest application

Ver. 9.05

25 Gbps can now be selected with the MU100011A Sync Test application. As a result, time accuracy measurement using 25 GbE is possible. In addition, both the Mon/Gen and BERT applications can verify protocols using 25 GbE.



Ver 9.05 Sync Test Application Screen

Cannot Set] warning when attempting to set SyncE at 25G interface

Ver 9.04 and Earlier BERT Application Setting Screen



Ver 9.05 BERT Application Setting Screen

<u>Useful Point !</u>

Supports time synchronization measurement as well as IEEE1588v2 and SyncE protocol verification for 25G Ethernet expected to spread as core of 5G networks



MT1000A-Transport

[OTN] Added OTU2e-FC1200 mapping for MU100011A module

Ver. 9.05



Anritsu envision : ensure

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[MxH] Added eCPRI/RoE BERT application used by installing Ethernet option

Ver. 9.05

The CPRI/OBSAI protocol has been the *de facto* standard for previous mobile fronthaul installations. With the transition to 5G, a switch is being made to the Ethernet-based eCPRI and RoE (Radio over Ethernet) protocols while also re-examining previous fronthaul and backhaul configurations. To cope with this trend, the MT1000A/MT1100A [CPRI/OBSAI] measurement category has been changed to [Mobile xHaul].



- <u>Useful Point !</u>

Using these options, throughput, bit error rate, and latency can be measured while stressing the 5G mobile network by applying traffic loads using the eCPRI and RoE frames.



Back

[ETH] Added function for selecting MDI/MDI-X/Auto at 10M/100M/1000M Ethernet electrical interface Ver. 9.01

At commissioning testing for network operators (corporate services), it is often unclear what in-company equipment (switches and routers) are being used by the operator. Auto MDI/MDI-X is one parameter for establishing the Ethernet Link, but testing this parameter at network commissioning requires connection of all network devices.



<u>─ Useful Point !</u>

Using this function, the test operator can pre-confirm the test coverage because both static and Auto MDI/MDI-X devices can be simulated.



[ETH] Added In-band Remote Function including Discovery application to MT1100A Ver. 9.01

The in-band mode function is for performing two-way evaluation using multiple measuring instruments at remote locations. Using this function enables control of the remote MT1000A/MT1100A via the test target network, which eliminates the need for a separate network for remote control.



- <u>Useful Point !</u>

Connecting an instrument to the network supports instrument operation from one end, helping cut labor costs and improving work efficiency.





[NOFRAME] Added 4LaneBER measurement function to MU100011A

A different PRBS pattern can be sent and received for each of the four lanes at CAUI interface BER tests using the MU100011A.



Useful Point !

Crosstalk tests are supported by sending and receiving different patterns at each of the CAUI interface lanes.



[Framework] Added function for avoiding problem of delayed main unit start-up resulting from saving of multiple files in internal storage of measuring instrument Ver. 9.01

Start-up and shutdown may become slow when many files are saved in the instrument internal storage default path. When a pre-specified file count is reached, this function moves settings and results files as a batch from the default path to a separate folder when measurement is completed.

Warning Dialog



- <u>Useful Point !</u>

This function makes it possible to assure the normal responsive usage environment by recovering the previous fast start after the instrument start-up time slows.



MT1000A MT1100A

[New HW] Added new modules for MT1000A

MT1000A

Ver. 9.00

Back to Index page

• The new module which can be mounted in MT1000A was added.

MU100040B CPRI RF Module



CPRI RF Module MU100040B displays the LTE spectrum of the uplink or downlink of BBU and RRH radios. When using BBU emulation of option*, operator can control wireless Remote Radio Head (RRH) from MT1000A



[ETH][OTN][SDH][CPRI][FC] Added I2C analysis function for QSFP28 module

Ver. 9.00

Write

Setup Module

Export

Close

• The SFP/SFP+/SFP28 module status can be confirmed and written using the MU100010A/MU100011A/MU110010A/MU110011A.

	Value		Memory	Pare select	Address	Value
dentifier	03h: SFP or SFP Plus		A0h	ooh	Od	00h
	04h: GBIC/SFP function is defined by two-wire interface	?	Burst Read			
	07h: LC		Memory	Page select	Address	Length
	03h: NRZ		A0h	- 00h) Od	128
	> 25000 MBps	3		+ 0	+ 1	+ 2 +
	N/A					
	N/A					
Length (50um)	N/A					
	Update	×				

Analysis Screen

Address Write Screen

– <u>Useful Point !</u>

When using optical modules meeting new standards, confirming this status helps shorten test times. Using this function helps understand the optical module status immediately and shortens test times because settings can be changed as necessary.





MT1000A-Transport MT1100A

[NOFRAME] Added No Frame application supporting the following functions to the MU100011A Module Ver. 8.02

Added No Frame application for MU100011A. The corresponding signal types in the No Frame application of MT1000A and MT1100A are shown in the following table.

				100G BER		40G BER	25G BER
Updated fu	nction on v8.02		10 Lane BER	20 Lane BER	4 Lane BER	(10G x 4 Lanes)	(25G x1 Lane)
MT1000A	MU100011A	100G		1			
		40G				\checkmark	
		25G					1
MT1100A	MU110011A	100G	1	1			
		40G				\checkmark	
	MU110013A	100G(CFP2)		\checkmark	🗸 (Option)		
		100G(CXP)	\checkmark	\checkmark			
		40G				\checkmark	

Useful Point !

Simple operation tests of optical modules, etc., without configuring expensive measurement system.



[SEEK] Added Loop function and character divider command for the MX100003A

• Loop function

Added Loop description to MX100003A previously supporting only one-way sequence. For example, describe as follows when repeating SAT (Service Assurance Test).



Character Divider command

Added character-string-related MID command for cutting-out part of input character string as MX100003A built-in scripting language.

<u>Useful Point !</u>

MT1000A MT1100A

Ver. 8.02

This is convenient for coding the process of determining the file name of the report file.

It is possible to code the first five characters of the character string input by the user and the serial number as the file name.

Back to Added Features Lists Back to Index page





[ETH] Added function for stopping stream sending when Pause Frame received at 100GbE/40GbE/25GbE. Ver. 8.01

• Added "Respond to PAUSE frame" at [Settings] – [Incoming Frames] for 100, 40, and 25 Gbps Ethernet interfaces



Useful Point !

The measuring instrument response to a Pause Frame supports testing of 25/40/100G networks under closer near-to-live operating conditions.



New Function

/incitsu envision : ensure

MT1000A-Transport MT1100A

[ETH][OTN][SDH][FC][CPRI] Added function to support the Tunable SFP/SFP+.

Ver. 8.01

• Added screen for specifying set wavelength by channel and wavelength when using SFP/SFP+ supporting change to any wavelength.





/inrit

envision: ensure

MT1000A-Transport MT1100A

[ETH][OTN][SDH][FC][CPRI] When the threshold value is set, the color of the test result value is reflected in the PDF report. Ver. 8.01

Previously, when setting the test threshold value, color-coding was displayed only at the Measurement Results screen, but with this revision, the same color-coding is included in the output PDF file.



Test Setting



Summary					vent Log	Statistics			2017-06-20 08 09 16			
1017-06-26	Ethernet · Fr	ame		T	SI prefix		8	BERT Su	mmary			
24/24/44				-				Start at	2017-06-23 05 58 36			
Back						A	0	Stop 41	2017-06-23 05:59:02			
2017-06-26								GIPS status	Not available			
14:14:49								Result summary	Pass			
2017-06-26	Errored Frames	Count	Ratio	Count	Ratio		0	Port 1:1	PassFal			
14:14:54	Frank de la comp					1 005 00		BEH	Pass			
2017.06.26	Errored frame		0	0.00 %	8	T.90E-09		Service doruption	Pass			
14:14:59	Fragmented		0	0.00 %	0	0.00 %	- 12	Sequence errors	Pass			
							-	Port thresholds	Pass			
2017-06-26	Oversized		0	0.00 %	0	0.00 %	1	- risesport	P805			
	Undersized		0	0.00 %	0	0.00 %	2					
2017-06-26	_						-					
14.15.05	 FCS errored 		0	0.00 %	8	1.90E-09					~	
Current	Oversized & FCS		0	0.00 %	0	0.00 %					X	
2017-06-26	errored		-		-		_					
14:19:28	Error symbol		0	0.00 %	0	0.00 %				Y		
								and the second se		Linite	500	
	ETH-BERT	SETU	UP TEST	RESULT 🖼 🗖		SX 🔜 📫 14:	19 ///	PDE Viewer 📿 < Page	2/29 5 14 17 20 1/ 17 1 1	h 06 04		
		•				2 1 1				a service of		1
												/

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MT1000A-OTDR

[OTDR] [FTTA] In Fiber Visualizer mode, added function for displaying help to resolve issues when selecting Fail event icon. Ver. 8.01

Fiber Visualizer mode displays Help for resolving problems at "Fail" event result



Referring to Help makes it easier to test with a revised measurement environment and conditions.

/Inritsu envision: ensure **Back to Added Features Lists**


[Framework] Added the 100G Multirate Module MU100011A to the product line.

• The new module which can be mounted in MT1000A was added.

MU100011A 100G Multirate Module



The 100G Multirate Module MU100011A supports communications network technologies with speeds ranging from 10 Mbps to 100 Gbps. It has the functions and performance required for network I&M tests. In addition, optional test protocols can be selected and added.

Transport Testing: Up to 100 Gbps 1 port: 16/25/40/100 Gbps (CFP4, QSFP+, QSFP28) (OTN, Ethernet, FC) 2 ports: 10 M ~ 10 Gbps (SFP/SFP+, RJ45) (OTN, Ethernet, SDH/SONET, CPRI, FC)





[ETH] Added functions to Sync Test Application.

Ver. 8.00

Back to Added Features Lists

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- The Sync Test functions have been extended to simplify the test results display and reduce randomness in results resulting from test conditions.
 - Added Terr (min), Terr (max), and max |Terr| to measured result items
 - Added 1PPS mode for external synchronization in absence of GPS signal
 - Added function for automatically reflecting UTC offset at slave operation in master distributed value

Packet TF Gran	oh L	Result File Browser								Applic	ation Selector	r	
				2017-05	22 13:52:43				Contr	ol		Thresholds	
Summary	<u></u>] [¹⁹	PS OWD Pac	ketTE	Event Log Sta	tistics				Interval length:	5 seconds		•	
4 ns -									Measurement period:	100 sec	-	•	
2 ns -						?				100		sec	?
-2 ns		Test Resu	lt• T	[err(min)]	Ferr(ma	ax) max	ITerrl		1PPS cable correction:	0		ns	
-4 ns	Su	mmary 1PP	s T	OWD PacketTE	IEEE1588v2 Log	Event Log	Statistics		Ethernet cable correction:	0		ns	
00:00:00 00:00:20									✓ 1PPS mode				
Plot info		1PPS TE		Packet TE	Port 1		Port 2						
	Zoom	cTE	N/A	CTE1		N/A	N/A	?					
Content TE1 V	iew mod	dTE	N/A	cTE4		N/A	N/A						X
м	lax vertio	max TE	N/A	max TE1		N/A	N/A	E					
				max TE4		N/A	N/A						
Sync Test	~			Terr		N/A	N/A		🥼 💁 Sync T	SETUP	TEST RES	SULT 🔐 🍽 🖘 🕅 🗸 🗾	👷 🖳 📢 14:06
				max Terr		N/A	N/A						
				Terr(min)		N/A	N/A						
				Terr(max)		N/A	N/A	X				a da	
				-					F		-2 m	ode	
	1							111					
	1	Sync Test		🖌 SETUP T	EST <u>RESULT</u>	📘 🗃 🔿 🕅 V	28 🔊 💆 🚺 18	:36 ///					

MT1000A-Transport MT1100A

Signal loss

CPRI/OBSA

105

LOF

LSS

Pattern error

Transceiver

Ľ

E.

X

nm

Back to Added Features Lists

After Ver. 8.00

[ETH] Separated CPRI and OBSAI GUIs for easy-to-understand operation. Ver. 8.00

CPRI and OBSAI are separated when selecting the CPRI/OBSAI application • interface.

Application Selector Application Selector Port 2:2 Inverted CPRI :614.4 Mbps Port Unframed - PRBS15 Inverted CPRI :1228.8 Mbps Transceive Port mode Transceive Port mode Off CPRI :2457.6 Mbps Wavelength(nominal) Wavelength(nominal) Signal loss Line rate 850 Line rate 614.4 Mbps (CPRI) N/Δ CPRI : 3072.0 Mbps Compliance Compliance Clock Configurat 514.4 Mbps (CPRI) 25GBASE-SR Clock Configura N/A CPRI :4915.2 Mbps Timing source 768 Mbps (OBSAI) Ĕ Timing source CPRI CPRI :6144.0 Mbps 1228.8 Mbps (CPRI) 3 CPRI :9830.4 Mbps 1536 Mbps (OBSAI) 2457.6 Mbps (CPRI) LOF CPRI :10137.6 Mbps 3072.0 Mbps (CPRI/OBSAI) OBSAI:768 Mbps 155 4915.2 Mbps (CPRI) Х OBSAI:1536 Mbps Pattern error 6144.0 Mbps (CPRI/OBSAI) OBSAI:3072.0 Mbps 9830.4 Mbps (CPRI) Transceive OBSAI:6144.0 Mbps 10137.6 Mbps (CPRI) CPRI/O ESULT 💾 🗃 🦈 🧗 🗸 🎫 💆 ESULT 📑 🗃 🖘 🕅 🗸 🏹 🙀 🛔 🗤 13:49 CPRI and OBSAI are mixed CPRI and OBSAI are separated

Before ver. 7.05





Enhancement

MT1000A MT1100A

[Framework] Added Quick Matrix to File input screen.

Ver. 7.05

Added Matrix function at file name input to create file name combining pre-registered keyword

	File name input screen									
			Port 1-1			Input Text				-×
	Edit File Name	Text	: anritsu-west ritsu - west							Clear
NE FOLD		Leng	gth : 13/64							
	Length: 0/64		Title_1	Title_2		Title_4	Title_5	Title_6		Builtin
Þ	1 2 3 4 5 6 7 8 9 0 - = 4		anritsu	test0000	west	57	001		ļ	·
►					east		002			-
			Arbodi				004			
	Added Matrix button					jg	005		j l	_
							006			
	CLR K→ ← Copy All		Import / Ex	port	Reset		Cancel		ок	
	Layout: English V Quick Matrix Cancel Ok	h	DOGO ETH-B	ERT	SETUP	TEST RES	SULT	🕅 V 🖬 🔊	X (K 1	1 52 ///
h	🚥 ETH-BERT SETUP TEST RESULT 🕂 🖀 🖘 🖏 🗸 📢 11 52 👘									

Register up to 120 keywords

<u>Useful Point !</u>

Simplifies file name input to reduce on-site input operation errors and shorten work time



MT1000A-Transport MT1100A

[ETH] Added In-Band control function and Discovery application.

• Until now, end-to-end testing from a remote location has usually required two operators. Using this function, the remote MT1000A can be controlled via the test target network. As a result, there is no need to provide a network for remote control.



_ <u>Useful Point !</u>

Connecting the instrument to the network supports operation from one end , reducing the number of operators and improving work efficiency.



Enhancement

[ETH] Added support for Category 6/6a to Cable Test application.

- Ver. 7.05
- Added choice of Category6/6a to Ethernet Interface Cable Test application

Version 7.04 and Earlier

Application Selector Application Selector Note: connecting to 10/100 Mbps equipment can be shown as short or open for pair 1 and 4 ! Note: connecting to 10/100 Mbps equipment can be shown as short or open for pair 1 and 4 ! Distance to Distance Status Pair Status to fault fault Ĕ ĕ N/A N/A N/A N/A N/A N/A 0 N/A 0 N/A T-568A(CAT5) N/A N/A N/A N/A T-568B(CAT5E) T-568A(CAT5) -568B(CAT6/CAT6A) T-568B(CAT5E) Color Coding Standard: T-568B(CAT5E) Color Coding Standard T-568B(CAT6/CAT6A) 1 ETH-Cable Test RESULT 12 22 ETH-Cable Test RESULT 💾 🔿 🔿 🕪 Category6/6a selection

Version 7.05



MT1000A-Transport MT1100A

[FC] For FC, added performance test application(Perf. Test) to run RFC2544-like benchmark tests. Ver. 7.05

Added performance test application to fibre channel interface



<u>Useful Point !</u>

Supports throughput, latency, and buffer credit performance verification for fibre channel networks and fibre channel equipment



[VIP] Added support for G0382A Auto-focus VIP

• The image of the ferrule end face displayed on-screen is automatically centered and focused. Additionally, after focusing, one-button operation performs all procedures from end-face analysis to data saving.



When the optical connector to be measured is connected, one-button operation executes all processes from focus adjustment to data saving. In addition to simple <u>operation</u>, work times, such as measurement of multicore fiber, are shortened.

Ancitsu envision : ensure



MT1000A MT1100A

Ver. 7.05

Enhancement

MT1000A MT1100A [VIP] Added following functions to VIP application Ver. 7.05

Each of the VIP G0382A, G0306A, and G0306B models supports the automeasurement function. The auto-capture and auto-analysis support work with fewer button operations.

	G0382A	G0306B, G0306A						
Auto-measurement support functions								
Auto-focus	✓	NA						
Auto-capture	✓	✓ *						
Auto-analysis after capture	1	✓						
Automatic file creation	1	✓						



*At manual operation focusing, the software-processed focus is autocaptured at the optimum location.





Auto-focus, Autocapture



Auto-analysis



Automates measurement, analysis and file saving to improve work efficiency

envision: ensure

<u>Useful Point !</u>

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MT1000A-OTDR

[OLTS] Added Wave Code mode for auto measurement of multiple wavelengths.

Ver. 7.04



Useful Point!

Enables accurate measurement of optical power and loss without complicated setup.



[ETH] Added the "Symbol errors rate" counter for FEC Ver. 7.02

• A rate display has been added to the FEC Counter for Ethernet and OTN measurements. This helps at-a-glance visual confirmation of the proportion of errors with time.

Summary Display

	Result file Browser		Result File Browser	
2016-10-25 10:33:42	00:00:22	2016-10-25 10:33:42	00:00:29	
Summary	Event Log Statistics	Summary		Event Log Statistics
III Total Ethernet - FEC	SI prefix	7 32 Total Port 1:1 - ETH -	- Symbol errors rate	Back
10:33:42	Port 1-1	10:33:42 Rx Lane	Symbol errors rate	
Back 2016-10-25	Count	Back 0	4.16E-12	
10:33:47	Count	10:33:47	0.00	
2016-10-25 10:33:52	3	? 2016-10-25 2 10:33:52 2	0.00	
2016-10-25 10-33-57 Uncorr CW	0	2016-10-25 3 10:33:57	0.00	
2016-10-25		2016-10-25		
10:34:02	All lanes Each lane	10:34:02		
Symbol errors	3	10:34:07		
Current Symbol errors rate	1.39E-12	Current		
2016-10-25 10:34:03 Lane marker		2016-10-25 10:34:10		•
ETH-BERT	!) SETUP TEST <u>RESULT</u> 🛱 🗖 🖘 🛚 V 🗾 와 星 🕪 10 3			
ETH-BERT		ETH-BER	T	
Port-1:1				
Testing		Testing		
	<u> </u>			

Details Display

– <u>Useful Point !</u>

Test evaluation times are shortened because error rates during long-term testing can be confirmed at-a-glance.

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MT1100A





[ETH] Added I2C analysis function for QSFP28 module

- Ver. 7.02
- The QSFP28 module status can be confirmed and written using the MU110012A/MU110013A. However, the J1686A is required when installing a QSFP28 module in the MU110012A/MU110013A.

Lower Lower (Lane) Upper (00) Upper (0	03) Read / Write	
	Value	
	0h: Unknown or unspecified	
	Oh: Revision not specified	
	ot	
	(
	C	1
	(
		1
	01	
	(
High Supply Voltage Warning		
	Update	

Analysis Screen

Address Write Screen

Port 1:1		Application Selector		
		I2C analysis		
Lower Lower (Lane) Upper (00) Uppe	r (03) Read / Write		
Initialize]			
Read / Write				
Page select Addr	ess Value			
03h 2	238d 22h	Read Write		
Burst Read				
Page select Add	ress Length			
00h	0d 128	Read		Export
+	0 + 1	+ 2 + 3 + 4	+5 +6	+ 7
				Close

<u>Useful Point !</u>

When using optical modules meeting new standards, confirming this status helps shorten test times. Using this function helps understand the optical module status immediately and shortens test times because settings can be changed as necessary.



[GPS][MU100090A] Added function for displaying elapsed time after lock to GPS

- Ver. 7.02
- Select the screen bottom to confirm the GPS synchronization. Previously, only the GPS status was displayed but this new function adds the following data.
 - Continuous elapsed power supply time to MU100090A rubidium clock
 - Synchronization time with GPS





– <u>Useful Point !</u>

Pre-work confirmation is made easier because conditions can be seen at-aglance using the MU100090A functions.

/INCITES envision : ensure

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MT1100A [NoFrame] Added function for setting different PRBS pattern at each lane for **4Lane BER measurement function** Ver. 7.02

At BER tests of CAUI interfaces using the MU110013A-008, \bullet different PRBS patterns can be sent and received at each of the four lanes. Summary Screen Tx Setting Screen

							5	
Port 1:1		Application Selector	J			Т	x Pattern	. ? X
Port						Lane 1 Lane 2 Lan	ne 3 Lane 4	
Interface Type:	CFP2	Test pattern				Test Pattern		
Bit Rate:	OTU4	Tx setting to Rx		LOS		Tx Pattern type:	PRBS7	•
Lane Select:	4 Lane	Lane1 PRBS7	PRBS7	Rx Signal Level	•	Tx Pattern Logic		
		Lane2 PRBS7	PRBS7			Normal	🔵 Inverted	
		Lane4 PRBS7	PRBS7					
Clock Configurat	ion				27			
Timing source:	In	ernal				Lane follow		Close
Ref. Port:	Off Rate:	1/16 Sync Port:	Off 💌					
					X	Rx Sett	tina Scr	een
			• •	Transceiver			J J	7 8
(((🔛 No Fr	ame 🖌 S	ETUP TEST RESULT	₩ 🖬 🖘 V	' 🔀 ≽ 🕂 🕠 10 31		R	x Pattern	• •
	No Frame					Lane 1 Lane 2 La	ne 3 Lane 4	
	Port-1:1					Test Pattern		
	ldie							
						Rx Pattern type:	PRBS7	
Llooful Doint I						Rx Pattern Logic		
– <u>Usejui Point !</u>						Normal	Inverted	
Crosstalk tests are	simplific	d hocaus	o diffo	ront na	ttorns can			
	- simpline			i ent pa		Lane follow		Close
be sent and receiv	ed on ea	ch lane of	t the C	AUI inte	ertace.			



[Remote][SEEK] Add support for OTDR application at scenario creation using MX100003A Ver. 7.02

 Previously, scenario tests were supported only by the MU100010 in conjunction with the MT1000A, but now the MU100020A/MU100021A/MU100022A also support the OTDR module. The MX100003A is used to create scenarios for the OTDR module.

MT1000A Scenario Selection Screen

MX100003A Scenario Creation Screen

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The MT1000A supports automatic testing with the OTDR module. Automated, simultaneous fiber and equipment communications tests are supported.

/incitsu envision : ensure

[New HW] Added new modules for MT1000A



Ver. 7.00

• The new module which can be mounted in MT1000A was added.

MU100022A OTDR Module 1310 /1550 /1625 nm SMF



The MU100022A is an OTDR module for single mode fiber use only. It supports all-in-one OTDR, FTTA, and OLTS measurements required for checking optical fiber. Additionally, combined used with the visible light source options support visual confirmation of fiber breaks, etc.



MU100040A CPRI RF Module



CPRI RF Module MU100040A displays the LTE spectrum of the uplink or downlink of BBU and RRH radios.

By monitoring the LTE uplink/downlink IQ data on the CPRI interface, it is possible to monitor for interferers from ground level.







[Framework] Supports simultaneous installation of three module types. Ver. 7.00

The number of simultaneously installed measurement modules has been expanded; up to three types of measurement module can be installed simultaneously, reducing the work burden of switching modules.

Any modular combination as shown in a figure.



*: Required if the MU100010A (10G Multirate module) is not used rear cover(B0720A). Please look at the MT1000A Configuration Guide for details.

/Incitsu envision : ensure

MT1000A-OTDR

[OTDR] Added Construction function





The Construction mode simplifies installation work and is especially useful when pulling multi-core fiber cables. Work mistakes are eliminated by automated operation using presettings, such as project data (number of fibers, file names, etc.) and measurement conditions, to facilitate efficient measurement of multi-core fiber cables.

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MT1000A-OTDR

[OTDR] Added Bi directional mode

Ver. 7.00



"Bi directional mode" was added to OTDR application.



When executing bi-directional Analysis after loading two SOR files, the overlay traces are reversed to allow the hidirectional analysis.

Useful Point !

The bi-directional analysis enable us to obtain more accurate event loss values by using two traces measured bi-directionally.



[ETH] Separated [Profile] and [Measurement Settings] tabs included in [Stream] tab at BERT test into two separate tabs labelled [Stream/Profile] and [Stream/Measurement Settings] Ver. 7.00

• Operability is improved by reducing the number of levels at the Ethernet BER test Stream Setting screen.







[New HW] Added MU110013A module and dedicated option (1/2)

- New MT1100A Measurement Module
 - MU110013A 40/100G Advanced Module



2 Ports max.: 40 Gbps or 100 Gbps (CFP2, CXP, QSFP+)

Each port with built-in Sync Clock Output synchronized to CFP2 Tx data*1

- Differences from MU110012A
 - Supports following options
 - MU110013A-023 RS-FEC for 100GBASE-SR4
 - MU110013A-008 4 x 25G/28G BERT
 - CAUI4 Electrical Signal Control Functions
 - Emphasis Function

Demonstern	Description					
Parameter	MU110012A	MU110013A				
Attn	0~31 * ²	0~4				
Pre	0~31 * ²	0~3				
Post	0~31 * ²	0~7				

Rx Equalizer Function

Deverenter	Description					
Parameter	MU110012A	MU110013A				
Auto Rx equalizer	On	On/Off				
Equalizer	-	0~7(Auto Rx Off)				

nritsu envision : ensure

*1: Can change at Port1 setting

MT1100A

*2: Attn + Pre + Post < 32

Useful Point !

Adding this option supports 100GBASE-SR4 FEC tests. Moreover, since it is also possible to directly send and receive CAUI14 electrical signals using the J1666A Adapter (sold separately), combined use with Sync Clock Output supports BER tests.



[New HW] Added MU110013A module and dedicated option (2/2)

- MU110013A-023 RS-FEC for 100GBASE-SR4
 - This option supports generation of FEC 100GbE signals by the MU110013A and also has Rx and analysis functions.^{*1,*2}
 - Supports FEC Code: RS(528, 514, 7, 10)
 - Test Items: 100GbigE + RS-FEC communications confirmation tests, BER tests, RS-FEC error correction confirmation, DUT tests
- MU110013A-008 4 x 25G/28G BERT
 - This option supports BER tests for each of 4 lanes supporting the MU110013A CAUI4 interface
 - Error/Alarm insertion into each lane supports easy optical module diagnostic tests

^{*1} Operation Results: 100GBASE-SR4, 100GBASE-ER4-lite

^{*2} Enabled when setting CFP2 or QSFP28. When RS-FEC enabled, cannot select PCS Error/Alarm or PCS skew.



MT1100A



MT1000A-Transport MT1100A

[ETH] Added following settings to Stream for MonGen Application Ver. 6.00

- The following functions have been added to the MonGen Application Tx settings.
 - Burst Tx function
 - Function for specifying Tx rate as IFG (Inter-Frame Gap)

Burst Tx Setting Screen



IFG Selection Screen

Thresh
2
End:
ation:

Useful Point !

It is possible to run load tests under conditions simulating almost realistic network conditions by sending specific frames as one burst.

Back to Added Features Lists



MT1000A-Transport MT1100A

[ETH] Added following settings to Stream for BERT Application (1/3) Ver. 6.00

- The following functions have been added to the BERT Application Tx Settings.
 - Burst Tx Function
 - Function for specifying Tx rate at normal sending as Inter-Frame Gap (IFG)



IFG Selection Screen



Can set when Frame Size is Constant

- Useful Point !

It is possible to confirm the network robustness and equipment buffering function by long-term sending of the same frames.



MT1000A-Transport MT1100A [ETH] Added following settings to Stream for BERT Application (2/3) Ver. 6.00

- The following functions have been added to the BERT application Tx settings.
 - Incremental Frame length sending
 - Tx rate ramp setting in ms units



new_slide_6_00_05

Back

[ETH] Added following settings to Stream for BERT Application (3/3) Ver. 6.00

- The following functions have been added to the BERT application Tx settings.
 - Tx rate higher than 100%
 - Added Cross PRBS pattern setting to Payload patterns

	Port 1:1		Ą	pplication Selec	tor			
	Control		Line lo	ad [%], St	ream 1	×	holds	
	Profile					101.2048		
	Transmitting mode: Stream profile	Min: 0.0000			[Max: 101.2048		*
	🔵 Data	CLR	7	8	9	C	1500	
	Encoding: Number of channe	K-	4	5	6	-ж	s	
	Line load	÷	1	2	3	→		F
		Paste		0		Copy All		Ę
				Cance	1	Ok		×
(((DOBD ETH-BER	т	> SETUP	<u>TEST</u> R	ESULT	🖿 🖘 🕅 V 🖬	yy 🛃 📫 05:2	5)))

Tx Rate Setting Screen

Until now, only settings up to 100 were supported but this supports device testing with loads over 100%. The maximum value depends on the frame length and interface.

Ex: when PRBS9= 8475 9283 7659 2057 29... At 100% Frame Frame Frame Frame Payload(2) Payload(3) Payload(4) Payload(1) At Normal 8475 8475 8475 8475 Payload(1) Payload(2) Payload(3) Payload(4) At Check At 10x% Frame Frame Frame Frame 8475 9283 6759 2057 **Back to Added Features Lists** /Inritsu envision: ensure **Back to Index page** new slide 6 00 06 Back

Cross PRBS Pattern Setting Screen



Putting a check mark in [Cross pattern] links the Payload PRBS pattern across Frames.

MT1000A-Transport MT1100A

[ETH] Added function for automatically allocating IPv6 Tx source address Ver. 6.00 using RS/RA function

Evaluation of IPv6 networks requires manual setting of the Tx source ۲ address, but the IPv6 address can be obtained from the network using this function.

Port 1:1 Application Selector		Port 1:1 Application Selector	
Port Off Stream Settings Synce Off Off Off Off	OAM Filter Off	Port WAN Stream Settings Answer: None Off IEEE 1588v2 OAM	1 Filter Off
(Ĝ) ETH/IPv6 ≣▼	Link Speed: 100 Mbps		Link Speed: 100 Mbps
Dst MAC: 00-00-00-00	Ethernet	Dst MAC: 00-00-00-00 V NDP !	Ethernet
Src MAC: 00-00-00-00	Traffic O MPLS frame	Src MAC: 00-00-00-00-00 O Default	Traffic MPLS frame
IPv6 Dst IP: 0000.0000.0000.0000.0000.0000.0000	O MPLS-TP frame O VLAN frame SyncE	PV6	MPLS-TP frame VLAN frame
Src IP: 0000:0000:0000:0000:0000:0000 Manual	IEEE 1588v2	Src IP: 00D8:0059:0185:0887:0080:0000:00005 Stateless	IEEE 1588v2
Payload pattern Manual	OH Capture	Payload pattern	OH Capture
PRBS31 Stateless		PRBS31	OAM X
Cross pattern	Frame Capture Transceiver	Cross pattern	Frame Capture Transceiver
🔣 🚥 eth-bert 🛛 🥪 <u>SETUP</u> test result 🔐 😁 💎	1 V 📑 🔊 🐺 🗤 05 32	🔣 🔤 ETH-BERT 🥪 <u>SETUP</u> TEST RESULT 📋 😅 🛜 🛚 🗸	/ 📧 🔊 🖳 📦 05:41 💚

Useful Point !

Automatic IPv6 address capture not only shortens the setting time but also reduces operation errors and greatly reduces network evaluation times.



MT1000A-Transport MT1100A [Framework] Added One-Button Test Mode

Ver. 5.04

Network Master have the One-Button Test Mode by creating a settings file for each manual procedure enables field technicians to run tests and complete pass/fail evaluations with a single click.

- For the image, 3 manuals are inserted for the NWM's icons.





Save predefined test sequence in tester first for field technician to execute on-site with one click

Useful Point !

Simplifies multiple testing work, shortens on-site test time, and eliminates human operation errors. Supports simultaneous multiple tests.

Download free editing software to create scenarios without need for programing skills.



[Framework] Added to fiberscope with 60 degrees tip

• Release Fiberscope G0306B supporting tip angle of 60 degrees for use with MT1000A/MT1100A. Combination with separately sold H0380A supports fiber-end-face checks of rack-mounted switches.

MT1000A MT1100A

Back to Added Features Lists

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Usage Examples:



[ETH] Added auto MAC address resolution function when a generating IPv6 Stream (NDP NS/NA) Ver. 5.01

 Added function for analyzing MAC address from destination IPv6 address set in IPv6 stream. In addition, added function for answering when MT1000A/MT1100A connected to IPv6 network receives NDP request from DUT.

PO	ort 1	Applicatio	n Selector					Port 1		Applicatio	n Selector			(
Port	Stream Settings Answer: None	SyncE Off	EEE 1588v2 Off	OAM Off	Filter Off		Port	Stream	Settings Answer: Ping	SyncE Off	IEEE 1588v2 Off	OAM Off	Filter	
	ETH/0Pv6	*		sp	Link eed:					<u>~</u>		~	Link Speed:	
MAC			·	Du	plex:	NUA	Inco	ning Frames Rev	ceiver Setup Misc	ellaneous			Duplex:	N/A
Dst MAC	00-00-00	0-00-00	(NS/NA)	9	iernet	N/A 😮		_	_				Ethernet	N/A 🕐
Src MAC:	00-00-00	0-00-00	Default		Traffic MBLS frame			Respond to PAU	JSE frame	Answ	er incoming ARP re	quests	Traffic MRLS frame	
IPv6					MPLS-TP fram	10		,		0	,		MPLS frame MPLS-TP fram	
Ost IP:	0000:0000	0000-0000-0000-0000-0000-0000				VLAN frame Answer incoming Ping requests							VLAN frame	- 1
Src IP:	0000-0000	0000-0000-0000-0000-0000-0000-0000			ETE 1588v2							IEEE 1588v2	- 5	
Pavload pattern					OH Captore Answer incoming NDP(NS) requests								OH Capture	
PRBS23				•	GAM	×							0.AM	
					Frame Capture	e 👘							Frame Capture	
					Transceiver								Transceiver	
II 💮 E7	TH-Ping 😪 S	SETUP TES	T RESULT 🔐	🖸 🕈 🖻 V 💽	9 5 4 4	18 05		ETH-Ping	~	SETUP TES	T RESULT	i 🖸 🖘 🖻 \	/ 💽 yy 🚇 🐗 10	6 23 III

- <u>Useful Point !</u>

At tests using IPv6, the test set-up time is shortened because the DUT MAC address can captured automatically. Moreover, the risk of operation errors is reduced and the test time is shortened when testing multiple DUTs, because there is no need to set each address.

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[ETH] Added possibility to ignore Frame loss seconds count by Ethernet BERT application Ver. 5.01

 Added setting to prevent display of Frame Loss Seconds count by Ethernet BERT application.





MT1000A-Transport MT1100A

[OTN] Added LOS insertion function

Ver. 5.01

• Added function to OTN BERT application for inserting LOS Alarm OTN.



- <u>Useful Point !</u>

In addition to inserting the conventional OOF/LOF, the ability to freely insert the LOS alarm supports pre-confirmation of the test device, helping improve network quality and pre-troubleshooting confirmation.





MT1000A-Transport MT1100A [SDH] Added possibility to disable the display of Pointer Movement measurements Ver. 5.01

Added function to SDH/PDH BERT application for enabling/disabling Pointer • Monitor screen. 結果ファイルブラウ1



screen is ON.

can be 5 to 6 times longer than when the Monitor



[ETH] IEEE1588v2 Time Error Measurement function Ver. 5.00

- Added SyncTesta application for measuring Time Error to evaluate PTP network time synchronization quality
- Measures Max|TE|, cTE, and dTE to perform network Pass/Fail test



Max|TE| Measurement Screen

Requires following option and module for Time Error measurement:

MT1000A-005 Aux IO MU100090A High-Accuracy GPS Synchronization Oscillator



MU100090A High-Accuracy GPS Synchronization Tester

Useful Point !

Measures time synchronization error with high-accuracy to configure mobile backhaul by evaluating 'time sync' in ns units



MT1000A-Transport MT1100A [ETH] Added ITU-T8275.1 profile for IEEE1588 functions Ver. 5.00

- IEEE v1588v2 Protocol Emulation Functions supported by ITU-T G.8275.1 profile
- Easy parameter setting using User define profile (set domain to any of 0 to 255)

Port 1	Appli	cation Selector								
Port WAN	Stream Settings Answer: Arp, Pin	g SyncE IEEE 1588v2 Off Unicast	OAM Filter Off							
Enable IEEE 1588v	2 🖌 Ext. log	Capture	Speed: N/A							
Setup Clock Timing			Ethernet N/A							
	ETH/IPv4/UDP	•	Traffic 2							
Profile:	G.8265.1	Slave mod	de MPLS-TP frame							
IEEE 1588v2 domain:	User Defined	Unicast	Llooful Doint L							
	G.8265.1									
Step mode:	G.8275.1	Unicast ne	In addition, supports ITU-T G.8275.1 profiles for evaluating most mobile operator networks							
Delay mech.:	Delay request/response									
			Protocol emulation function supports both server and							
			alignts for developing and evoluating network							
	CETUD									
ETH-BERT	SETUP	TEST RESULI	equipment							

MT1000A-Transport MT1100A [CPRI] Added APS measurement function to BERT application Ver. 5.00

Added APS measurement function to CPRI BERT application



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MT1100A [Framework] Expanded MDIO Analysis functions for CFP/CFP2/CFP4 Ver. 5.00

Added functions for manual control of optical module hard pins and for dumping internal register data to MDIO Analysis function for displaying CFP/CFP2/CFP4 optical module data and confirming faults.

	mbro ana	.,		
NVR1 NVR2 Module FAWS	NW Lane FAWS CTRL MDIO Rea	ad/Write		
nitialize		Status		
Initialize		Global alarm	•	
Pin contorol		Status	Ready state	
PRG_CNTL1: High	MOD_LOPWR: Low			
PRG_CNTL2: High	MOD_RSTn: High			
PRG_CNTL3: High	TX_DIS: Low			
	Vcc: ON			
FIFO contorol				
TX FIFO Reset	TX FIFO AutoReset			
RX FIFO Reset	RX FIFO AutoReset			
Loopback control				
Host lane loopback	Network lane loopback			Update
				Class

			M	DIO ana	lysis				?
VR1 NVR2	Module FAWS	NW Lan	e FAWS CTR	MDIO Rea	ad/Write				
ingle Read /	Write								
Address	Value								
0000h	0000h		Read	Write					
urst Read									
Address	Length								
8000h	256		Read					Expo	rt
	+ 0	+ 1	+ 2	+ 3	+ 4	+ 5	+ 6	+ 7	
8000h	0011	00E4	0007	0001	0000	0000	0000	0008	
	0018	0044	0011	008C	008C	A000	0000	0000	
	0001	0004	00CA	0045	0000	0087	0000	0064	
	0021	0044	0040	004E	0010	003C	0064	0046	
	OOFB	0046	0055	004A	0049	0054	0053	0055	
	0020	0020	0020	0020	0020	0020	0020	0020	
	0020	0000	0000	000E	0046	0049	004D	0033	-
									-

- Applications
 - Forced reset and initialization tolerance test
 - Confirmation of hardware pin status operation User can analyze whether start sequence completed or faulty, and sequence transitions
 - Fault troubleshooting using CFP initialization and internal **FIFO** reset
- Extended Functions
 - Initialization of CFP/CFP2/CFP4 module (restart start sequence) Control of hardware pins Reset internal FIFO
- Applications
 - Test CFP/CFP2/CFP4 internal register access
 - Compare internal register status and basic settings User can find unintended settings, status, and operations •
- Extended Functions
 - Displays burst register read/write and results Reads up to 1024 registers

 - (about same size as one internal register group, such as
 - NVR1, defined by MSA) Sets read start address
 - Outputs read results in csv file format





MT1000A-Transport

[OTN] Added OTN mappings for packet based client signal (1/5) Ver. 5.00

 Added Packet-Based Client Signals to OTN Mappings 10GbE (via GFP-F)

New Function

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new_slide_5_00_05

Anritsu envision : ensure

[OTN] Added OTN mappings for packet based client signal (2/5) Ver. 5.00

 Added Packet-Based Client Signals to OTN Mappings 10GbE (via GFP-F)



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new_slide_5_00_06

[OTN] Added OTN mappings for packet based client signal (3/5) Ver. 5.00

- Added Packet-Based Client Signals to OTN Mappings 10GbE (via GFP-F)
 - OTU2 (MU110011)



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Supported at one port usage

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MU110011A/12A-062 ODU Flex

MT1100A [OTN] Added OTN mappings for packet based client signal (4/5) Ver. 5.00

- Added packet-based Client signals to OTN mappings. 10GbE OTU3 (via GFP-F)
 - OTU3 (MU110011A/12A)

MU110011A/12A-055/056 OTN 100G Single/Dual Channel

MU110011A/12A-003/001 Up to 10G Single/Dual Channel MU110011A/12A-005/004 Up to 10G FC Single/Dual Channel

MU110012A-071/072 CPRI Up to 10G Single/Dual Channel MU110011A/12A-015/016 Ethernet 100G Single/Dual Channel

MU110011A/12A-013/014 Ethernet 40G Single/Dual Channel

MU110011A/12A-083/084 STM-256 OC-768 Single/Dual Channel

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MU110011A-071/072 CPRI/OBSAI Up to 10G Single/Dual Channel

MU110011A/12A-063 40/100G ODU Multistage





MT1100A [OTN] Added OTN mappings for packet based client signal (5/5) Ver. 5.00

Added packet-based Client signals to OTN mappings. MPLS, IPv4/v6 PDU, FC1200, and 10GbE (via GFP-F)

> - OTU4 (MU110011A/12A)

Supported at one port usage

/Inritsu

MU110011A/12A-062 ODU Flex

MU110011A/12A-063 40/100G ODU Multistage

MU110012A-071/072 CPRI Up to 10G Single/Dual Channel

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new_slide_5_00_09

New Function MT1000A-Transport MT1100A [OTN][SDH] Added BERT/APS/RTD switch mode to BERT application Ver. 5.00

 Added measurement mode switching to OTN and SDH/SONET/DSn/PDH BERT applications and upgraded to switch without closing BERT, APS and RTD applications to improve operation efficiency.



new_slide_5_00_10

MT1000A-Transport MT1100A [OTN][SDH] Added SDH Transparent mapping for SDH over OTN start

Ver. 5.00

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Upgraded Client signal selection method used for ATN mappings at SDH-OTN-BERT application, and enabled Client SDH and Client PRBS signal switching without closing applications to improve operation efficiency.



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Add New OTDR Module (1/3)

Ver. 4.00

OTDR Application



Easily generated graphical summary and PDF reports





MT1000A-OTDR

Add New OTDR Module (2/3)

Ver. 4.00

FTTA (Fiber To The Antenna) Application



		Application Selector							
Port	Measurement	IOR/BSC Header	Preferences1/2	Preferences2/2	AUTO JIST LINK Flor Veralise	Result File Broaser		Result File Browser	
Wavelength		1310nm			ML 1300 WH 59 (00, 3.5) Mart Ju		0 30 Sec. Weaseneyt 1830 km ents: 6	 € 4.133 € 4.133 4.1333 4.133 4.133 4.133<	- 1 100 Uncertained and a constant of the second se
_131 <u>0+</u> 1550nm				$\langle \rangle$	<	Her Det	(km)		
Distance Range	2.5km	Resolution	Medium	▼ 🍹	Washingth (mil)	Refect 17.7	() () () () () () () () () () () () () (
Pulse Width	3ns	Average Time	30s		Total Loss (dB) 1 OHL (dB) 31	729 S FAIL		A :0.6000 km 0 :1.1052 km A :0 :1.2052 km Refl ==	A SM 108.1467700 Pakk Cald X RES :0.102 m AVG 12298 Of
		,			ing by constra	SETUP TEST RESULT Y		STUP TEST RESULT	
		Distance Rar	ige	2.5km		Resoluti	on	Medium	
		Pulse Width		3ns	- I	Average	e Time	30s	\
		×							'
📗 🔃 Opt-FT	TA <u>S</u>	ETUP TEST RESULT	🗃 🤿 🕅 V 💽	🔊 🛃 動 20:08					

Hint !

Reflections when measuring a short fiber can destabilize the Auto Setting conditions. The FTTA application sets short fiber distances (500 m

or less) to always measure under the same conditions.

The FTTA test mode uses fixed test parameters.

Distance Range: 2.5 km Pulse Width: 3 ns





Add New OTDR Module (3/3)

MT1000A-OTDR

Ver. 4.00

		Application Selector				I				
ight Source	s Test Set		Loss lable					Application Sele	ctor	
avelength	1550nm					Loss Tes	t Set	The second se	Loss Table	
dulation	CW		1	_Ligh	t Source					
ver Meter				Wav	elength	1	550nm			Add
velength	1550nm	Power		Mod	lulation	C	W			
rage	10 Times	-8.8	88 dBm	_Pow	er Meter					Overwrite
Reference	-5.09 dBm	Loss		Wav	elength	1	550nm	Loss		
Threshold	2.00 dB	2	79 dB	Mod	lulation	C	W		0.01 dB	Delete
Julation	CW		79 UD	Refe	rence	- 5	6.09 dBm			
				No	WL		Power	Pass/Fail	Comment	Delete All
+ (•) +	* (•)+	Θ	0	001	1550nm	0.31dB	-5.40dB	Pass		
VFL	ОРМ	ММ	SM	002	1550nm	0.76dB	-5.85dB	Pass		Comment
🚺 Opt-OLTS	*	OLTS	🛗 🗃 🔊 🕅 🗸 🖬	003	1550nm	4.48dB	-9.57dB	Fail		1/51
	-M-			004	1550nm	1.61dB	-6.70dB	Pass		Off

Loss can be measured as a basic physical layer test using the light source and power meter.

One MU100020A/21A supports both OTDR and loss measurements using the light source and optical power meter, eliminating the need to carry several measuring instruments.

The instrument can be used as an OLTS because the light source port (shared with OTDR) and power meter port are independent.

*A VFL light source is optionally available.

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Added Remote Commands and Application Parts

- Ver. 3.03
- Remote commands supporting the following functions have been added. As a result, not only are there more remotely operated functions but complex automated environments can also be configured.
 - Commands related to file operations
 - Commands related to auto-save and auto-load
 - Commands related to OTN, SDH, and PDH
- A USB–GPIB–HS adapter has been added for configuring automated environments using GPIB.
 - J1667A GPIB-USB Converter





new_slide_3_03_01

Added Function for Custom Editing of Ethernet Header Ver. 3.03

- A function has been added for free editing of the Ethernet Header in the Frame stream settings to support special protocols for R&D.
 - This function can be used with the following applications:
 - Ethernet BERT Application

	Str	eam Setup		? ×	
None	rame Content	Pauload	Varial		
Layer 3	Custom pattern:	Length 40 00 XX XX XX 00 00 0 00 00 00 00 00 00 00 00 00 00 0	Byte 00 00 00 00 00 00		
VLAN PBB MPLS-TP	File Export				
MPLS	Layer 4	Frame Content	Stream Setup	Payload	?) Variable
CUSTOM	Custoa Custoa Layer 2 SNAP LLC1	Custon pattern: File import	Length 00 XX XX XX 00 00 00 00 00 00 00 00 00 00 00 00	40 Byte 00 00 00 00 00 00 00 00 00 00 00 00 00 00	
Select Lay or Layer 3	er 2		00 00 00 00	00 00 00 00	
	ETH Custom				Close

- Edit Custom header with text editor for Save and Load
- ✓ Supports Header lengths up to 256 bytes

- The following restrictions apply:
 - "XX over OTN" not supported
 - Rx filters other than Layer 2 not supported when using Layer 3 Custom headers
 - No Rx filters supported when using Layer 2 Custom headers
 - Arp/Ping functions not supported when using Layer 2/3 Custom headers



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new_slide_3_03_02

MT1000A-Transport MT1100A Added Function for Validating PCS at 10 GbE

- A function has been added for validating PCS operation at the 10 GbE interface to support fast troubleshooting in the PCS layer.
 - Added functions
 - Error/Alarm Insertion Function
 - Error/Alarm Display/Count Save Function
 - Native 10G LAN PHY is supported



The following restrictions apply:

- Ethernet over OTN not supported
- Does not support Stimuli function Invalid alignment marker/BIP error

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Ver. 3.03



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New Function MT1000A-Transport MT1100A Added Function for continues Stream address Creation Ver. 3.03

• When generating Ethernet and IPv4/v6 test Frames, a new function has been added supporting creation of [Increment], [Decrement], and [Random] streams for the address specified location, resulting in shorter test setting times.



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MT1000A-Transport Added Null to Client Signals for OTN Mappings (1/5)

• A Null setting has been added to the Client Signal for OTN Mappings to support tests of Null setting payload types.



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new_slide_3_03_05

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Added Null to Client Signals for OTN Mappings (2/5)

A Null setting has been added to the Client Signal for OTN Mappings to support tests of Null setting payload types.



MT1100A

MT1100A Added Null to Client Signals for OTN Mappings (3/5)

A Null setting has been added to the Client Signal for OTN Mappings to support tests of Null setting payload types.



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new slide 3 03 07

Added Null to Client Signals for OTN Mappings (4/5)

• A Null setting has been added to the Client Signal for OTN Mappings to support tests of Null setting payload types.



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MT1100A



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new_slide_3_03_08

Added Null to Client Signals for OTN Mappings (5/5)

• A Null setting has been added to the Client Signal for OTN Mappings to support tests of Null setting payload types.



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new_slide_3_03_09

Enhancement

Enhanced RFC2544 GUI for Easier Access and Better Overview Ver. 3.03

- Tables now fit the screen width.
 - Users no longer need to scroll horizontally.
 - Only vertical scrolling (to see other steps) is required.



Old: Horizontal scrolling required

New: No horizontal scrolling required

 Graphs are now bar graphs with legends (where applicable), giving users a better overview of results



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new_slide_3_03_10

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MT1000A-Transport MT1100A Enhanced RFC2544/Y.1564 Reporting Provides More Information Ver. 3.03

- All tables (set-up and results) now have a different, better look with distinct header styles. /inritsu
 - Report tables are organized like the GUI with Tx row followed by Rx row, marking it easy to find faulty test areas with Frame loss.
 - New tables display per-port test results before actual results tables. Users can quickly identify combinations of frame sizes and utilizations with problems.
- Other Ethernet statistics, event logs, port settings, etc., have been reworked with a new look.





envision: ensure







new slide 3 03 11

Enhancement

- Renamed 'CFI' bit in VLAG tag to 'DEI' according to 2015 version of IEEE802.1Q.
 - Added new SCPI commands to set/query DEI value.
 - ETHernet:PORT<Pt>:STReam<St>:VLAN:LEVel<Lv>:DEI <enable>
 - ETHernet:PORT:PTP:TUNNeling:VLAN:LEVel:DEI <enable>
 - ...more...
 - For compatibility, old SCPI commands to set/query CFI persists.(It can also be used.)
 - ETHernet:PORT<Pt>:STReam<St>:VLAN:LEVel<Lv>:CFI <enable>
 - ETHernet:PORT:PTP:TUNNeling:VLAN:LEVel:CFI <enable>

	_	Stream Setup	·? >	3			7		Stream	m Setup			? X)
_Layer 4	_Frame Content				Layer 4		Frame Conten	t					
None 💌	ETH	VLAN IPv4	Payload Variable	.)	None	▼]	ETH		VLAN	IPv4	Pay	load	Variable
Layer 3					Layer 3								
IPv4					IPv4	▼]	Level count: 2	<u> </u>		_	_		
Layer 2	S-VLAN ID: 0	CFI Priority: 0 E	thertype 0x8100		Layer 2		S-VLAN ID:	0	DEI	Priority: 0	Ethertype:	0x8100	
SNAP	C-VLAN ID: 0	CFI Priority: 0 E	thertype 0x0800 (IPv4)		SNAP		C-VLAN ID:	0	DEI	Priority: 0	Ethertype:	0x0800 (IPv4)	
LLC1		_			ШСІ				_				
VLAN					VLAN								
РВВ					PBB								
MPLS-TP				3	MPLS-TP								7
MPLC					MPLS								
MIFLS				1									
				-									
Stream 1 2	3 4 5 6 7	8 9 10 11 12	13 14 15 16 Close		Stream	2	3 4 5	6 7	8	9 10 11	12 13 14	15 16	Close

DEI: Drop eligible indicator





CFI: Canonical Format Indicator

new_slide_3_03_12



MT1000A-Transport MT1100A Improved Report Layout: Better Look and Distinct Header Styles

- Ver. 3.03
- Other pages like Ethernet stats, event log and port settings have been updated to the new look.



PDF reports are	
displayed with	
the built-in PDF	
viewer	
	1





Reports from other applications have also been updated to the new look.



	Report Generator	
R	eport has been successfully genera	ated.

- Reports can be viewed in the built-in PDF viewer immediately after they are generated
 - This makes it simple and easy for the user to inspect the PDF report
- The default file save format has been changed to pdf from "xml&pdf&csv".

Back to Added Features Lists Back to Index page



Added Function for Filtering Results Display at Report Output Ver. 3.03

• A function has been added for outputting only selected required information when reporting test results. As a result, file save times are shortened and files sizes are smaller.





MT1000A-Transport MT1100A

Ver. 3.01 Unique-in-class

Added Error/Alarm Indication Summary

- Summarizes measurement results for all current test Applications (applications • using port resources) **belonging to one user –** using the Remote GUI Software up to two users can use the MT1000A; up to four users can use the MT1100A.
- Test Application Summary and Overall Test Status only updates during testing: ٠
 - Green: No trouble
 - Yellow: Errors (and no alarms) pending or occurred in past
 - Threshold violation or Alarms pending or occurred in past Red:

esult File Browse 00:01:35 Event Log Statistics Bit count Error count Ratic 190.238 G 5 26E-Pattern errors Threshold ▼ Errored frames Utilization Pattern errors Pattern 5 RBS23 Pattern Error Insertion Í -Insertion Manual Service disruption Ava Max. Burst length Disruption time Threshold ETH-BERT s тир теят <u>RESULT</u> 🔐 🖬 🛜 🛛 V 🔀 y 🖳 動 10 03

Clicking Test Applications Summary ٠ icon opens Overall Test Status Screen

Shows worst Status of all test applications



All applications are OK



One or more applications have Yellow Test Status (and no Red)



One or more applications have Red Test Status



Back to Added Features Lists



MT1000A-Transport MT1100A **Added Performance Verification Date in Test Report** Ver. 3.01

- Option to include performance verification date in reports
 - Performance verification period is user-programmable.





2015-05-26 14:11:03

Document Information

Report Name	BERT
Customer	Customer 001
Project	Testing of line 1
Operator	Operator 001
Notes	This is a sample report

Module Type	Serial no	Performance Verification Date	Performance Verification Due Date	Software Version
MT1000A	6D60000101	2014-05-06	2016-05-06	3.01
MU100010A	6D6000087	2014-05-06	2016-05-06	

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Added Spanish Support

Ver. 3.01

- Spanish is supported, simplifying usability of the MT1000A/MT1100A in native Spanish speaking counties such as Spain and Latin America.
- Now, we support six languages: English, Chinese, Russian, French, Spanish and Japanese



Back

Added Storage Formatting Function

Ver. 3.01

- We support for erasing of all writable partitions on the MT1000A/MT1100A.
- Companies with strict security policies often prevent removal of data from the site. This function will simplify processes for workers at these companies.





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Added Settings Editor and Result Viewer to MT1000A-Transport MT1100A MX100001A (Windows application) Ver. 3.01

- Remote GUI can run as 'Standalone' viewer
- Users can:
 - Generate reports
 - Analyze results offline
 - Create setup files for deployment



Stand-alone application No connection to MT1000A/MT1100A needed

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new slide 3 01 05

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MT1000A-Transport MT1100A

Added Function for Responding to ARP/PING Request and Setting Reflector MAC/IP Address to Reflector Application

- Settings for answering ARP/PING requests and setting the reflector MAC/IP address have been added to the Ethernet Reflector application.
- The reflector can now work across Layer 3 of different domains.





MT1000A-Transport MT1100A

Added Client Signal Frequency Results

- A client frequency counter has been added to the OTN Client result screen
 - Supports detailed analysis for OTN Clients

		Result File Browser		
2015-06-02 10:46:	57	00:00:18		
Summary			Event Log Stati	stics 📕 🔲
Total 2015-06-02	OTN - Alarms/Errors		SI prefix	38
10:46:57	Client			4
Back 2015-06-02 10:47:02			Port 1	
2015-06-02	Client alarms Cou	unt	Ratio	2
10:47:07	CI-AIS		0	0.00
2015-06-02 10:47:12	CSF		0	0.00
	Client frequency Cou	unt		1 I
-	Client Frequency		1 171	873 408.0
Current	Client Deviation			-1.4
2015-06-02 10:47:14				
				4. 40:47
		SETUP TEST RESULT	- 🎦 🖓 V 🛃 🕅 🦉	») 10:47



Added Pattern Bit Error Trigger and LOS Trigger to APS Application

- The APS application trigger events have been expanded.
 - Flexible APS measurement
 - Added following triggers:
 - Pattern errors
 - LOS

Port 1	Application Select	or	
	Threshold		
Measurement Condition			
Start Trigger:	LOS		\bigcirc
Stop Trigger:	ODU-OCI		2
Error Free Period:	ODU-LCK		
_ Threshold	PM-BDI		
Threshold	MFAS	ms	∎ f
	SM-BIP8		
	SM-BEI		
	PM-BIP8		×
(<u> </u>
	Pattern errors		
OTN-APS	<u> </u>	💶 🕂 🗗 V 💽 y 🛃 🐠 10	: 49







MT1000A-Transport MT1100A

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Added "LOS" as a Ethernet Service Disruption test type for optical interface Ver. 3.01

- In Ethernet / BERT application, "LOS" can be selected as a Ethernet Service Disruption test type for optical interface other than "Packet".
 - Instantaneous loss of signal can be tested and analyzed as service disruption.
 - Failures at fiber deployment or early stage of optical modules' trouble can be picked out easily with this analysis.

Port 1:1 Appl Control Generator	cation Selector	Optical fiber deployment failure	v stage of optical ule's trouble
Stream profile Data Video Voice Encoding: SDTV (MPEG2) Number of channels: 1 Line load Constant Ramp 100.0000 9 Frame size Constant Start: 64 End: 64 Step: 64 Duration: 1	Stream Measurement	Image: second secon	

MT1000A-Transport MT1100A

CPRI Application (Up to 10 Gbps)

- CPRI/OBSAI support: CPRI Option 1 (614 Mbps) to CPRI Option 8 (10.1376 ۲ Gbps)
 - Supports CPRI speed increases to support rising mobile network bandwidth
- BER, Roundtrip delay test ۲
- BBU, RRH emulation, Pass-through
 - Supports various tests, such as optical fiber, BBU, RRH, pass- through monitoring, by inserting MT1000A/MT1100A between BBU/RRH
- Displays signal level and ۰ bit rate
 - Intuitive RX status displays
 - CPRI over OTN

			OBSAI	
Option	Bit Rate (Gbps)	Line code	Bit Rate (Gbps)	Line code
1	0.6144	8B/10B	0.768	8B/10B
2	1.2288	8B/10B	1.536	8B/10B
3	2.4576	8B/10B	3.072	8B/10B
4	3.0720	8B/10B	6.144	8B/10B
5	4.9152	8B/10B		
6	6.1440	8B/10B		
7	9.8304	8B/10B		
8	10.1376	64B/66B		



MT1000A-Transport MT1100A

RFC6349 Application (Up to 10 Gbps)

- Supports TCP throughput optimization by performing RFC 6349-based test instead of RFC 2544 or ITU-T Y.1564.
- The bi-directional RFC 6349 test emulates realistic TCP connections.




Enhancement

OTU3/4 3 Stage Mapping

MT1100A

Ver. 3.00

 Multi-stage mapping for OTU3/4 has been added, reflecting customers' requests to enhance <u>OTN mapping</u>.







Enhancement

MT1000A-Transport MT1100A

OTN BMP Mapping For SDH/SONET Clients

Ver. 3.00

BMP mapping for SDH/SONET clients has been added, • reflecting customers' requests to enhance OTN mapping.



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GUI Remote Control Software for PCs

Ver. 3.00

MX100001A MT1000A/MT1100A Control Software

- Using this software, multiple users can access each MT1000A/MT1100A port independently for efficient R&D and manufacturing.
- Long-term remote monitoring and operational controls, including booting, operations, file transfers, and firmware updates, are supported.



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new slide 3 00 05

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Added Event Logging Function

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- Errors and alarms at long-term testing are displayed.
- Statistics can be checked without opening every window.
- Logs can be saved as CSV and PDF reports.

						Result File Browser		
2015	-03	-28 07:34:03				00:05:48		
Sum	mar	у 				Event Log	Statistics 📕	
		Filter				View: All ports	CSV export	2
No).	Time	Port	Туре	Src.	Description	Dur./Count 🔺 🗕	-
	32	2015-03-28 07:37:06	1		ETH	Link	00:00:09	\bigcirc
		2015-03-28 07:37:06	1	•	ETH	Invalid blocks	14	0
		2015-03-28 07:37:07	1	•	ETH	Frame Loss Secs.	00:00:09	
		2015-03-28 07:37:15	1	•	ETH	Seq. Sync. Lost	00:00:01	¥
		2015-03-28 07:37:15	1	•	ETH	Pattern Errors	311	~4
		2015-03-28 07:37:15	1	•	ETH	Invalid blocks	2.451 k	ľ
		2015-03-28 07:37:15	1	•	ETH	Preamble violations	260	V
		2015-03-28 07:37:15	1	•	ETH	Rx FCS Errored Frame	634 📐	^
		2015-03-28 07:37:15	1	•	ETH	Fragmented	82 🔻	
		ETH-BERT			SETU	р теят <u>RESULT</u> 🔐 🗖 🖘 🛚 V	/ 💽 🔉 🕂 🌒 07:39	



Ver. 3.00

Added VIP Application

- **VIP: Video Inspection Probe**
 - Microscope for optical fibers and modules endface
 - Test based on IEC61300-3-35 standard
 - Prevents degraded optical signals due to scratches and dirt on endface
- Prevents dirt or scratches causing: \bullet
 - High reflection
 - High insertion loss
- VIP Model No: G0306A

















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MDIO Analysis

MT1100A

Ver. 3.00

- CFP transceivers can be analyzed by the connected MT1100A + MU110011A using direct access to internal MDIO registers.
- Existing functions, such as transceiver information display (vendor data, optical wavelength, bit rate, alarms), optical power on/off, optical power monitoring for each lane, are also useful.



	Lane 1				
Network Lane n Fault and Status	Oh	Oh	Oh	Oh	
	0	0	0	0	
	0	0	0	0	
	0	0	0	0	
	0	0	0	0	
	0	0	0	0	
	0	0	0	0	
	0	0	0	0	
	0	0	0	0	
	48.278	45.202	46.886	40.512	
	0.014	-0.248	-0.066	0.210	
	50.207	53.480	53.738	50.176	T





CSV Format Test Results

Ver. 3.00

- Test results can be saved in CSV file format supported by popular spreadsheet applications.
- Results can be analyzed easily using Excel or text editors.







G0306A Video Inspection Probe

G0306A VIP (Video Inspection Probe)

endface using the VIP application.

This probe connects to the MT1000A/MT1100A

USB port to analyze the fiber or optical device

MT1000A MT1100A







Itom	Product Number	Product Name
nem	FIGUUCI Number	
Probe	G0306A	400x Video Inspection Probe
Standard Accessory		Operation manual (Printed) Soft Bag Seven Connector Tips - 1.25 mm PC Male - 2.5 mm PC Male - 2.5 mm APC Male - 1.25 mm PC Female (LC) - 2.5 mm PC Female (FC) - 2.5 mm PC Female (SC) - 2.5 mm APC Female (SC)



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J1665A CFP2-CFP4 Adapter

• J1665A CFP2-CFP4 Adapter

The MT1100A supports the latest CFP4 optical modules by inserting this adapter into the MU110012A CFP 2 slot.





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new_slide_3_00_11



MT1100A: 10 Lane Extender

MZ1223C 10 Lane Extender

This attachment for the MU110011A CFP connector takes electrical input/output signals from the CFP using the J1502A SMP-SMA cable or J1540A SMP-GPPO cable. There is no dependency on the software version.



Application

The extender is used to evaluate devices, such as optical transceivers, framer ICs, and network equipment electrical interfaces.





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new slide 2 04 01





MT1100A: Rack Mount Kit

• B0705A Rack Mount Kit

There is no dependency on the software version.



• Application

The kit mounts the MT1100A in a test system for R&D into 400G or manufacturing 40G/100G network equipment.



MT1000A-Transport MT1100A

Added GUI Launch Command

Ver. 2.04

- The new "INSTrument:STARt:GUI" command has been added to debug the MT1000A/MT1100A script program.
- After adding this command, the MT1000A/MT1100A GUI follows the script, so operators can confirm the correct configuration.
- After debugging, the command can be removed to run the program faster.

With "INSTrument:STARt:GUI" GUI follows script to debug program.



|--|





Added Function to Switch Control between GUI and Remote

- A breakpoint can be set in the script program.
- The new SYSTem:LOCal:CONTrol command has been added. It can be inserted in the program for manual operation of the GUI after that breakpoint.
 - Unfinished part of program can be operated manually.
 - Detailed configuration before the breakpoint can be checked manually by the operator.







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MT1000A-Transport MT1100A

Added PRBS31 E3 Test Pattern

- PRBS31 has been added as an E3 test pattern type.
- PRBS31 is the longest pseudorandom string commonly used by testing. It supports testing of networks with very low error-insertion rates.

Ро	rt 1	Application Selector		Supported E3 tests
Tx +		E3	Follows None V	Off
PCM frame:	Off On		Transmission On On Deviation Oppm	User (32 bits, 2048 bits)
Pattern type:	PRBS 31 Off User [32] bit		E3	PRBS (9,11,15,20,23,31)
User pattern:	User [2048] bit PRBS 9 PRBS 11		No frame	FOX, FOX (CMA 3000)
	PRBS 15 PRBS 20 PRBS 23		×	All 0s, All 1s
l 💼 sc	PRBS 31 Fox Pattern	TEST RESULT	🔐 🖙 🛛 V 💌 🔉 🕪 18 00	Alternating (1.1 1.3 1.7 3.24)



[OTN] New Error Addition/Detection



Ver. 2.03

• We have implemented new error addition/detection functions for OTU3/4 OTL (Optical channel Transport Lane).

Added Errors	Description
LLM-OTL	Logical Lane Marker (6 th FAS byte for OTU4 frame) Error The Lane number for error insertion can be selected.
MFAS-OTL	MFAS byte Error The Lane number for error insertion can be selected.





MT1100A Overview

MT1100A

Ver. 2.01

The MT1100A Network Master Flex is a costeffective, easy-to-use, full-function, multi-protocol transport tester. It is the ideal all-in-one platform for R&D and manufacturing tests as well as network I&M and troubleshooting tests at bit rates up to 100 Gbps. The easily expandable MT1100A platform offers a cost-effective upgrade path scalable to network conditions.

- All-in-one Transport Tester
 - Supports testing from 1.5 Mbps to 100 Gbps
 - Support for various transport commissioning tests
- Supports Up to 400 Gbps (100G \times 4)
 - Install any two modules from choice of three module options
 - Test up to four independent 100 Gbps ports simultaneously to increase manufacturing efficiency for 100 Gbps transport equipment
 - Support 400 Gbps (100G × 4) R&D by simulating client signals



- OTN Flexible Mapping
 - Various OTN mappings up to 100 Gbps
 - Supports both multi-stage mappings and ODUex
 - Supports mapped client-signal tests

• 10G Multirate Module MU110010A Up to 2 ports: 1.5 Mbps to 10 Gbps (SFP/SFP+, RJ45, BNC, RJ48, Bantam)

• 100G Multirate Module MU110011A Single port: 40 Gbps (CFP) or 100 Gbps (CFP) Up to 2 ports: 10 Mbps to 40 Gbps (QSFP+, SFP/SFP+, RJ45)

• 40/100G Module CFP2 MU110012A Up to 2 ports: 40 Gbps to 100 Gbps (CFP2, CXP, QSFP+)

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Fibre Channel Applications (1/3)

- Powerful testing of fibre channel links
 - Technology
 - Networks with managed log-in requirements and throughput per connection are supported for greater security and controlled throughput.
 - 1 GFC, 2 GFC, 4 GFC, 8 GFC and 10 GFC tests
 - Optional mapping to OTN
 - Latency measurement
 - BER tests, including service disruption measurement
 - Line alarms and error monitoring



MT1000A-Transport MT1100A

Fibre Channel Applications (2/3)

- Color indications give an easy overview of GO/NO-GO results on Fibre Channel links.
- Powerful Fibre Channel statistics include latency, packet jitter and service disruption information.
 - Optional threshold settings for easy understanding of results

2014-10-02 14:18:22 00:00:12 2014-10-03 07:45:36 00:00:49		-
Summary	stics 📕	
BER Bit count Error count Rate		8
Pattern errors 88962404480 1 112E-11 Port 1 Port 1		Ľ
Threshold: 2 2014-10-03 074542 Min. Max. Avg.		
Utilization V Pattern errors Errored frames 2014-10-03 Latency(us) 0.0 us 0.0 us	0.0 us	?
		_
(120 0 0) (1014 10 10 0) (10 0 0) Pattern 00 0) Pattern 07.45.52 Min. Max. Avg.		5
2014-10-03 07.45.57	0.0 us	r st
Insertion: Manual V 2014-10-03 07:46:02 Service Discuption Seconds Count		
Service disruption Avg. Max.		X
Disruption line N/A O.0 us Discretigue 1 2014.10-03 2014.10-03 07.46.25 Avg. disruption N/A	0 🔻	
	07 46	





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MT1000A-Transport MT1100A

Fibre Channel Applications (3/3)

Ver. 2.01

- Point-to-point and Fabric topology
- Latency, packet jitter and service disruption measurements can be enabled.





new_slide_2_01_04

IP Channel Stats (1/5)

Up to 10 Gig

Ver. 2.01

- IP Channel Stats
 - Technology
 - Dividing network traffic into manageable and viewable traffic streams combined with filtering allows the user to see the root cause of an issue without reading millions of frames (WireShark[™] style).
 - Provides statistical view of network traffic rather than line-byline view of network, allowing fast fault finding.
 - Identified problems can be analyzed further with WireShark[™]

new slide 2 01 05



IP Channel Stats (2/5)

IP Channel Stats

New Function

- Typical root causes of network issues
 - Top talker
 - Top talker occupies major part of the bandwidth, slowing network down.
 - Network attack
 - One node is accessed from many sites, occupying the network.
 - Error frames
 - Error frames cause re-transmissions and waste network capacity.











Up to 10 Gig





IP Channel Stats (3/5)

- IP Channel Stats
 - Finding top talkers, network attacks and error frames quickly decreases downtime and recovers network performance
 - IP Channel Stats finds talkers, network attacks and error frames just by selecting filters.
 - Field technicians can analyze the network easily without training.

Analysis	IP Channel Stats Filter
Top talkers	Source IP address
Network attacks	Destination IP address
Error frames	(any parameter is OK)





Up to 10 Gig

- IP Channel Stats
 - Full range of filters
 - IPv4, IPv6 or MAC address, VLAN ID or MPLS label, IP next header (protocol), TCP/UDP ports
 - Monitor values
 - Frame counts/rates, throughput, error frames, size distribution, IPv4/IPv6 statistics, TCP/UDP statistics, etc.
 - Other IP Channel Stats functions
 - VLAN scan
 - Monitors throughput per VLAN ID, when using VLAN ID as filter



IP Channel Stats (5/5)

MT1000A-Transport MT1100A

Up to 10 Gig

- Channel definitions and displayed columns configured at Setup screen
- Result screen
 - Easy to switch between results from two ports







Ethernet Frame Capture (1/2)

- Ethernet Frame Capture
 - Technology
 - Capture all frames on network at full line rate for analysis using WireShark[™], etc.
 - Built-in WireShark[™]



Ethernet Frame Capture (2/2)

- Protocol analysis
 - For advanced Ethernet troubleshooting
 - Captures frames on live monitored line
 - Captured frames analyzed using Wireshark[™] software

F	ort 1		Applicatio	on Selector							Application	Selector	J		
Port +	Streams Sett Answe	tings er: Arp	SyncE Off	IEEE 1588v2 Unicast	OAM Off	Filter Off		File Edit	View Go Capture Ana a display filter <ctrl-></ctrl->	lyze <u>S</u> tatistics	Telephony Help	Dratacal	Length	→	-
Capture Setup Frame slicing: Whole frame Buffer handling: Stop when fr Buffer size: 1MB Capture transmitted fram Frame Field Trigger Definition		Trigger Setup Trigger: Trigger position: Fror Type:		Manual Top Any Type	Manual V Top V Any Type V	Link Speed: 1 Gbps Duplex: FDX Traffic MPLS frame MPLS-TP frame VLAN frame Synce Hermonia	no. ↓ ⊕- Frame 2 ⊕- Etherne ⊕- Internet	No. ▼ Time Source Destin 17 09:03:02:20127. 0:0.0 0.0.0 0.00.0 19:09:03:03:22137. 0:0.0 0.0.0 0.0.0 20:09:03:03:20137. 0:0.0 0.0.0 0.0.0 20:09:03:04:20137. 0:0.0 0.0.0 0.0.0 21:09:03:04:22137. 0:0.0 0.0.0 0.0.0 22:09:03:04:22140. 0:0.0 0.0.0 0.0.0 23:09:03:05:23145. 0:0.0 0.0.0 0.0.0 24:09:03:05:271445. 0:0.0 0.0.0 0.0.0 26:09:03:05:271541. 0:0.0 0.0.0 0.0.0 26:09:03:05:271541. 0:0.0 0.0.0 0.0.0 26:09:03:05:271561. 0:0.0 0:0.0 0.0.0 26:09:03:07:21561. 0:0.0 0:0.0 0:0.0 26:09:03:07:21561. 0:0.0 0:0.0 0:0.0 30:09:03:07:21561. 0:0.0 0:0.0 0:0.0 30:09:03:07:00:00:00:00:00:00:00:00:00:00:00:00:			Protocol Length Info PFIP-2 100 Delay, Resp PFIP-2 90 Sync Mexa PFIP-2 100 Delay, Resp OLO000000.00.00.00.00.00.00.00.00.00.00.00		Inno Inno 100 Delay, Resp. Message 100 Syric, Nessage 100 Delay, Resp. Message 100 Delay, R		
Preamble 00 FCS Buffer Usage(1,024 kByte) : 0 % 5ave View Start Save View ETH-Mon./Gen. SETUP TEST RESULT					OH Capture OAM Frame Capture Transceiver	×	())- 03er Da ())- Precision 0020 00 00 0030 040 00 0040 00 0050 3e cc 0060 00 0 ())	agram Protocol, Src Mort: 3 Time Protocol (IEE1588) c 01 d9 40 00 20 11 58 b6 10 01 40 01 40 00 48 ee 5 0 00 20 00 00 00 00 00 00 00 fe 00 01 00 00 00 00 00 00 fe 00 01 00 00 00 00 00 of ffe 00 01 00 00 00 at Wireshark	20 (320), Dat Por 0 00 00 00 00 00 0 00 00 00 00 00 0 5 01 00 00 54 f 32 58 24 ff 00 0 47 ea 14 12	0 00 .\.@X 00@.@.H@ 00 00 00 32T2 >.B#2X1. G		it D ?	8 V 🌁 🔊 🕪 09	07	





Ethernet 10G WAN-PHY

- Ethernet 10G WAN-PHY
 - Technology
 - Supported interfaces
 - 10 Gbps Ethernet interface (as per standards)
 - Supports viewing of 10 Gbps WAN-Phy frames including OH and internal terminology (standard SDH/SONET terminology)
 - Generates and measures standard WAN-Phy frames and alarms/errors



MT1000A-Transport MT1100A

Ver. 2.01

Ethernet 10G WAN-PHY Background

- 10G WAN-PHY
 - Mapping Ethernet frames to SONET/SDH



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MT1000A-Transport MT1100A Ethernet 10G WAN-PHY function (1/2)

- WAN Results
 - Bi-directional OH byte capture (requires dual-port version)
 - Error and alarm statistics on WAN part of signal with Ethernet BERT application





Ethernet 10G WAN-PHY function (2/2) Ver. 2.01

- WAN OH byte generation
 - User programming of transmitted OH bytes
 - SDH or SONET terminology





MT1000A-Transport

New OTN Mappings (1/6)

Ver. 2.01



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MT1000A-Transport

New OTN Mappings (2/6)

Ver. 2.01

OTN Mappings—Continued





New Function New OTN Mappings (3/6)

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Ver. 2.01

MT1100A





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New OTN Mappings (4/6)

Ver. 2.01

MT1100A



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MT1100A

New OTN Mappings (5/6)

Ver. 2.01

PRBS

FC-400/ FC-800

MAC/IP

PRBS

STM-256 OC-768

40 GigE

PRBS

STM-64 OC-192

PRBS

STM-16

OC-48

FC-200

PRBS

GigE

/OC-12/OC-3

FC-100

PRBS

10 Gigl

PRBS

10 GiaE



MU110011A/12A-053/054 OTN 40G Single/Dual Channel

MU110011A/12A-061 ODU Multiplexing

MU110011A/12A-003 Up to 10G Dual Port

MU110011A/12A-062 ODU Flex

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AM

MU110011A/12A-004 Up to 10GFC Dual Port

MU110011A/12A-013/014 Ethernet 40G Single/Dual Channel

MU110011A/12A-083/084 STM-256 OC-768 Single/Dual Channel

New Function New OTN Mappings (6/6)

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MT1100A

Ver. 2.01



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new_slide_2_01_21






fixed_cover_01



Ver. 11.06/10.04

Version	Contents	Model	Slide
11.06	[Wireshark] Fixed bug causing error when using eCPRI decode Lua script when using Wireshark version later than 3.4 on PC.	MT1000A-Transport MT1100A	None
Updated 2020 Dec.	[ETH] Fixed bug preventing recognition of 1519 byte Frame over size error.	MT1000A-Transport MT1100A	None
	[SEEK] Fixed error message when SEEK results file name includes illegal character (/, !, ?, etc.).	MT1000A-Transport MT1100A	None
	[ETH] Fixed bug preventing correct output of TE1 and Terr graphs when outputting "2-Step Master Port" Time Error measurement results as PDF report at SyncTest application.	MT1000A-Transport MT1100A	None
	[ETH] Fixed bug preventing correct generation of report file at long-term measurement at RFC2544 application.	MT1000A-Transport MT1100A	None
	[Framework] Fixed bug causing disconnect when using DHCP at WLAN connection.	MT1000A MT1100A	None
10.04	[ETH] Fixed bug causing measurement result output without errors and no saved LOFA counter history log.	MT1000A-Transport	None
	[ETH][RoE] Fixed bug causing sending of IFG of less than 5 bytes at line rate of at least 80% at following frame size(s) at 25GbE interface.	MT1000A-Transport	None
	[ETH] Fixed bug causing Ping application crash at output of PDF report after long-term measurement covering several days.	MT1000A-Transport MT1100A	None
	[ETH] Fixed bug causing generation of file with missing data at Ping application when outputting PDF report after long-term measurement of several days.	MT1000A-Transport MT1100A	None
	 [Main Frame] Removed following security vulnerability X11 server at MT1000A/MT1100A/MT1040A GUI accepts unrestricted connections from host 	MT1000A-Transport MT1100A	None



Ver. 10.03/10.02

Version	Contents	Model	Slide
10.03	[ETH] Fixed bug preventing multicast VLAN support for IEEE1588v2 SMPTE profile.	MT1000A-Transport	None
	[MxH] Fixed bug causing incrementing PRBS sync alarm when executing communications test while either IEEE1588 or SyncE set to ON at eCPRI test.	MT1000A-Transport	None
	[OTDR] Fixed bug causing slow measurement start after switching wavelength when wavelength set to ALL at Separate measurement mode setting.	MT1000A-OTDR	None
	[OTDR] Fixed bug at transmission loss Pass/Fail evaluation when Pass/Fail evaluation reference set to ISO/IEC or JIS.	MT1000A-OTDR	None
10.02	[ETH] Fixed bug causing one lost Frame at RFC2544 measurement using two MT1000A units with MT1000A operating as Reflector; bug occurs only with 100, 40, and 25GbE interfaces.	MT1000A-Transport	None
	[ETH] Fixed bug causing crash when changing [Line load] unit at 25GbE setting of RFC2544 application.	MT1000A-Transport MT1100A	None
	[ETH][MxH] Fixed bug causing incorrect detection of PRBS sync alarm when connecting/disconnecting cable during BER measurement using cross PRBS pattern at 25GbE or faster interface.	MT1000A-Transport MT1100A	None
	[ETH] Fixed bug causing forced restart when outputting Statistics as .csv file after measuring interval length with [No Interval] set at Ethernet application.	MT1000A-Transport MT1100A	None
	[ETH] Fixed bug sometimes causing output of incorrect packet when sending packets with Frame Size set to [Step] at 25GbE or faster interface.	MT1000A-Transport MT1100A	None
	[VIP] Fixed bug preventing normal autofocus operation with some tips.	MT1000A MT1100A	None



Ver. 10.01/10.00

Version	Contents	Model	Slide
10.01	 [ETH][MxH] Fixed bugs when receiving Ping packet of 2048 bytes or more at 25, 40, and 100GbE interfaces. - [ETH][MxH] Sometimes no response to Ping request - [Ping] Sometimes unable to measure at applicable conditions - [RFC2544] Sometimes unable to measure when performing [Router Latency Test] at applicable conditions 	MT1000A-Transport MT1100A	None
10.00	 [ETH] Fixed bug preventing display of SyncTest application start screen depending on option combination when using MU100010A software versions later than 9.10. This bug occurs with the following hardware: ✓ With MT1000A-005 installed ✓ With MU100010A-011 installed ✓ With MU100010A-001 not installed 	MT1000A-Transport	None
	[ETH][MxH] Fixed bug preventing FEC Symbol Error insertion for SFP28 when MU100011A-023 not installed when using MU100011A Ethernet application with eCPRI/RoE BERT	MT1000A-Transport	None
	[OTDR] Fixed bug preventing splitter loss display at Pass/Fail evaluation	MT1000A-OTDR	None
	[OTDR] Fixed bug causing MT1000A freeze when performing averaging measurement when Auto-measurement Mode set to "Advanced" and OTDR Test Mode set to "Auto".	MT1000A-OTDR	None



Version	Contents	Model	Slide
9.13	[Framework] Updated to not include initialization time (time required until OSC lamp lit) in elapsed time after MU100090A built-in oscillator power-on displayed in GPS pop-up. Now able to correctly confirm 3-hour warm-up time required to meet Holdover specification.	MT1000A-Transport	None
	[Framework] Fixed bug occasionally preventing recognition of USB memory stick.	MT1000A MT1100A	None
	[OTDR] Improved issue causing generation of unnecessary reflections at non-Event points (other than connectors and splices) at OTDR waveform measurement. This issue occurs with the old firmware version when setting a short distance range for the measured fiber.	MT1000A-OTDR	None
	[ETH] Fixed bug preventing correct statistical results 'Remote Failure' measurement. This bug occurs when setting Port Mode to 'Forced'.	MT1000A-Transport MT1100A	None
	 [VIP] Fixed following G0382A bugs: Non-detection of G0382A when G0382A connected to Network Master Either operation panel freeze or occasional Network Master reboot when disconnecting G0382A from Network Master 	MT1000A MT1100A	None





Version	Contents	Model	Slide
9.12	 [ETH] Fixed following bugs related to DHCP functions. Bug displaying error message each time expired DHCP lease renewed during measurement. Bug causing unwanted address release when using DHCP server for authenticating validity of "server identifier" option. Bug disabling DHCP settings after address released. 	MT1000A-Trasport MT1100A	None
	[ETH] Fixed bug enabling Remote Fault detection function for interfaces other than Gigabit Ethernet auto-negotiation.	MT1000A-Trasport MT1100A	None
	[ETH][OTN] Fixed bug enabling [+OTN] button for each MonGen, Reflector, RFC2544, and SAT application when MU100011A-001 or MU100011A-003 not installed in MU100011A.	MT1000A-Trasport	None
	 [Framework] Fixed bug preventing login to WLAN networks including backslash (¥) or double quotation mark (") in SSID. Names after SSID registration are: (¥) becomes (¥¥), and (") becomes (¥"). 	MT1000A MT1100A	None
	[FC] Fixed bug causing unwanted insertion of IDLE pattern between NOS pattern at insertion of Not operational (NOS) alarm.	MT1000A-Trasport MT1100A	None
	[FC] Fixed bug causing unwanted conversion of Alarm NOS pattern to Remote Fault pattern at 16GFC interface.	MT1000A-Trasport	None
	[FC] Fixed bug causing error in insertion pattern value at R_RDY error insertion.	MT1000A-Trasport MT1100A	None
	[FC] Fixed bug preventing insertion of IDLE pattern between EOF pattern and R_RDY pattern when inserting error burst.	MT1000A-Trasport MT1100A	None
	[SEEK] Fixed bug causing Fail result without executing loop at scenario with loop processing description.	MT1000A-Trasport MT1100A	None



Version	Contents	Model	Slide
9.10	[ETH] At 25G and higher rates when Frame size of 63 bytes or less selected, fixed bug causing displayed Tx Frame value to be twice actual value.	MT1000A-Transport	None
	[ETH] Fixed bug causing the display to freeze when displaying a long-term graph measurement in SyncTest.	MT1000A-Transport	None
	[ETH] Fixed bug causing inability for gateway to be correctly set when using a DHCP server over IPv4 at v9.09 Ethernet applications.	MT1000A-Trasport MT1100A	None
	[ETH] Fixed bug causing inability to set correct maximum IFG value for the Line Load setting	MT1000A-Trasport MT1100A	None
	[ETH] Fixed bug causing ARP resolution to not work across different VLANs.	MT1000A-Trasport MT1100A	None
	[ETH] Fixed a bug, some settings (announce interval, sync interval, and minimum delay request interval) did not properly recover after loading file setup or result when using ITU-T G.8275.1 or SMPTE 2059 profiles in the IEEE1588v2 settings.(12322)	MT1000A-Trasport MT1100A	None
	[ETH] Fixed bug preventing the correct output of random address ranges compared to the variable address settings field in the stream settings.	MT1000A-Trasport	None
	[ETH] Changed behavior when loading a saved file with a source MAC address set to its own unit factory default, will now configure the unit to the factory default source MAC address the file is being loaded on.	MT1000A-Trasport MT1100A	None



Version	Contents	Model	Slide
9.10	[ETH][MxH] SyncTest and Pass Through now start without the requirement of selecting the two ports.	MT1000A-Transport	None
	[ETH][MxH] Fixed bug causing inability to set FEC ON/OFF when using SFP28, in Ethernet and eCPRI/RoE BERT applications for v8.01 and later.	MT1000A-Transport	None
	[Framework] Fixed bug causing inability to display option name correctly in System Information for v9.09 MU100010A and MU110010A.	MT1000A-Transport	None
	[Framework] Fixed bug preventing file sharing with Windows10 version 1709 and later.	MT1000A-Trasport MT1100A	None
	[OTDR] Fixed bug preventing update of subsequent power meter measurement values when cancelling the execution of power-meter zero offset.	MT1000A-OTDR	None



Version	Contents	Model	Slide
9.09	[ETH] Fixed bug when a very low frequency of errored frames occurred, causing rounding of normal frame measurement result to nearest whole number and non-display of decimal points (99.9999% becomes 100.00%).	MT1000A-Transport MT1100A	None
	[ETH] Fixed bug preventing display of all measurement results when Latency result is 1 ms or more.	MT1000A-Transport MT1100A	None
	[ETH] Fixed bug at SyncTest application causing green status display even with no input signal to Ext10M, Ref1pps and dut1pps.	MT1000A-Transport	None
	[ETH] Fixed bug in v9.07 and v9.08 when SFP28 configuration file loaded, forcing IEEE1588v2 and SyncE to OFF and preventing change to ON.	MT1000A-Transport	None
	[ETH][OTN][SDH][CPRI][FC] Fixed bug causing save failure when saving Event log in .csv format after measurement.	MT1000A-Transport MT1100A	None
	[ETH][OTN][NoFrame] Fixed bug preventing writing of values to page 2 and 3 of QSFP28 internal register when using J1756A CFP2-QSFP28 Adapter with MU110012A/MU110013A.	MT1100A	None
	[Remote][ETH] Fixed bug preventing capture of Rx Total good bytes using SCPI command (IFETCH).	MT1000A-Transport MT1100A	None
	[Remote][ETH] Fixed bug causing save error when space character present after file name when saving frame capture using SCPI command.	MT1000A-Transport MT1100A	None
	[VIP] Fixed bug do not causing G0382A to become active when using VIP application when G0382A entered automatic standby status.	MT1000A MT1100A	None



Ver. 9.08/9.07

Version	Contents	Model	Slide
9.08	[SEEK] Fixed bug causing inability to change frequency variation setting from 0 ppm when measuring BER at xCVRQuickCheck02 scenario.	MT1000A-Transport	None
9.07	[Framework] Fixed bug preventing backup of application settings when MT1000A/MT1100A WLAN network connection keeps fail for long time.	MT1000A MT1100A	None
	[ETH] Fixed bug in the IPv4 checksum header when sending multiple streams including VLAN/IPv4 or MPLS/IPv4 using Mon/Gen application.	MT1000A-Transport MT1100A	None
	[ETH] fixed bug displaying a Frame capture buffer size of 513 kB and larger which isn't possible using v9.05/v9.06 25GbE interface.	MT1000A-Transport	None
	[MxH] Changed name of "CPRI/OBSAI P.Thru" application to "CPRI P.Thru".	MT1000A-Trasport MT1100A	None
	[Remote][OTDR] Fixed bug causing main unit to restart when sending :OTDR:TRAC:LOAD:TEXT? command to capture waveform data.	MT1000A-OTDR	None



Version	Contents		Model	Slide
9.06	[ETH] Fixed causir	bug in BERT and Mon/Gen applications when reading CFG file ng TCP protocol "Listen mode" setting to always load as "Off".	MT1000A-Transport MT1100A	None
	[ETH] Fixed inserti either	bug in BERT application from v9.04 when using 100G interface and ng FEC symbol error causing application to crash when selecting "Burst/sec" or "Burst/10 sec" as Insertion setting.	MT1000A-Transport MT1100A	None
	[ETH] Fixed establ	bug in Mon/Gen application preventing the TCP protocol from ishing TCP sessions on streams 9 to 16.	MT1000A-Transport MT1100A	None
	[ETH] Fixed graph	bug in Sync application preventing display of Port2 TE1 and Terr results even when loading saved measurement-results file.	MT1000A-Transport	None
	ETH] Fixed b rate us	oug sometimes causing lower measured throughput result than actual sing RFC6349 Application.	MT1000A-Transpor MT1100A	None
	[Framework]	Fixed bug in File Browser from v9.02 preventing the file saved time from being displayed.	MT1000A MT1100A	None
	[Framework]	Fixed bug when editing a WLAN network that has already saved the PS Key value and is described as "[key is configured]", if you save this value the PSK value is overwritten.	MT1000A MT1100A	None
	[OTN] Fixed measu chang	bug in BERT application causing an error after selecting; RTD urement mode, quitting application, restarting application, and ing measurement mode to BERT.	MT1000A-Transport MT1100A	None
	[OTDR]	Fixed bug in Multi-Pulse Measurement preventing correct calculation of dB/km and Cum.Loss (dB) values.	MT1000A-OTDR	None

Version	Contents	Model	Slide
9.05	[ETH] Fixed bug causing unwanted ARP Reply in response to ARP Request at following for IP address not set at MU100011A with software version V9.00 and later. SrcMAC 00-00-00-00-00-00 SrcIP 0.0.0.0	MT1000A-Transport	None
	[ETH] Resolved issue displaying incorrect latency measurement when using 2 ports in RFC 2544, MonGen, BERT applications in v9.02/9.03/9.04 if not changing interface settings immediately after application start-up.	MT1000A-Transport MT1100A	None
	[ETH] Resolved issue causing reversed positive / negative 1 PPS TE measurement results at SyncTest application v5.00 and later.	MT1000A-Transport	None
	[ETH] Resolved issue in PacketTE measurement graph not displayed when PTP StepMode setting is different between port 1 and port 2 in SyncTest application after v5.00.	MT1000A-Transport	None
	[ETH] Resolved issue causing the Frame Count threshold to Fail incorrectly within the Ethernet BER application from v7.02.	MT1000A-Transport MT1100A	None
	[ETH][OTN] Resolved issue causing incorrect control of QSFP28 optical modules with Power Class 5, 6, and 7 from v9.00.	MT1000A-Transport MT1100A	None
	[ETH][OTN] Fixed bug when QSFP+/QSFP28 modules selected causing incorrect display of all Tx powers in dBm units instead of mA units; now either mA or dBm units displayed according to optical module specifications.	MT1000A-Transport MT1100A	None
	[MxH] Resolved issue causing GUI display to not follow the instrument change to CPRI when OBSAI setting has Delay or APS measurement is enabled.	MT1000A-Transport MT1100A	None
	[SDHPDH] Resolved issue causing the unit to restart when creating a report from an E1 measurement in the SDH/SONET application from v3.0.	MT1000A-Transport MT1100A	None
	[Remote] Resolved issue preventing return of the correct status information when using CFP, CFP2, CFP4, or QSFP28 optical modules, when querying module status using SCPI commands.	MT1000A-Transport MT1100A	None
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Version	Contents	Model	Slide
9.04	[Framework] For MU100011A serial numbers 6261738768 to 6261801145, added function for automatically correcting default MAC address of measurement port from ""00-00-00-xx-xx-xx"" set a result of bug to ""00-00-91-xx-xx-xx"".Upgrade customers using instruments affected by this problem as soon as possible to this new version.	MT1000A-Transport	None
	[Framework] Fixed bug when displaying history log (list of previous input characters) at character input dialog causing history log to overlay numeric input buttons and prevent ability to press buttons.	MT1000A	None
	[ETH] Fixed bug causing sending of ARP Request using destination IP address instead of Gateway address when executing ARP with Gateway set to ON with Ethernet application v9.03 and later.	MT1000A-Transport	None



Ver. 9.03/9.02/9.01

Version	Contents	Model	Slide
9.03	[Standard OTDR][FTTA][Construction] Improved the performance of the connection check function when using a short patch cord (3m or less).	MT1000A-OTDR	None
9.02	[ETH] Fixed bug of RFC6349 causing sometimes worse throughput than actual DUT's performance. This bug only happens MU100010A and MU110010A in v9.01.	MT1000A-Transport MT1100A	None
9.01	[ETH] Fixed bug causing incomplete display of measured result decimal point values when measuring Latency of multiple ports simultaneously at either BERT or MonGen application	MT1000A-Transport MT1100A	None
	[ETH] Fixed bug causing settings change according to dependence of Gateway On/Off setting on ARP On/Off setting	MT1000A-Transport MT1100A	None
	[ETH] Fixed bug causing inability to select IPv6 Frame setting when selecting VLAN ID 2 at Ping application	MT1000A-Transport MT1100A	None
	[ETH][OTN][SDH][FC][CPRI] Fixed bug causing output of space separator at every three numerals when numeric data such as bit count, etc., at report creation and output in .csv format	MT1000A-Transport MT1100A	None
	[NOFRAME] Fixed bug sometimes causing error generation at 20LaneBER measurement using QSFP28 module with MU100011A module	MT1000A-Transport	None
	[OTN] Fixed bug causing incorrect 0 dBm display for tunable wavelength SFP receive power	MT1000A-Transport MT1100A	None
	[VIP] Fixed bug causing display of [Analysis Failure] dialog instead of [Failed Test] dialog when saving failed evaluation result data	MT1000A MT1100A	None

Version	Contents	Model	Slide
9.01	[Standard OTDR][Construction] Fixed bug causing Sequence Number to become 0 when loading SOR file captured by Anritsu OTDR (MT908x, MT9090, etc.)	MT1000A-OTDR	None
	[Standard OTDR][FTTA] Fixed bug causing test results to not be reflected when displaying Test Status screen at OTDR and FTTA applications	MT1000A-OTDR	None
	[Standard OTDR][FTTA] Fixed bug sometimes causing blank Setup screen List box when reading SOR captured by Anritsu OTDR (MT908x, MT9090, etc.) using "Load with setup".	MT1000A-OTDR	None
	[OLTS] Fixed bug causing non-display of OLTS progress bar when Test Status screen displayed at OLTS application	MT1000A-OTDR	None
	[Remote][Standard OTDR] Fixed bug causing non-display of VFL function key when starting client with INST:STAR:GUI after starting OTDR application with SCPI	MT1000A-OTDR	None
	[Remote][Standard OTDR] Fixed bug preventing correct capture of dB/Km (fiber loss) when obtaining measurement results using OTDR:TRACe:LOAD:TEXT? with measurement conditions set to Automatic (9409)	MT1000A-OTDR	None





Version	Contents	Model	Slide
9.00	[OTN][SDH] Fixed bug a few causing loss of measurement results at measurement start at APS test	MT1000A-Transport MT1100A	None
	[Remote] Fixed bug causing incorrect PASS evaluation at Summary Results at ARP failure at Y.1564 and Ping applications under remote control	MT1000A-Transport MT1100A	None



Fixed Bugs

Ver. 8.02

Version	Contents	Model	Slide
8.02	[ETH] Fixed bug preventing incorrect measurement of one-way delay measurement results while using GPS connected to the MU100090A and the Y.1564 application with V8.00/V.801	MT1000A-Transport	None
	[ETH] Fixed bug preventing normal LOS Alarm information on the Status screen when 25GbE is selected while using the MU100011A module	MT1000A-Transport	None
	[ETH] Fixed bug preventing the selection of IPv6 within the Ping application	MT1000A-Transport, MT1100A	None
	[ETH] Fixed bug preventing a FAIL test status when ARP failure occurs in the Ping application	MT1000A-Transport, MT1100A	None
	[SDH][OTN] Fixed bug causing the display of incorrect Signal Power value on the Status screen at 40G/100G line rates	MT1000A-Transport, MT1100A	<u>fix_slide_</u> <u>8_02_01</u>
	[OTN] Fixed bug allowing the selection of LOS as an APS measurement trigger condition when QSFP+/QSFP28 interface is selected within the APS application	MT1000A-Transport, MT1100A	None
	[NOFRAME] Fixed bug preventing normal 20 Lane BER measurement on the CFP2 interface while using the No Frame application with the MU110013A module	MT1100A	None



Fixed Bugs

Ver. 8.01

Version	Contents	Model	Slide
8.01	[ETH] With 100GbE FEC enabled, fixed bug causing PCS Skew injection to be enabled when should not be enabled.	MT1000A-Transport MT1100A	None
	[ETH] At SyncTest application, fixed bug causing N/A display for PacketTE measurement results.	MT1000A-Transport	None
	[ETH] At Y1564 application when executing End-to-End measurement, fixed bug causing main unit to restart when frame received from port other than master port set at slave port.	MT1000A-Transport MT1100A	None
	[ETH][OTN][SDH] At MU110013A, fixed bug causing main unit to restart when I2C analysis function executed during measurement.	MT1100A	None
	[OTN] At QSFP28 interface, fixed bug preventing correct rate- select setting for device.	MT1000A-Transport MT1100A	None
	[RemoteGUI] At MX100001A, fixed bug causing large font display on screen.	MT1000A-Transport MT1100A	None
	[OTDR] [FTTA] [Construction] Fixed bug preventing input of comma (,) period (.), forward slash (/), yen symbol (?), and question mark (?) characters at header input screen.	MT1000A-OTDR	None
	[OTDR] [FTTA] Fixed bug causing initialization of calibration period at software update.	MT1000A-OTDR	None



Ver. 8.00

Version	Contents	Model	Slide
8.00	[ETH] Fixed bug causing restart when attempting to display IEEE1588v2 Log when external logging function for IEEE1588v2 is enabled.	MT1000A-Transport	None
	[ETH] Fixed bug preventing the ability of obtaining source IPv4 address from a DHCP server within the stream setting.	MT1000A-Transport	None
	[FC] Fixed bug occasionally causing frame loss when using reflector application.	MT1000A-Transport	None
	[VIP] Added SC/APC tip to selection list for the G0382A VIP probe.	MT1000A	None



Version	Contents	Model	Slide
7.05	[Framework] Fixed bug causing MT1000A to freeze when repetitive insertion/removal of G0306A/G0306B	MT1000A MT1100A	None
	[ETH] Fixed bug in MonGen application causing restart when terminating application while Threshold Summary screen displayed	MT1000A-Transport MT1100A	None
	[FC] Fixed bug in Reflector application causing Frame Loss at Frame size of $8n + 4$ (n = 8267)	MT1000A-Transport MT1100A	None
	[OTN][SDH] Fixed bug in APS application causing switching time to result in larger value, when set to a bit rate of 40 Gbps or more and the trigger setting is pattern error	MT1100A	None
	[OTDR] Fixed bug preventing editing of user-registered macro at Smart File Name	MT1000A-OTDR	None
	[OTDR] Changed summary from Open to FAIL when far end not detected	MT1000A-OTDR	None
	[Remote][ETH] Fixed bug causing main frame to restart when performing Through and Frameloss measurement of RFC2544 application via MX100001A	MT1000A-Transport MT1100A	None
	[Remote][ETH] Fixed a bug causing the test application to stop when using the stream copy function of Y1564, MonGen and Channel Stat application via MX100001A, on the main unit it caused a restart.	MT1000A-Transport MT1100A	None
	[Remote][ETH] Fixed bug allowing an unusable rate to be set via SCPI control	MT1000A-Transport MT1100A	None



Fixed Bugs

Ver. 7.04/7.03

Version	Contents	Model	Slide
7.04	[Framework] Fixed bug sometimes causing instrument reboot when performing analysis using G0306A/B on VIP application.	MT1000A MT1100A	None
7.03	[ETH] Fixed bug incorrectly enabling/disabling FEC switching during 100G Ethernet measurement with MU110013A	MT1100A	None
	[ETH] Fixed bug sometimes preventing correct sending of received packet during instrument response to ARP/PING with Ethernet Reflector	MT1000A-Transport MT1100A	<u>fix_slide_</u> 7_03_01
	[ETH] Fixed bug, causing measurement screen to freeze sometimes during PTP communications when PTP log function is enabled	MT1000A-Transport	None
	[ETH][OTN] Fixed bug causing lengthened time until event log results displayed on screen	MT1000A-Transport MT1100A	None
	[Remote][OTN][SDH] Fixed bug sometimes causing option error when setting RTD application Measurement Period using SCPI command	MT1000A-Transport MT1100A	None
	[OTDR] Fixed bug when loading zip format waveform file at Overlay condition causing screen top to display enabled (ON) even when Bi-Directional setting changed automatically from enabled to disabled.	MT1000A-OTDR	None
	[Remote] Fixed bug preventing SCPI commands of MDIO control to work in applications except for NoFrame.	MT1100A	None
	[Remote] Fixed bug sometimes preventing correct screen enable/disable control when using SCPI remote control.	MT1000A MT1100A	None



Fixed Bugs

Version	Contents	Model	Slide
7.02	[ETH] Fixed bug in Frame Capture function up to 10G causing timestamp data to be one packet of zeros	MT1000A-Transport MT1100A	None
	[ETH] Fixed bug at no changing the color over OWD threshold value in SyncTest application summary screen	MT1000A-Transport	None
	[ETH][OTN] Fixed bug at 40G/100G operation causing initialization of inserted lane when changing Skew insertion lane type	MT1100A	None
	[ETH][OTN] Fixed bug in MU110012A preventing establishment of Link when restarting application	MT1100A	None
	[OTN] Fixed bug causing simultaneous SM-BIP8 insertion when inserting AIS/OCI/LCK when operating at 40G/100G	MT1100A	None
	[RemoteGUI] Fixed bug sometimes causing display of warning message when quitting MX100001A	MX1000001A	None
	[Remote][ETH] Fixed bug sometimes preventing output of correct measurement results when measuring Latency between Port1 and Port2 using one measuring instrument under SCPI control	MT1000A-Transport MT1100A	None



Fixed Bugs

Version	Contents	Model	Slide
7.01	[OTDR] Fixed an issue that prevented some MU100020A ad MU100021A OTDR modules from changing wavelength when used in a low-temperature environment.	MT1000A-OTDR	None
	[OTDR] Fixed a bug that caused an error massage when loading a configuration file(.cfg) created by MU100021A to MU100020A or MU100022A.	MT1000A-OTDR	None
	[OTDR] Fixed a bug that could prevent remote control of the OTDR modules when "Fail" was returned by connection check.	MT1000A-OTDR	None
	[OTDR] Fixed a bug that received remote control commands while running the Construction application.	MT1000A-OTDR	None
	[OTDR] Fixed a bug that caused an error when receiving the OTDR:TRACe:TEXT? Command with an argument(s).	MT1000A-OTDR	None



Fixed Bugs

Version	Contents	Model	Slide
7.00	[Framework] Fixed bug in GPS utility preventing monitoring of GPS signal receive status.	MT1000A	None
	[Framework] Fixed bug in File Explorer causing main frame to restart when erasing file.	MT1000A	None
	[Framework] Fixed bug preventing display by laser emitting indicator during measurement when Standard OTDR application started after VIP started.	MT1000A	None
	[ETH] Fixed bug causing incorrect Frame Loss rate calculation when Total Repeat Steps set to ON at RFC2544 test.	MT1000A-Transport	<u>fix_slide_</u> 7_00_01
	[ETH] Fixed bug in Sync Test application preventing input of negative value as one- way Delay Threshold value.	MT1000A-Transport	None
	[FC] Fixed bug causing incorrect display of Frame Loss Seconds and Pattern Loss Seconds even when Frame Loss Seconds set to Ignore at BERT application.	MT1000A-Transport	None
	[OTDR] Fixed bug preventing execution of Standard OTDR Mission Control Power Meter Offset Zero function.	MT1000A-OTDR	None
	[OTDR] Fixed bug causing main frame to restart when opening OTDR results file with Result File Browser when no OTDR module installed in main frame.	MT1000A-OTDR	None
	[OTDR] Fixed bug in OTDR application preventing display of Fiber Visualizer screen waveform window when far end not found.	MT1000A-OTDR	None
	[OTDR] Fixed bug causing VFL to light for several seconds when application quit and then restarted while VFL in ON status.	MT1000A-OTDR	None



Fixed Bugs

Ver. 6.02/6.01

Version	Contents	Model	Slide
6.02	[OTDR] Fixed bug in v6.00 causing display of "Include Performance Verification data" checkmark at report generation screen for results not actually displayed	MT1000A-OTDR	None
6.01	[FC] Fixed bug causing periodic Frame Loss when sending FC1200 Frame signal	MT1000A-Transport MT1100A	None
	[FTTA] Fixed bug causing disabled software key when moving to TRACE tab at FTTA application after starting measurement	MT1000A-OTDR	None



Ver. 6.00

Version	Contents	Model	Slide
6.00	[Framework] Fixed bug causing restart of mainframe when inputting "e" character while file load/save dialog displayed (8873)	MT1000A MT1100A	None
	[Framework] Fixed bug causing license error display when loading settings file saved by MT1000A+MU100010A configuration at MT1000A+MU1000xxA+MU100010A configuration and corrected notification to comment on configuration difference (8633)	MT1000A	None
	[ETH] Fixed bug causing non-stop sending at Pause Frame receiving even when Auto Negotiation set to off for 10/100/1000M electrical interface and "Respond to Pause Frame" set (8643)	MT1000A-Transport MT1100A	None
	[ETH] Fixed bug causing output of all selection items when outputting test results to CSV or XML file using Channel Statistics application (8523)	MT1000A-Transport MT1100A	None
	[ETH] Fixed bug causing inclusion of MPLS label value in Address Filter Stream ID conditions using Mon/Gen application (8543)	MT1000A-Transport MT1100A	None
	[ETH] Fixed bug causing Skew value to be displayed as ">0.000" and incorrect measurement when selecting any Interval result at "Relative Skew" results display of Result screen (8838)	MT1000A-Transport MT1100A	None
	[ETH] Fixed bug preventing correct display of result table service details at measurement results for Y1564 (8527)	MT1000A-Transport MT1100A	None
	[FC] Fixed bug causing monitoring of Frame Loss seconds even when "ignore Frame Loss seconds for BERT measurement results" set at BERT application (8730)	MT1000A-Transport MT1100A	None
	[PTP] Fixed bug causing locking for only up to 4 hours when executing continuous measurements for 5 or more hours in locking state using GPS utility. Currently possible to lock for 24 hours by changing setting (8548)	MT1000A-Transport MT1100A	None
	[OTDR] Fixed bug sometimes causing error in Reflectance analysis results when Auto Mode Test set to Advanced (8933)	MT1000A-OTDR	None

Fixed Bugs

Version	Contents	Model	Slide
5.04/ 5.03	[Framework] Fixed bug causing the unavailable access to USB stick after the specific procedure on V5.01.	MT1000A MT1100A	<u>fix_slide_</u> <u>5_04_01</u>
	[Framework] Fixed bug causing main unit to restart when USB memory stick removed while File Manager focused on sub-folder in inserted USB memory.	MT1000A MT1100A	None
	[ETH] Fixed bug causing the application crashes when outputting report of Ethernet RFC 2544 "End to end network test" results.	MT1000A-Transport MT1100A	None



Version	Contents	Model	Slide
5.01	[Framework] Fixed bug when disabling WLAN sometimes causing instrument to temporarily freeze	MT1000A-Transport MT1100A	None
	[Framework] Fixed bug causing the NWM Flex with battery option MU11001A from fully shutting down.	MT1100A	None
	[Framework] Fixed the problem that MU100090A power On/Off status isn't stored properly occasionally	MT1000A-Transport	None
	[OTDR] Fixed bug that "Restore Default" operation does not work after creating OTDR report	MT1000A-OTDR	None
	[ETH] Fixed bug for 10GbE sometimes causing transmitter to insert wrong IFG	MT1000A-Transport MT1100A	None
	[ETH] Fixed bug in IEEE1588 function sometimes causing UDP checksum errors in transmitted PTP frames	MT1000A-Transport MT1100A	None
	[OTN] Fixed problem when starting applications with +OTN option sometimes causing invalid option warning message	MT1000A-Transport MT1100A	<u>fix_slide_</u> <u>5_01_01</u>
	[OTN][ETH] Fixed bug in Ethernet transmitter causing BER alarm when Ethernet mapped over OTN using GFP-F	MT1100A	<u>fix_slide_</u> 5_01_02
	[OTN][ETH] Fixed bug causing BER alarms for MPLS mapped over OTN using 46 byte frame size	MT1000A-Transport MT1100A	None



Fixed Bugs

Version	Contents	Model	Slide
5.00	[OTDR] Upgraded Event (fault point) detection (search) accuracy	MT1000A-ORDT	None
	[Framework] Fixed problem causing Chinese and Japanese UTF-8 encoded CSV reports to display garbage characters when opened in MS-Excel Japanese: UTF-8 to Shift JIS Chinese: UTF-8 to GB2312	MT1100A	None
	[Framework] Fixed bug preventing re-acquisition of IP address when switching WLAN access point	MT1000A-Transport MT1100A	None
	[Framework] Simplified Password dialog and fixed problem when initially enabling system password protection requiring user to know old (default) password	MT1100A	None
	[Framework] Fixed bug causing sudden shutdown when starting with remaining battery charge of under 6%	MT1000A-Transport MT1100A	None
	[ETH] Fixed bug only permitting insertion of less than assumed block errors when inserting errors while testing at Frame rates of >2000 bytes when testing at interface of 10/40/100 Gbps	MT1100A	<u>fix_slide_</u> 5_00_01
	[ETH] Fixed bug causing Frame loss when receiving IPv4 + UDP header Ethernet Frame when Frame length not multiple of 8 bytes at 40/100GbE	MT1100A	None
	[ETH] Fixed bug restricting the minimum payload size of 38-byte when selecting custom header at BERT application stream setting	MT1000A-Transport MT1100A	<u>fix slide</u> <u>5 00 02</u>
	[ETH] Fixed bug causing [Timing: Bit rate Difference] to remain unchanged at 0 even when clearing History at Ethernet test	MT1000A-Transport MT1100A	<u>fix slide</u> <u>5 00 03</u>

Fixed Bugs

Version	Contents	Model	Slide
5.00	[ETH] Fixed bug causing IEEE15888 status Wall Clock Current time affects from local MT1000A time setting	MT1000A-Transport MT1100A	None
	[ETH] Fixed bug causing sending of incorrect time data at IEEE1588 communications	MT1000A-Transport MT1100A	None
	[ETH] Fixed problem preventing saving of PTP message logs at IEEE 1588v2 log	MT1100A	<u>fix_slide_</u> <u>5_00_04</u>
	[ETH] Fixed bug causing display of NMX_WARNING message when starting Ethernet application when 100GbE option installed with MT1100A+MU110011A+MU110012A configuration	MT1100A	None
	[ETH] Fixed bug causing main unit to reboot when switching BERT application custom header settings when loading settings file saved with V2.xx when using V3.03 software	MT1000A-Transport MT1100A	<u>fix_slide_</u> <u>5_00_05</u>
	[ETH] In link down status, Fixed bug causing display WARNING message, if ARP solution execution of IEEE1588 function is performed.	MT1000A-Transport MT1100A	None
	[ETH] Fixed bug causing IP header protocol type field setting to become UDP(0x11) or TCP(0x06) automatically after previous setting when None set after setting Frame Format Layer 4 to either TCP or UDP	MT1000A-Transport MT1100A	<u>fix_slide_</u> 5_00_06
	[OTN] Fixed bug causing display of screen for making additions when low-order ODU errors and alarms cannot be inserted at OTN through-mode test	MT1000A-Transport MT1100A	<u>fix_slide5_00_07</u>
	[Remote] Fixed bug preventing release of port resources even when executing INST:TERM command	MT1000A-Transport MT1100A	<u>fix_slide_</u> <u>5_00_08</u>

Fixed Bugs

Version	Contents	Model	Slide
5.00	[Remote] Fixed bug correction of the fault in two or more user control by SCPI remote control	MT1000A-Transport MT1100A	<u>fix_slide_</u> <u>5_00_09</u>
	 [Remote] Fixed bugs causing MX100001A to crash at following operations (1) At remote connection from MX100001A when measuring instrument Remote PC connection set to OFF (2) When changing measuring instrument Remote PC connection setting from OFF to ON (3) At remote connection from MX100001A 	MX100001A	None
	[Remote][ETH] Removed explanation of following unsupported commands: - ETHernet:CSTat:SETup:PORT <pt>:PSELect - ETHernet:CSTat:SETup:PORT<pt>:PWIDth?</pt></pt>	MT1000A-Transport MT1100A	None
	[Remote][OTN] Fixed bug preventing correct reading of PSI[0] value using OH capture remote query command	MT1100A	None
	[SDH/SONET] Fixed bug preventing reflection of measured error in test results during measurement with APS application	MT1000A-Transport MT1100A	<u>fix_slide_</u> <u>5_00_10</u>
	[Wireshark] Fixed bug causing Wireshark restart when reading file format not supported by Wireshark	MT1000A-Transport MT1100A	None



Fixed Bugs

Ver. 4.00

Version	Contents	Slide
4.00	[Framework] Fixed problem causing Chinese and Japanese UTF-8 encoded CSV reports to show garbage character when opened in MS-Excel. Japanese: UTF-8 \Rightarrow Shift JIS Chinese: UTF-8 \Rightarrow GB2312	None
	[Framework] Simplified Password dialog and fixed problem when initially enabling system password protection requiring user to know old (default) password.	None
	[ETH] Fixed problem in RFC2544 application causing instrument to restart when transmitting IPv6 formatted Learning Frames.	None
	[ETH] Fixed problem preventing saving of PTP message logs at IEEE 1588v2 test.	<u>fix_slide_</u> <u>4_00_01</u>
	[ETH] Fixed problem running 10G with frame sizes above 2000 bytes, sometimes preventing insertion of sufficient block errors using error insertion function.	<u>fix_slide_</u> <u>4_00_02</u>
	[OTN] Fixed problem reading PSI[0] OH byte (Payload type) using SCPI command.	None



Fixed Bugs

Version	Contents	Slide
3.04	[ETH] Fixed problem causing instrument to restart when using Layer 2 custom header and exceeding the setup frame length by enabling either Jitter or Latency measurement.	<u>fix_slide_</u> <u>3_04_01</u>
	[ETH] Fixed problem with Latency result sometimes being incorrect when measuring between two ports on same module	<u>fix_slide_</u> <u>3_04_02</u>
	[OTN] Fixed bug preventing normal detection at continuous OLA alarm	None
	[OTN] Fixed problem preventing PM-BIP and PM-BEI errors being reported in Event Log	None
	[OTN] [ETH] Fixed problem causing Warning message while re-loading settings file generated in an Ethernet over OTN application	<u>fix_slide_</u> <u>3_04_03</u>



Fixed Bugs

Version	Contents	Slide
3.03	[Framework] Fixed problem with removing USB storage while viewing PDF or XML file stored on device	None
	[Framework] Fixed problem with garbage characters sometimes occurring in Japanese PDF reports created using MX100001A Control Software and read under Windows 7 64-bit OS environment	None
	[ETH] Fixed problem with IEEE 1588 Log sometimes repeating old events.	<u>fix_slide_</u> <u>3_03_01</u>
	[ETH] Fixed problem with PTP clock system when running high rates of Sync/Announce/Delay Request packets for IEEE 1588 protocol data	<u>fix_slide_</u> <u>3_03_02</u>
	[ETH] Fixed problem with 40/100G Reflector application causing statistics engine to drop frames when swapping of IP/MAC disabled	<u>fix_slide_</u> <u>3_03_03</u>
	[ETH] Fixed problem initiating OAM 802.ah Remote Loopback on Accedian NIDs	None
	[ETH] Fixed problem with Disruption errors sometimes reported in Event Log while running RFC 2544 Latency Test	<u>fix_slide_</u> <u>3_03_04</u>
	[ETH] Fixed problem with Pass-Through application running GbE electrical causing dropped frames when changing clock advertisement (master/slave) configuration	<u>fix_slide_</u> <u>3_03_05</u>
	[ETH] Fixed problem with storing RFC 2544 result files when test includes more than 148 steps	None
	[ETH] Fixed problem with the Unicast/Multicast Tx frame counters on "Ethernet - Transmit" statistics page not updating when U/L bit of destination MAC address set	<u>fix_slide_</u> 3_03_06



Fixed Bugs

Version	Contents	Slide
3.03	[ETH] When using GPS as Master Clock reference for IEEE1588v2, fixed problem with current Wall Clock differing from displayed UTC time	<u>fix_slide_</u> <u>3_03_07</u>
	[ETH] For RFC 2544 and SAT (Y.1564) applications running end-to-end network test, fixed problem with "Abort" window remaining on slave after test finishes	<u>fix_slide_</u> <u>3_03_08</u>
	[ETH] For SAT Y.1564 and Mon/Gen. applications, fixed problem with automatically stored settings files potentially causing applications to fail when re-launched	<u>fix_slide_</u> <u>3_03_09</u>
	[ETH] Solved problem with disabling SyncE sometimes leaving pending SSF alarm history and event log entry	<u>fix_slide_</u> <u>3_03_10</u>
	[ETH] Fixed problem with local port losing link when inserting "No Link" alarm, although incoming signal OK	None
	[ETH] Corrected table headings in RFC 2544 Latency report when "Measure jitter by means of Latency test" enabled	<u>fix_slide_</u> <u>3_03_11</u>
	[OTN] Fixed problem with not showing correct values for GMP Justification Max/Min Cm.	<u>fix_slide_</u> <u>3_03_12</u>
	[OTN] Fixed problem when using multistage mapping on OTN where "false" LOFLOM alarms sometimes reported on lower-order ODUs	<u>fix_slide_</u> 3_03_13
	[PDH] Fixed problem on E1 interface when Distant and No CAS MFAS alarms sometimes also insert pattern errors	<u>fix_slide_</u> 3_03_14
	[SDH/SONET] Fixed problem with duplication of APS detailed results when switching between ports	<u>fix_slide_</u> 3_03_15



Fixed Bugs

Version	Contents	Slide
3.03	[Remote][NoFrame] Fixed problem setting Frequency Offset via SCPI: NFRame:PORT <pt>:STIMuli:TX:FOFFset <offset></offset></pt>	None
	[Remote] Fixed problem with instrument potentially freezing/restarting when SCPI session closed after starting or terminating application server	<u>fix_slide_</u> <u>3_03_16</u>
	[Remote] Fixed problem copying multiple files simultaneously to PC from MT1000A/MT1100A using MX100001A Remote Control Software	None
	[Remote][CPRI] Fixed problem using MEASurement:SETup:EVALuation:RX:INTerface? command in CPRI BERT application	None
	[Remote][CPRI] When running CPRI Pass-Through application, fixed problem preventing use of SCPI commands for setting evaluation of measurement results MEASurement:SETup:EVALuation:RX <pt>[:ENABle] MEASurement:SETup:EVALuation:RX<pt>:INTerface MEASurement:SETup:EVALuation:CPRI:PORT<pt>:ITEM MEASurement:SETup:EVALuation:CPRI:PORT<pt>:ITEM:ALARm MEASurement:SETup:EVALuation:CPRI:PORT<pt>:ITEM:ALARm MEASurement:SETup:EVALuation:CPRI:PORT<pt>:ITEM:ERRor MEASurement:SETup:EVALuation:CPRI:PORT<pt>:TYPE MEASurement:SETup:EVALuation:CPRI:PORT<pt>:CNT:FAIL MEASurement:SETup:EVALuation:CPRI:PORT<pt>:RATio:PASS MEASurement:SETup:EVALuation:CPRI:PORT<pt>:RATio:FAIL MEASurement:SETup:EVALuation:CPRI:PORT<pt>:ITEM</pt></pt></pt></pt></pt></pt></pt></pt></pt></pt></pt>	<u>fix_slide_</u> 3_03_17
	[Remote][ETH] Fixed problem with SCPI command for setting stimuli alarm state (ETHernet:POER <pt>:STIMuli:ALARm) unnecessarily resetting electrical PHY, causing link loss for several seconds</pt>	<u>fix_slide_</u> 3_03_18


Fixed Bugs

Version	Contents	Slide	
3.03	[Remote][OTN] When configured via SCPI remote control, fixed problem with Ethernet client not obtaining link when mapped to OTU3/4 using GFP-T	<u>fix_slide_</u> <u>3_03_19</u>	
	[OTN] Fixed problem using SCPI MAX and DEF parameter values for setting Error Bits for GMP JC1/JC2 Error Items		
	 OTN:STIM:TX1:GMP:AEIN:EBIT MAX OTN:STIM:TX1:GMP:AEIN:EBIT DEF	None	



Fixed Bugs

Version	Contents	Slide
3.02	 Removed "Communication Port" for RFC 6349 End-to-End Test The RFC 6349 End-to-End test is not compatible between Ver. 3.02 or later and Ver. 3.01 or earlier. Use Ver. 3.02 for this test. 	<u>fix_slide_</u> <u>3_02_01</u>
	 Fixed Problem of Wrongly Configuring FC800 at Loading of FC400 Configuration File for FC BERT over OTN 	<u>fix_slide_</u> 3_02_02
	 Fixed Boot Failure Problem of FC BERT over OTN Application Options: 002: FC 1G 2G 4G Dual Channel 052: OTN 10G Dual Channel 061: ODU Multiplexing 	<u>fix_slide_</u> <u>3_02_03</u>
	 Fixed Problem of Failing to Reflect "Expected preamble length" Value at Loading Configuration File for Ethernet Pass Through Application 	<u>fix_slide_</u> 3_02_04



Fixed Bugs

Version	Contents				Slide
3.02	Changed mistakes in SCPI command parameter names				
	Command	Old		New	
	T1:RX <pt>:IFETch? T1:APS:RX<pt>:EVENt</pt></pt>	(NFRame NFR	\rightarrow \rightarrow	(OOF) OOF	None
	T1:STATus:RX <pt>:ALARm?</pt>	Loss Of Frame	÷	OOF	
	TMBPs:APS:RX <pt>:EVENt - similar GUI value </pt>	NFR "LOF"	\rightarrow	NFRame "No frame"	
	Fixed Problem of Incorrectly Different Options	/ Loading Config	uratio	n File made Using MT1000A/MT1100A with	<u>fix_slide_</u> 3_02_05
	 Fixed problem causing no re command 	esponse when se	ending	g OTN:RX <pt>:IFET ch? S0MSIM SCPI</pt>	No
	Using OTN Application, Fixe even at Higher-Level Alarm	ed Problem of Wr	ongly	Displaying MSIM Results Without Masking	<u>fix_slide_</u> <u>3_02_06</u>
	 Using OTN application, fixe using SCPI command when 	d problem of inco reading V2.02 o	rrect r ear	ly reading Performance measurement results ier results file	No



Fixed Bugs

Version	Contents	Slide
3.02	 Using CPRI Pass-through application, fixed problem preventing use of threshold parameters set by following SCPI commands at evaluation of actual measurement results MEASurement:SETup:EVALuation:RX\$<\$Pt\$>\$[:ENABle] MEASurement:SETup:EVALuation:RX\$<\$Pt\$>\$:INTerface MEASurement:SETup:EVALuation:CPRI:PORT\$<\$Pt\$>\$:ITEM MEASurement:SETup:EVALuation:CPRI:PORT\$<\$Pt\$>\$:ITEM:ALARM MEASurement:SETup:EVALuation:CPRI:PORT\$<\$Pt\$>\$:ITEM:ALARM MEASurement:SETup:EVALuation:CPRI:PORT\$<\$Pt\$>\$:ITEM:ERRor MEASurement:SETup:EVALuation:CPRI:PORT\$<\$Pt\$>\$:TYPE MEASurement:SETup:EVALuation:CPRI:PORT\$<\$Pt\$>\$:CNT:FAIL MEASurement:SETup:EVALuation:CPRI:PORT\$<\$Pt\$>\$:RATio:PASS MEASurement:SETup:EVALuation:CPRI:PORT\$<\$Pt\$>\$:RATio:FAIL MEASurement:SETup:EVALuation:CPRI:PORT\$<\$Pt\$>\$:RATio:FAIL MEASurement:SETup:EVALuation:CPRI:PORT\$<\$Pt\$>\$:RATio:FAIL MEASurement:SETup:EVALuation:CPRI:PORT\$<\$Pt\$>\$:RATio:FAIL MEASurement:SETup:EVALuation:CPRI:PORT\$<\$Pt\$>\$:RATio:FAIL MEASurement:SETup:EVALuation:CPRI:PORT\$<\$Pt\$>\$:RATio:FAIL MEASurement:SETup:EVALuation:CPRI:PORT\$<\$Pt\$>\$:RATio:FAIL 	None
	 Using Ethernet BERT Application, Fixed Problem of Incorrect File Save/Read when Stream Setting for Port 2 and Later Ports set to Unframed 	<u>fix_slide_</u> 3_02_07
	 Using SDH/PDH application, fixed problem of inability to reboot main frame when sending following query commands and quitting application E3:RX1:IFET? (PBBE) 	None



Fixed Bugs

Version	Contents	Slide
3.02	 Using Ethernet application, fixed problem causing inability to reboot main frame when sending following query commands and quitting application ETHernet:PORT<pt>:OAM:DISCovery:CATalog?</pt> 	None
	 Fixed Problem of Disappearing Latency Results when Saving and Loading Latency/Burst Result using RFC 2544 Application 	<u>fix_slide_</u> 3_02_08
	 Using Ethernet BERT Application, Fixed Problem Causing Frame Loss when Reading V2.04 Settings File 	<u>fix_slide_</u> 3_02_09
	 After executing Ethernet Ping function, fixed problem causing reboot when executing other Ethernet application 	None
	Using Remote GUI Software (MX100001A), Fixed Problem Causing Inability to Start Editor and Viewer	<u>fix_slide_</u> 3_02_10
	 Using Ethernet Application, Fixed Problem Causing Screen Freeze when Sending/Receiving OAM 802.1ag/VLAN CCM 	<u>fix_slide_</u> <u>3_02_11</u>



Fixed Bugs

Version	Contents	Slide
3.02	 Added following query parameters to SCPI commands ETHernet:PORT<pt>:IFETch?</pt> TDL: Stream 1 Throughput Data Layer (bps). Response: <min>,<max>,<avg></avg></max></min> TNL: Stream 1 Throughput Network Layer (bps). Response: <min>,<max>,<avg></avg></max></min> TLL: Stream 1 Throughput Link Layer (bps). Response: <min>,<max>,<avg></avg></max></min> TPPL: Stream 1 Throughput Physical Layer without Preamble (bps). Response: <min>,<max>,<avg></avg></max></min> TPL: Stream 1 Throughput Physical Layer (bps). Response: <min>,<max>,<avg></avg></max></min> TPL: Stream 1 Throughput Physical Layer (bps). Response: <min>,<max>,<avg></avg></max></min> TUL: Stream 1 Throughput Utilization Layer (bps). Response: <min>,<max>,<avg></avg></max></min> TUL: Stream 1 Throughput Utilization Layer (bps). Response: <min>,<max>,<avg></avg></max></min> 	None
	 Fixed Problem Causing Higher-Level Summary LEDs to Light when cHEC and tHEC Errors Detected at GFP-F/T Mapping of OTN Application 	<u>fix_slide_</u> 3_02_12
	 Using Ethernet Application, at ARP Reply Sending, Fixed Rare Problem Causing Sending of Excess Stream Data in 1 Frame 	<u>fix_slide_</u> <u>3_02_13</u>
	 Using Ethernet Application, Fixed Problem Sometimes Blocked Correct traffic with "Include addresses in frame filter on receiver" Settings at Rx Operation 	<u>fix_slide_</u> 3_02_14
	Fixed Problem of Failing to Count Justification when LOFLOM Detected using OTN Application	<u>fix_slide_</u> <u>3_02_15</u>
	 Added E1 Balanced connector pin assignments to manual Fix problem causing reboot when loading settings file with set PDH rate at MU110011A module 	None



Fixed Bugs

Version	Contents	Slide
3.02	 Fixed Problem of Incorrect RTD Result Display at Each Testing Interval of CPRI BERT Application 	<u>fix_slide_</u> <u>3_02_16</u>
	Fixed Problem of Missing CRC Error in Errors/Alarms List of Fibre Channel BERT Application	<u>fix_slide_</u> 3_02_17



Fixed Bugs

Version	Contents	Slide
3.01	 [Framework] Fixed battery display information to show correctly on MU110001A. [RemoteGUI] Fixed the problem regarding SCPI command for stream Line load. [ETH] Fixed the problem regarding multi stream measurement on Mon/Gen application. [ETH] Fixed the problem regarding SDT(Service Disruption Time) result. [ETH] Fixed the problem regarding long term measurement on PING application. [ETH] Fixed the problem regarding Remote Fault on Electrical Interface. [ETH] Fixed the problem regarding the maximum rate(CIR/EIR) on 40/100G Y.1564 application. [FC] Fixed the problem regarding SDT(Service Disruption Time) result. [FC] Fixed the problem regarding the maximum rate(CIR/EIR) on 40/100G Y.1564 application. [FC] Fixed the problem regarding form the starting a measurement with threshold enabled. [OTN] Improved regarding frequency offset. 	None



Fixed Bugs

Version	Contents	Slide
3.00	 [All] Fixed the problem that CFP2 interface may not work correctly when configuring the timing source, "Received". [All] Fixed the problem that MT1100 which mounts MU110010A sometimes shutdown when launching with battery. [SCPI] Fixed the problem of Measurement Stop just after Measurement Start. [SCPI] Improved the stability of long term SCPI running. [ETH] Fixed the problem that MPLS-TP result does not count up when MPLS-TP OAM frame received. [ETH] Fixed the problem regarding E2E communication between MT1000/MT1100 and CMA3K on RFC2544 application. 	None
	• [ETH] Default setting of throughput calculation layer is changed on RFC 2544	<u>fix_slide_</u> 3_00_01
	• [ETH] Fixed the process of handling larger test results than the available storage on RFC 2544	<u>fix_slide_</u> 3_00_02
	 [ETH] RFC 2544 "Average Throughput" test calculation fixed by only calculating during a stable data stream 	<u>fix_slide_</u> 3_00_03
	 [ETH] Fixed the problem where SDT result resets when LOS detected. [ETH] Fixed the problem regarding PCS alarm LED. [OTN] Fixed the problem regarding the mapping for 10GbE into ODU2e, mapping procedure is AMP (Asynchronous CBR Mapping). [SDH] Fixed the problem regarding Performance measurement. [FC] Fixed the problem regarding SDT measurement. [FC] Fixed the problem that undersize frame sometimes counts. [NoFrame] Fixed the problem regarding the BERT measurement result on NoFrame application 	None



Version	Contents	Slide
2.05	 [OTN] Fixed the problem regarding the error on OUT3-40GbE mapping. [All] Fixed the problem on MU110001A without battery operation. (Bug only for ver. 2.04) [All] Fixed the problem that application crashed after long term running. [All] Fixed the problem regarding the network configure on the Ethernet Service Interface. 	None



Version	Contents	Slide
2.04	 [ALL] Improved the stability when measuring. [OTN] Fixed the problem regarding through mode. [OTN] Fixed the problem regarding the Performance measurement. [OTN] Fixed the problem regarding the OTN payload type setting/detection for ODU4-ODU2e-10 GigE mapping. [ETH] Fixed the problem regarding transmitting stream on 40/100G. 	None



Fixed Bugs

Version	Contents	Slide
2.03	[OTN] Changed the name of some Errors. (OTL)	<u>new_slide_</u> 2_03_03
	• [ETH] Changed the name of some Errors. (LOA, LOBL, LOAML)	<u>new_slide_</u> 2_03_04
	 [OTN] Fixed the problem regarding the Performance measurement. [SDH] Improved the updating results on Pointer Movement measurement. [ETH] Fixed the problem regarding the showing service number on Y.1564 application. [ETH] Fixed the problem of End to End measurement on Y.1564 application. [ETH] Fixed the problem that HiBER is not detected. [FW] Fixed the problem regarding the VNC connections. [FW] Fixed the problem regarding the Battery information on MT1100A. 	No
	[RFS] Supported ETSI R&TTE EN300 328 V1.8.1.	<u>new_slide_</u> 2_03_01
	 [RFS] Improved the stability on all applications. [RFS] Improved the stability of the Ethernet Service Interface. 	No



Version	Contents	Slide
2.02	 [OTN] Fixes the bug which is on decode of ITU-T G709 PSI[0]. [ETH] Fixes the bug that NMX_ASSERT is sometimes occurred. [FC] Fixes the bugs which are interoperability issue and some minor issues. [Wireshark]Fixes the bugs and improves the stability. 	None



Version	Contents	Slide
2.01	Bug fixes and improvements	None



MT1000A-Transport MT1100A

[SDH][OTN] Fixed bug causing the display of incorrect Signal Power value on the Status screen at 40G/100G line rates Ver. 8.02

 Fixed bug causing different ports for Power value on Port Status screen and Rx Total Power value on Transceiver screen when measuring DUT Signal Power with 40G/100G bit rate selected on MT1000A/MT1100A.

Port 1:1 Port 1:2			Port 2:1	Port 2:2		
Port Stream Settings Answer: Arp, Ping	SyncE I Off	EEE 1588v2 Off	OAM Off	Filter Off		Port
Module Present	-Power moni	tor		Link Speed:	\$	CFP
Transceiver Information		x[dBm]		Duplex:	_	Clock C
Alarm	Total	7.5	6.19	FDX Ethernet		Timing s
Loss of signal	Lane 0	1.92	0.46	Traffic	0	
Global alarm	Lane 1	1.02	0.40	O MPLS frame		Ref. Port
Programmable alarm	Lane 3	1.73	0.19	O VLAN frame	E	FEC_
				SyncE		U FEC
				IEEE 1588v2	E.	
				OH Capture		
				OAM	×	
Loop Back MDIO analysis			Settings	Frame Capture		
				Tansceiver		
ETH-BERT 🖌 🖌 SI	TUP TEST	RESULT 🕇	' 🗃 🛪 🗗 V	53 🔊 🛃 🔹 🕅	m	
ETH-REPT					1	



Measurement modules and Bitrate to be modified

MT1000A	MU100011A	40GbE,100GbE,OTU3,OTU4
MT1100A	MU110011A	40GbE,100GbE,OTU3,OTU4,STM256/OC768
	MU110012A	40GbE,100GbE,OTU3,OTU4
	MU110013A	40GbE,100GbE,OTU3,OTU4





MT1000A-Transport MT1100A

[ETH] Fixed bug sometimes preventing correct sending of received packet during instrument response to ARP/PING with Ethernet Reflector Ver. 7.03

• In Ethernet Reflector application, fixed bug when handling incoming special frames like ARP or PING requests, when reflecting high line load traffic, sometimes packets are dropped in reflected traffic.





[ETH] Fixed bug preventing saving of PTP message logs at IEEE 1588v2 test

Ver. 7.00

 Fixed bug causing addition of Frame Loss Rate total when 'Accumulated Repeated Steps' set to ON at Ethernet RFC2544 Application



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fix_slide_7_00_01

MT1000A-Transport MT1100A

[Framework] Fixed bug causing the unavailable access to USB stick after the specific procedure on V5.01.

- The software bug preventing access to files in USB memory inserted in the tester under specific conditions(SW update) has been fixed for MT1000A/MT1100A v5.01.
 - 1. Powering-down the tester with the USB memory inserted.
 - 2. Force-quitting by pressing the power button for a long time to power-down.

Performing either operation 1 or 2 above assigns the USB device to the wrong folder in the tester main frame.



Usb folder remains even when USB memory removed

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If USB memory left inserted at powerdown, USB device is wrongly assigned to Usb_temp folder inside Usb folder.

MT1000A-Transport MT1100A

[OTN] Fixed problem when starting applications with +OTN option sometimes causing invalid option warning message Ver. 5.01

Example:

Starting Ethernet over OTN (BERT Application)



- When the MU100010A, MU110010A/11A/12A -061, -062, and -063 mapping options are not installed, starting the application using "+OTN" (xx over OTN) at the application selection screen and selecting the port displays the Resource Selection Error dialog.
- After pressing the Dialog OK button, the dialog is redisplayed even if the port is reselected, and the port cannot be selected.
- The application selection conditions have been corrected when there is "xx over OTN".

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[OTN][ETH] Fixed bug in Ethernet transmitter causing BER alarm when Ethernet mapped over OTN using GFP-F.

Ver. 5.01

- Fixed bug preventing send of Ethernet Frame even when mapping Ethernet Frame using GFP-F at OTU3/4. Bug occurred at following combinations.
 - OTU4-ODUflex-GFPF-Ethernet
 - OTU3-ODUflex-GFPF-Ethernet





[ETH] Fixed problem running 10G with frame sizes above 2000 bytes, sometimes preventing insertion of sufficient block errors using error insertion function Ver. 5.00

• Fix bug only allowing insertion of block error of less than setting at 10 Gbps Ethernet test when using send Frame of 2000 or more bytes.







[ETH] When Custom header set at BERT application stream setting, fixed bug causing minimum Payload length of 38 bytes Ver. 5.00

• When Custom header set at BERT application stream setting, fixed bug causing minimum Payload byte length of 38 bytes when creating IPv4 header (20 bytes) at total Frame length of 76 bytes.

Select Custom as Stream setting







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MT1000A-Transport MT1100A

[ETH] Fixed bug causing [Timing: Bit rate Difference] to remain unchanged at 0 even when clearing History at Ethernet test Ver. 5.00

• Fixed bug causing [Timing: Bit rate Difference] to remain unchanged at 0 even when clearing History at Ethernet test





Timing/Accumulated difference remained 0







[ETH] Fixed problem preventing saving of PTP message logs at IEEE 1588v2 log

Ver. 5.00

• Fixed bug preventing saving of PTP message logs after executing IEEE 1588v2 test as follows:





MT1000A-Transport MT1100A

[ETH] Fixed bug causing main unit to reboot when switching BERT application custom header settings when loading settings file saved with V2.xx when using V3.03 software Ver. 5.00



*Revised initialization to account for functional differences between versions



MT1000A-Transport MT1100A

[ETH] Fixed bug causing IP header protocol type field setting to become UDP(0x11) or TCP(0x06) automatically after previous setting when None set after setting Frame Format Layer 4 to either TCP or UDP Ver. 5.00

 Fixed bug causing actual data to be either UDP (0x00) or TCP (0x06) despite changes appearing on screen when resetting Layer4 at Stream setting to None after setting Layer 4 to UDP or TCP at Ethernet Stream setting.





MT1000A-Transport MT1100A

[OTN] Fixed bug causing display of screen for making additions when low-order ODU errors and alarms cannot be inserted at OTN through-mode test Ver. 5.00

• Fixed bug at OTN Through Mode test screen displaying Errors/Alarms insertion screen although unable to insert Low-order ODU errors/alarms, and preventing setting according to specifications





Low-order ODU Errors/Alarms insertion function enabled but unable to insert

OTN Through Mode Setting Screen



The layer which cannot insert an error/alarm is not displayed.

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/Inrit

MT1000A-Transport MT1100A

[Remote] Fixed bug preventing release of port resources even when executing INST:TERM command Ver. 5.00

- When using SCPI command, fixed bug returning error and attempt to release measuring instrument port as well as occasional inability to release communications port.
 - Example when cannot open port
 - INSTrument:TERMinate <test index>
 - (Error not returned)

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- Error generated because unable to correctly release port since port remains secured
- INSTrument:STARt TP-BERT-ETH,1-PORT1
- > SYSTem:ERRor? => -200,"Execution error"



fix slide 5 00 08



MT1000A-Transport MT1100A

[Remote] Fixed bug correction of the fault in two or more user control by SCPI remote control

Ver. 5.00



Fixed bug preventing normal application termination using SCPI command

(Example command) inst:term

- Fixed bug sometimes causing processing crash while overwriting FPGA when starting application or changing settings (Example command) SDH:TX<Pt>:INTerface ETHernet:PORT<Pt>:ITYPe ETHernet:PORT<Pt>:MODE OTN:TX<Pt>:INTerface etc.
- Fixed bug causing interaction between setting contents when performing various operations when starting RFC2544 application for multiple users using SCPI command

(Example command) ETH:RFC:SET:PORT2:TAFL:LL:STEP ETH:RFC:SET:PORT2:BURS:FPB:END etc.

Fixed bug causing main unit restart when using OTN application Bug sometimes occurs at multi-user control after using following SCPI command and simultaneously enabling main unit GUI display (Example command) INSTrument:STARt:GUI





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MT1000A-Transport MT1100A

[SDH/SONET] Fixed bug preventing reflection of measured error in test results during measurement with APS application Ver. 5.00

• Fixed bug preventing reflection of errors during measurement in measurement test results at SDH/SONET APS application.





MT1000A-Transport

[ETH] Fixed bug preventing saving of PTP message logs at IEEE 1588v2 test

Ver. 4.00

• The bug preventing saving of PTP message logs after executing the IEEE 1588v2 test as follows has been fixed.







MT1000A-Transport

[ETH] Fixed problem running 10G with frame sizes above 2000 bytes, sometimes preventing insertion of sufficient block errors using error insertion function. Ver. 4.00

• Fix bug only allowing insertion of block error of less than setting at 10 Gbps Ethernet test when using send Frame of 2000 or more bytes.









MT1000A-Transport MT1100A

[ETH] Fixed problem causing instrument to restart when using Layer 2 custom header and exceeding the setup frame length by enabling either Jitter or Latency measurement. Ver. 3.04

- Fixed problem causing instrument to restart when using Layer 2 custom header and exceeding the setup frame length by enabling either Jitter or Latency measurement.
- 1: At Stream setting, set Custom pattern Length to 26 or more bytes.
- 2: Put checkmark in either Jitter Measurement or Latency Measurement without changing Frame length.









MT1000A-Transport MT1100A

[ETH] Fixed problem with Latency result sometimes being incorrect when measuring between two ports on same module Ver. 3.04

- For Ethernet BERT applications, fixed potential wrong Latency measurement when measuring between two ports on the same module and enabling Latency Measurement on the two ports within 1 second of each other (e.g. by remote control).
 - 1: Measure Ethernet Latency between Port 1 and Port 2.



2: Using remote control, etc., set Port 1 and Port 2 at almost same time (within 1 second).



3: Fixed bug causing Latency measurement result to be incorrectly large value like 427 s.

			Result Fi	le Browser				
015-10-26 16 51 summary	35					20 ivent Log	Stabstic	5 51 52
Total	Ethernet	- Latency			•	SI prefix		
Back			Port.1	Ļ		Port	2	
2015-10-26 16 51 40 2015-10-26 16 51 45	Latency(us)	42	Max. 17.6 s 427	Avg 6 s 427.6	Min. s 1.923	Max. 45 s 1.923	Avg. 45 s 1.92	2345 5
2015-10-26 16:51:50								

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fix_slide_3_04_02

[OTN] [ETH] Fixed problem causing Warning message while re-loading settings file generated in an Ethernet over OTN application Ver. 3.04

MT1100A

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• Fixed problem causing Warning message while re-loading settings file generated in an Ethernet over OTN application.



[ETH] Fixed problem with IEEE 1588 Log sometimes repeating old events

Ver. 3.03

• Fixed problem with IEEE 1588 Log sometimes repeating old events.




MT1000A-Transport MT1100A

[ETH] Fixed problem with PTP clock system when running high rates of Sync/Announce/Delay Request packets for IEEE 1588 protocol data Ver. 3.03

- In Two-step mode, high rates of IEEE 1588v2 protocol data packets caused clock system failure.
 - System unable to transmit all generated packets.
 - System entered faulte state.



High rates of Sync/ Announce/ Delay Requests.

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Inability to transmit all packets caused fault state



fix_slide_3_03_02

[ETH] Fixed problem with 40/100G Reflector application causing statistics engine to drop frames when swapping of IP/MAC disabled Ver. 3.03

- For Ethernet Reflector application running 40/100G interface speeds (MT1100A), disabling swap function could cause frames to be received incorrectly.
 - Frames reflected correctly, but excluded from port status and statistics.



MT1100A





MT1000A-Transport MT1100A

[ETH] Fixed problem with Disruption errors sometimes reported in Event Log while running RFC 2544 Latency Test Ver. 3.03

• For the Ethernet RFC 2544 application, invalid Disruption errors reported during Latency sub-test.

				Result File Browser	
2015-09-10 11:50:52					2015-09-10 11:51:13
Summary		. (atency.	Event Lo	g Statistics 📘 🌔
Filter				View: All ports	CSV export
No. Time				Description	Dur./Count
1 2015-09-10 11:50:	52		Test	Started	?
2 2015-09-10 11:51:0	9 2	•	ETH	Number of Disruption	1
3 2015-09-10 11:51:0	9 2	•	ETH	Number of Disruption	1
4 2015-09-10 11:51:	.2		Test	Stopped	
					×
ETH-RFC 254	4	~	SETUP	• TEST <u>RESULT</u> 📑 🕋 🕸	V 💽 🔉 🕂 🗤 11 51







MT1000A-Transport MT1100A

[ETH] Fixed problem with Pass-Through application running GbE electrical causing dropped frames when changing clock Advertisement (master/slave) configuration Ver. 3.03

 For Pass-Through application, after changing 1000 Mbps Specific Advertisement (master/slave) configuration, incoming frames no longer passed correctly between ports.





[ETH] Fixed problem with the Unicast/Multicast Tx frame counters on "Ethernet - Transmit" statistics page not updating when U/L bit of destination MAC address set Ver. 3.03

- Fixed problem with the Unicast/Multicast Tx frame counters on "Ethernet - Transmit" statistics page not updating when U/L bit of destination MAC address set.
 - U/L bit: Second-least-significant bit of the most significant byte.



Stream1: U/L bit set in dest. MAC Stream2: U/L and multicast bits set

Result File Browser 2015-09-09 16:47:23 00:00:32 Summary vent Log Statistics Total Ethernet - Transmi \mathbf{T} SI prefix 2015-09-09 16:47:23 Back 2015-09-09 Traffic Тх Rx 16:47:28 74.234 k 74.234 k Frames 2015-09-09 16:47:33 76.0156 M 76.0156 M Bytes 2015-09-09 37.117 k 16:47:38 Unicast ĕ 2015-09-09 Multicast 37.117 k 16:47:43 Í Broadcast 2015-09-09 16:47:48 Errored 2015-09-09 FCS errored Current 2015-09-09 64-127 0 16:47:54 ETH-Mon./Gen. SETUP TEST <u>RESULT</u> 💾 🛋 🖘 🕅 🗸 🏹 🖳 🐗 16 47

Unicast/Multicast counters not reflecting transmitted frames from Streams 1 and 2 with U/L bit set.

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fix_slide_3_03_06

Loop-back same port

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MT1000A-Transport MT1100A

[ETH] When using GPS as Master Clock reference for IEEE1588v2, fixed problem with current Wall Clock differing from displayed UTC time Ver. 3.03

• When using GPS as Master Clock reference for IEEE1588v2, fixed problem with current Wall Clock differing from displayed UTC time.



envision: ensure

Port	Streams	Settings Answer: Arp. Ping	SyncE	IEEE 1588v2 Unicast	MAO Off	Filter Off
Local Cloc	k		Wall Clock			Link
State: MASTER			UTC	2015-07	10 Gbp	
Offset N/A		Current	2015-07	2015-07-23T10 53 47		
Sync timeout		UTC offset 00:00:35.000001		O MPLS frame		
Parent Clo	ck		Grandmaster	Clock		O VLAN frame
Identity		N/A	Identity		N/A	SyncE
Port number N/A		Class		N/A	IFFE 1588v2	
Foreign M	aster		Accuracy		N/A	OH Capture
		*	meetiney			CIAM
Port numbe Announce o	r ount	N/A N/A	Priority 1/2	ist	N/A / N/A N/A / N/A	Frame Capture

Displayed UTC differed from Current clock (minus UTC offset)



MT1000A-Transport MT1100A

[ETH] For RFC 2544 and SAT (Y.1564) applications running end-to-end network test, fixed problem with Abort window remaining on slave after test finishes. Ver. 3.03

For RFC 2544 and SAT(Y.1564) application End-to-End network test, the Abort window remained unclosed on the slave MT1000A/MT1100A unit after the test finished.

The test result is unaffected and [Abort] can be pressed when the test at the Master side is finished.







MT1000A-Transport MT1100A

[ETH] For SAT Y.1564 and Mon/Gen. applications, fixed problem with automatically stored settings files potentially causing applications to fail when re-launched. Ver. 3.03

• For Ethernet SAT Y.1564 and Mon/Gen. applications, fixed problem with automatically stored settings files potentially causing applications to fail when re-launched.



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[ETH] Solved problem with disabling SyncE sometimes leaving pending SSF Alarm History and Event Log entry Ver. 3.03

Disabling SyncE while SSF alarm pending caused an erroneous SSF in Alarm History and Event Log for subsequent test.



[ETH] Corrected table headings in RFC 2544 Latency report when "Measure jitter by means of Latency test" enabled Ver. 3.03

When "Measure jitter by means of Latency test" enabled, the table headings for Maximum and Average Jitter values were not correctly updated.



Jitter measurement enabled

RFC2544 Latency results

Port 1 Tx							
Rep	Step	Total frames	Frame rate (fps)	Frame size	Nominal Line load (Mbps)	Actual Line load (Mbps)	
0	1	780274	78027	16000	10000.00000	10000.00440	

Port 1 Rx								
Rep	Step	Total frames	Utilization (%)	Throughput (Mbps)	Jitter Min (us)	Latency Max (us)	Latency Avg (us)	
0	1	780274	100.0000	9987.58400	0.0	0.1	0.0	







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MT1000A-Transport MT1100A

[OTN] Fixed problem with not showing correct values for GMP Justification Max/Min Cm. Ver. 3.03

- On the OTN Alarms/Errors statistics page, the Max. and Min. Cm values on the Justification sub-page were incorrect.
 - Last measured Max/Min values displayed rather than Max/Min values spanning entire interval





[OTN] Fixed problem when using multistage mapping on OTN where "false" LOFLOM alarms sometimes reported on lower-order ODUs Ver. 3.03

• Fixed problem when using multistage mapping on OTN where "false" LOFLOM alarms sometimes reported on lower-order ODUs.



MT1100A

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MT1000A-Transport MT1100A

[PDH] Fixed problem on E1 interface where Distant and No CAS MFAS alarms sometimes also insert pattern errors Ver. 3.03

• Fixed problem on E1 interface where Distant and No CAS MFAS alarms sometimes also insert pattern errors when applied via stimuli function.



MT1000A-Transport MT1100A

[SDH/SONET] Fixed problem with duplication of APS detailed results when switching between ports Ver. 3.03

Fixed problem with duplication of APS detailed results when switching between ports.



3: APS switch events duplicated in table

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MT1000A-Transport MT1100A

[Remote] Fixed problem with instrument sometimes freezing/restarting when SCPI session closed after starting or terminating application server Ver. 3.03

• Fixed problem with instrument freezing/restarting when SCPI session closed immediately after starting or terminating application server.





MT1000A-Transport MT1100A

[Remote][CPRI] When running CPRI Pass-Through application, fixed problem preventing use of SCPI commands for setting evaluation of measurement results Ver. 3.03

• When running CPRI Pass-Through application, fixed problem preventing use of the following SCPI commands for setting evaluation of measurement results:

fix slide 3 03 17

- MEASurement:SETup:EVALuation:RX<Pt>[:ENABle]
- MEASurement:SETup:EVALuation:RX<Pt>:INTerface
- MEASurement:SETup:EVALuation:CPRI:PORT<Pt>:ITEM
- MEASurement:SETup:EVALuation:CPRI:PORT<Pt>:ITEM:ALARm
- MEASurement:SETup:EVALuation:CPRI:PORT<Pt>:ITEM:ERRor
- MEASurement:SETup:EVALuation:CPRI:PORT<Pt>:TYPE
- MEASurement:SETup:EVALuation:CPRI:PORT<Pt>:CNT:FAIL
- MEASurement:SETup:EVALuation:CPRI:PORT<Pt>:RATio:PASS
- MEASurement:SETup:EVALuation:CPRI:PORT<Pt>:RATio:FAIL
- MEASurement:SETup:EVALuation:TMBPs:RX<Pt>:ITEM
- Commands OK for BERT application.







[Remote][ETH] Fixed problem with SCPI command for setting stimuli alarm state unnecessarily resetting electrical PHY, causing link loss for several seconds. Ver. 3.03

• Fixed problem with SCPI command for setting stimuli alarm state unnecessarily resetting electrical PHY, causing Link loss for several seconds.



ETHernet:PORT<Pt>:STIMuli:ALARm NONE





MT1100A

[Remote][[OTN] When configured via SCPI remote control, fixed problem with Ethernet client not obtaining Link when mapped to OTU3/4 using GFP-T. Ver. 3.03

• The Ethernet client did not always establish Link for the following mappings configured using SCPI remote commands.







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MT1000A-Transport MT1100A **Removed "Communication Port" for RFC 6349 End-to-End Test**

Ver. 3.02

- Removed "Communication Port" setting for RFC 6349 End-to-End test to simplify testing process.
- The RFC 6349 End-to-End test is not compatible between Ver. 3.02 or later and Ver. 3.01 or earlier. Use Ver. 3.02 for this test.





fix slide 3 02 01

Fixed BugsMT1000A-TransportMT1100AFixed Problem of Wrongly Configuring FC800 at Loading of FC400Ver. 3.02Configuration File for FC BERT over OTNVer. 3.02

• Fixed problem of wrongly configuring FC800 at loading of FC400 configuration file for FC BERT over OTN.



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Fixed Boot Failure Problem of FC BERT over OTN Application

Ver. 3.02

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fix slide 3 02 03

Fixed Bugs MT1000A-Transport MT1100A Fixed Problem of Failing to Reflect "Expected preamble length" Value at Loading Configuration File for Ethernet Pass Through Application Ver. 3.02

- Fixed problem of failing to reflect "Expected preamble length" value at loading of configuration file for Ethernet Pass Through application.
- The saved value is still in the saved file. It reappears when loading the file using firmware Ver. 3.02.



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Fixed Problem of Incorrectly Loading Configuration File made UsingMT1000A/MT1100A with Different OptionsVer. 3.02

• Fixed problem of loading configuration file made using MT1000A/MT1100A with different options.

Ex.

- 1. The configuration file is saved with MT1000A with E1 and SDH option.
- 2. The file is loaded with MT1000A only with SDH option.
- 3. Alarm occurs.



MT1000A-Transport MT1100A Using OTN Application, Fixed Problem of Wrongly Displaying MSIM Results Without Masking even at Higher-Level Alarm Ver. 3.02

Using OTN application, fixed problem of wrongly displaying MSIM results without masking even at higher-level alarm





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MT1000A-Transport MT1100A Using Ethernet BERT Application, Fixed Problem of Incorrect File Save/Read when Stream Setting for Port 2 and Later Ports set to Unframed Ver. 3.02

Using Ethernet BERT application, fixed problem of incorrect file save/read when stream setting for Port 2 and later ports set to Unframed.



fix slide 3 02 07

envision: ensure

MT1000A-Transport MT1100A

Fixed Problem of Disappearing Latency Results when Saving and LoadingLatency/Burst Result using RFC 2544 ApplicationVer. 3.02

- Fixed problem of disappearing Latency results when loading the saved Latency/Burst result or creating a report file using the RFC 2544 application.
- The Latency result is still in the saved file. It reappears when loading the file using firmware Ver. 3.02.



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MT1000A-Transport MT1100A

Using Ethernet BERT Application, Fixed Problem Causing Frame Loss when Reading V2.04 Settings File

• Using Ethernet BERT application, fixed problem causing Frame Loss when reading V2.04 settings file.



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MT1000A-Transport MT1100A Using Remote GUI Software (MX100001A), Fixed Problem Causing Inability to Start Editor and Viewer Ver. 3.02

Using Remote GUI software (MX100001A), fixed problem causing inability to start Editor and Viewer.





MT1000A-Transport MT1100A

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Using Ethernet Application, Fixed Problem Causing Screen Freeze when Sending/Receiving OAM 802.1ag/VLAN CCM Ver. 3.02

• Using Ethernet application, fixed problem causing screen freeze when sending/receiving OAM 802.1ag/VLAN CCM.



MT1000A-Transport MT1100A Fixed Problem Causing Higher-Level Summary LEDs to Light when cHEC and tHEC **Errors Detected at GFP-F/T Mapping of OTN Application** Ver. 3.02

Fixed problem causing higher-level summary LEDs to light when cHEC and tHEC errors detected at GFP-F/T mapping of OTN application.

Example

ODU1 summary LED lighted when receiving ODU0 cHEC





Using ETH application, at ARP reply sending, fixed rare problem causing sending of excess stream data in 1 frame.







MT1000A-Transport MT1100A

Using Ethernet Application, Fixed Problem Sometimes Blocked Correct traffic with "Include addresses in frame filter on receiver" Settings at Rx Operation

- Ver. 3.02
- Using Ethernet application, fixed problem sometimes blocked correct traffic with "Include addresses in frame filter on receiver" settings at Rx operation.

		Application Se	elector	[II	
Control	Generator		Stream	Thresholds		
Interval length:	5 seconds					
Start action:	Immediate		Sometin	nes blocked	correct	traffic
Stop function:	Manual stop		Stop	1 00:00:00		
Memory allocation:	Continuous		Estimate of test duration	03:25:45		
Performance Parameters			BERT O	P ount attern rrors clude addresses in ame filter on receiver nly show BER Alarms nen measuring		
ETH-BERT	SET	UP <u>TEST</u>	RESULT 📋 🎒 🤋	🛚 🎥 V 🗾 🔉 🐺 🔹 🗤 02	12	



MT1000A-Transport MT1100A Fixed Problem of Failing to Count Justification when LOFLOM alarm **Detected using OTN Application** Ver. 3.02

Fixed problem of failing to count Justification when LOFLOM alarm detected using OTN application.



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MT1000A-Transport MT1100A Fixed Problem of Incorrect RTD Result Display at Each Testing Interval of **CPRI BERT Application** Ver. 3.02

- Fixed problem of incorrect RTD result display at each testing interval of **CPRI BERT** application.
- Incorrectly displayed Total result at each testing interval using Ver. 3.01 or earlier.



/inritsu envision: ensure

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Fixed Bugs

MT1000A-Transport MT1100A Fixed Problem of Missing CRC Error in Errors/Alarms List of Fibre Channel **BERT Application** Ver. 3.02

Fixed problem of missing CRC error in Errors/Alarms list of Fibre lacksquareChannel BERT application.





Default setting of throughput calculation layer is changed on RFC 2544

Ver. 3.00

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- The RFC 2544 calculation layer can be selected for throughput testing.
- The default layer setting is changed from "Physical layer" to "Physical layer (no preamble)" to prevent the preamble length affecting throughput results.

	Throughput Calculation	Frame Representation	
	Data layer	IFG Preamble MAC MPLS PBB VLAN LLC SNAP IP UDP PAYLOAD CRC	Application Selector
	Network layer	IFG Preamble MAC header MPLS (opt) PBB (opt) VLAN (opt) LLC (opt) SNAP (opt) IP header UDP TCP PAYLOAD CRC	Pretest Options
	Link layer	IFG Preamble MAC header MPLS (opt) PBB (opt) VLAN (opt) LLC (opt) SNAP (opt) IP header UDP TCP PAYLOAD CRC	In One-Way test, transmit frames from: ○ Local Remote Use local source addresses for
Ver. 3.00 and later	Physical layer, no preamble	IFG Preamble MAC header MPLS (opt) PBB (opt) VLAN (opt) LLC (opt) SNAP (opt) IP header UDP TCP PAYLOAD CRC	destination on remote side Store test results on remote side Accumulate repeated steps
Ver. 2.05 and earlier	Physical layer	IFG Preamble MAC MPLS PBB VLAN LLC SNAP IP UDP PAYLOAD CRC	Throughput Calculation Layer Selection Throughput Type Physical layer throughput (without preamble) Maximum throughput Average throughput
	Utilization layer	Min. IFG Preamble MAC header MPLS (opt) PBB (opt) VLAN (opt) LLC (opt) SNAP (opt) IP header UDP TCP PAYLOAD CRC	🔢 🔀 ETH-RFC 2544 🖌 SETUP TEST RESULT 🔐 🖾 V 💽 🗴 📫 14 40
	Frame information	MT1000A / MT1100A frame size does not include Preamble Area included in throughput calculation	Throughput calculation layer selection
		Min. IFG Area included in utilization calculation	
Fixed Bugs MT1000A-Transport MT1100A Fixed the process of handling larger test results than the available storage on RFC 2544 Ver. 3.00

- Sometimes, the test result file size can exceed the empty storage size.
- In this case, the size of the file is matched automatically to the empty size by removing the first part of the test results.



Fixed Bugs

MT1000A-Transport MT1100A RFC 2544 "Average Throughput" test calculation fixed by only calculating during a stable data stream Ver. 3.00

- At the beginning and end of stream reception, the throughput test results look worse than reality. They should not involve in Average Throughput.
- The first and last 1 second term of receiving stream is removed from the test result to calculate correct average value when "Average Throughput" is selected.



Fixed Bugs

ETSI R&TTE EN300 328 V1.8.1

Ver. 2.03

- ETSI R & TTE EN 300 328 are the European regulations for electromagnetic compatibility in 2.4-GHz band transmission systems. It has been updated to version 1.8.1 and all equipment for sale in Europe must support 1.8.1 from December 31, 2014.
- The MT1000A-003 and MT1100A-003 Connectivity for WLAN/Bluetooth options support 1.8.1 from firmware version 2.03.
- Certification is required when using a WLAN in each country or region. The list of the countries and regions where the MT1000A/MT1100A is certified is available at the Anritsu Web pages below.

MT1000A

http://www.anritsu.com/en-au/test-measurement/support/downloads/brochures-datasheets-and-catalogs/dwl16689 MT1100A

http://www.anritsu.com/en-au/test-measurement/support/downloads/brochures-datasheets-and-catalogs/dwl16690



Fixed Bugs



[OTN] Changed Error Name for OTU3/4

Ver. 2.03

• We have changed the name of the LLD error to OTL in line with the current ITU-T G.709 definition.

Old	New	Description
LLD	OTL	Optical channel Transport Lane



[ETH] Changed Name of Some Errors

Ver. 2.03

• We have changed the name of some errors, reflecting customers' requests.

Old	New	Description
Alignment Status	LOA	Loss Of Alignment
Sync Header Lock	LOBL	Loss Of Block Lock
Alignment Marker Lock	LOAML	Loss Of Alignment Marker

Errata

Errata

Errata



errata_cover_01



Errata

Errata

Version	Contents	Slide	
11.06	[ETH] Service Disruption Time result is ± 300 ms measurement accuracy when using CFP2 interface of Ethernet BERT application.	errata slide 01	
	[ETH] [MxH] With Ethernet or eCPRI/RoE BERT applications, screen may freeze at measurements including UDP packets when receiving UDP packets at different destination port than source port setting. This bug occurs only at Port 1; if this bug occurs, restart the MT1000A as a workaround solution.		
	[MxH] Pass-through delay for CPRI interface depends on previous port mode setting. The Pass-through delay which previous port mode is OFF is three times than the previous port mode is NORMAL.	None	
	[SDH/SONET] Resolved issue in APS measurement application after v7.02. On selecting Any Error as a trigger the measurement result detected was about 10ms longer than the actual switching time.	None	
	[ETH] Bug may cause Error frames when Line Rate higher than 99.4% at Frame Size of 15500 bytes when performing RFC2544 test with MT1100A 40G/100G interface	None	
	[Remote] Bug may cause MT1000A mis-operation when performing continued packet capture at remote operation using MU100010A	None	
	[ETH] Frame loss confirmed at RFC2544 test when using v9.12, v9.13, and v10.00	None	
	[ETH] Bug may prevent error recognition when receiving ICMP reply packets including error with packet length of more than 463 bytes	None	
	[ETH][MxH] Fixed bug causing display of smaller than true measured service loss time when [LOS] selected as measurement type at MT1000A Ethernet BERT and eCPRI/RoE BERT applications; bug avoided by selecting [Ver. 9.05 or earlier] for latency/jitter timestamp.	None	
	[ETH] Fixed bug preventing correct TE1 and Terr graph output when outputting 2-step Master Port Time Error measurement results at Sync Test application at PDF report output.	None	
	[SDH/SONET] There is a bug preventing communication using E3 and DS3 interfaces. When using these interfaces, use version 10.04 or older. Contact us for more details.	None	

Errata

MT1100A

[ETH] Service Disruption Time result exceeds +/-300 ms using CFP2 interface of Ethernet BERT application

- Using MU110012A Ethernet BERT application, sometimes service disruption time (SDT) measurement accuracy (SDT measurement result) becomes ±300 ms under the following conditions:
 - Using CFP2 I/F and SDT : Packet Selection for Measurement Type and Optical LOS Rx

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Service Disruption Time Accuracy: ±300 ms

Changing the SDT measurement type allows a more accurate SDT measurement accuracy

SDT Measurement Type	Presumed Service Disruption	SDT Measurement Accuracy	Max. SDT Setting	Measurement Environment			
Packet	Optical LOS	±300 ms	410 0	Service disrupted by fault in			
	Not optical loss	±0.1 us	4195	Ethernet Frame configuration			
LOS	Optical LOS	±0.1 us	10.0	Service disruption with optical LOS			
	Not optical LOS	±0.1 us	10.5				







