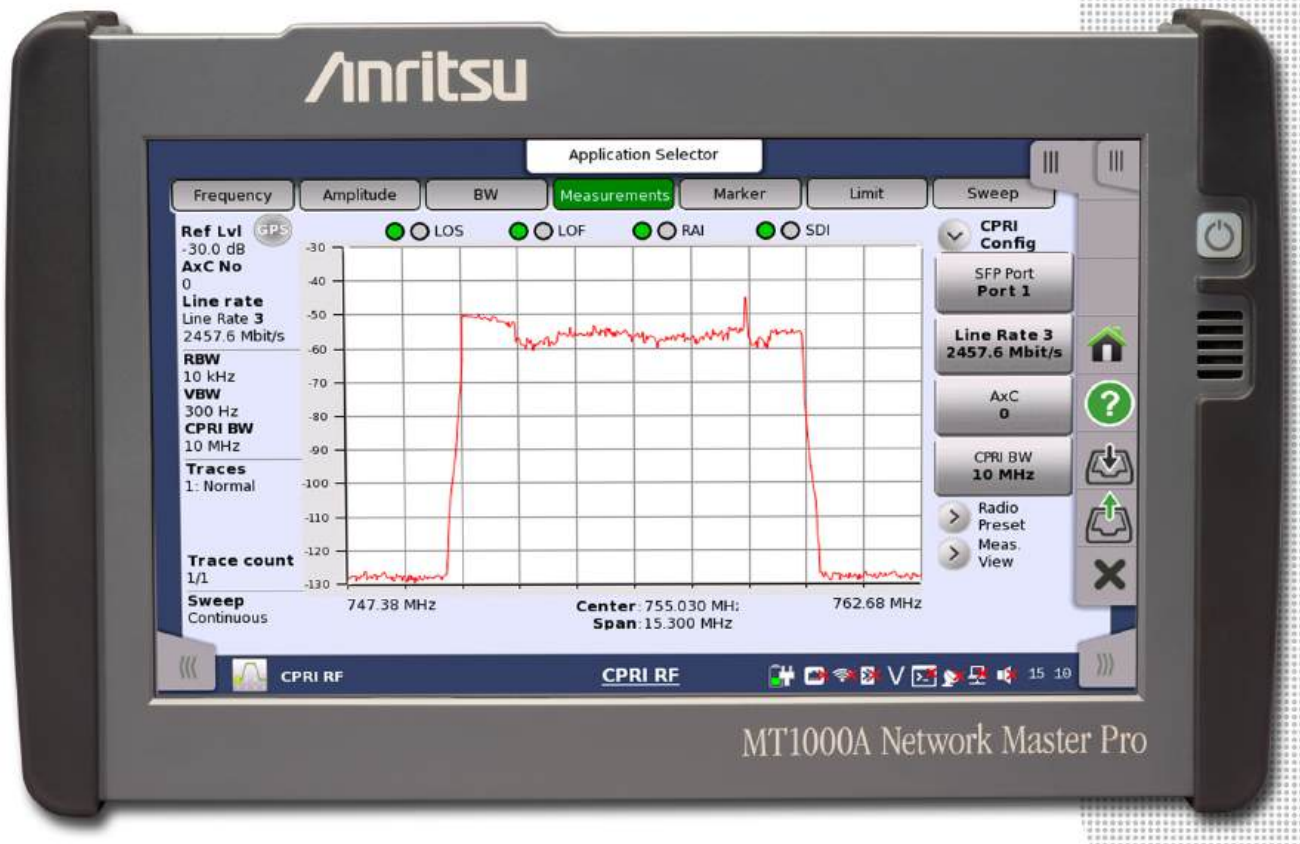
Anritsu envision : ensure

Network Master™ Series

Network Master Pro
MT1000A

CPRI RF Module
MU100040B



Introduction

The MT1000A Network Master Pro is a handheld, battery-powered tester designed to facilitate the installation and maintenance of cellular networks. CPRI RF measurements are configured and displayed on the 9-inch color touch screen. The MU100040B CPRI RF module for the MT1000A Network Master Pro adds CPRI RF measurements to Anritsu's transport and fiber test platform. The modular design of the MT1000A means that it can be configured just for CPRI measurements or combined with the 10G/100G transport module and OTDR module to create the most comprehensive and versatile fiber and transport tester available.

Key Benefits and Features

- Displays LTE spectrum of ALU/Nokia, Ericsson and Huawei CPRI radios
- Fast update rate to capture intermittent interferers
- Spectrum pan and zoom for detailed analysis of interferers
- Spectrogram display captures and holds data for intermittent interferers
- Two SFP slots for simultaneous uplink and downlink testing
- SFP data reading and display
- Layer 2 alarm monitoring and display
- Auto configuration of CPRI parameters
- Base Band Unit Emulation ALu-Nokia LTE (Option 10)
- GPS data reading and display (used with Option 10)
- Modular design for use with MT1000A OTDR and 10G/100G transport test modules
- Battery powered for field use

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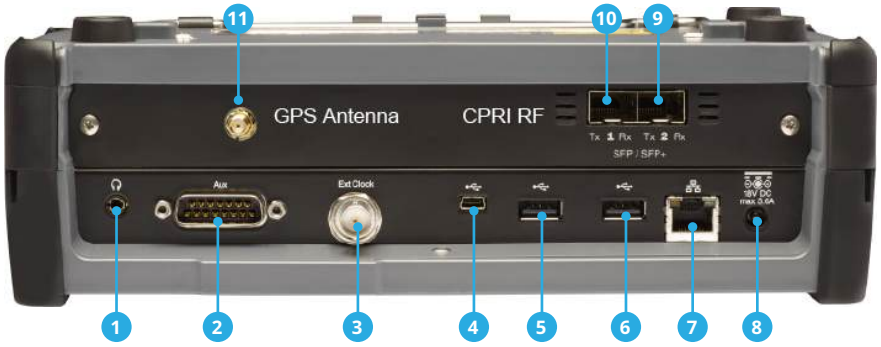
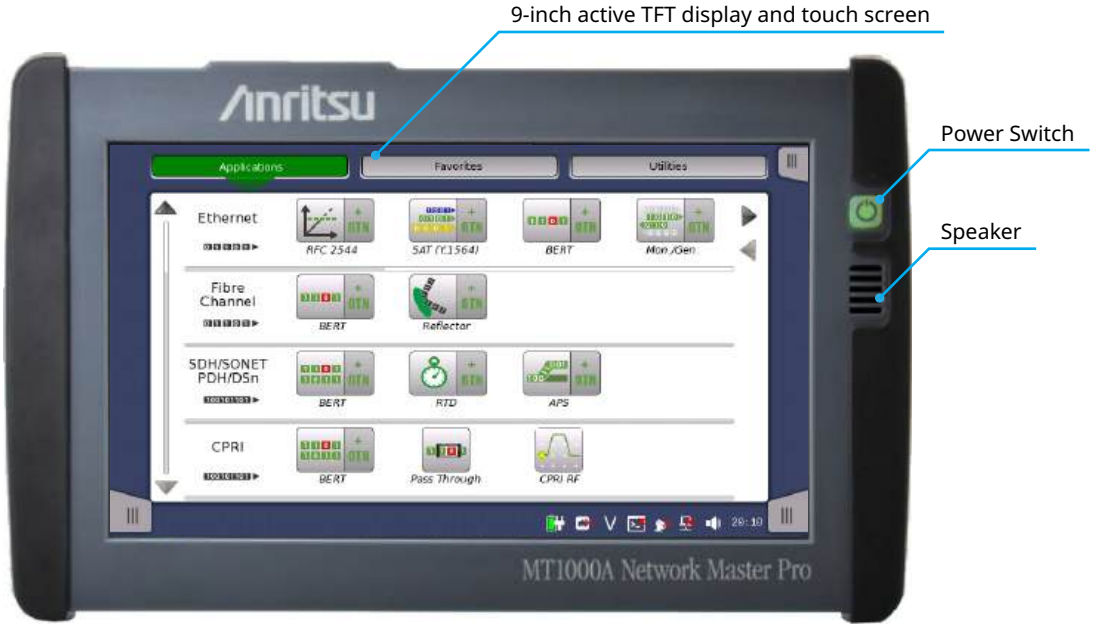
All specifications and features subject to change without notice. For the most current data sheet, please visit the Anritsu web site: www.anritsu.com

Connector Panel and Interface Overview



1. Audio (3.5ø: CTIA Standard)
2. AUX (G0325A/with MT1000A-005, MU100090A)
3. Clock Input
4. USB Mini-B
5. USB A
6. USB A
7. Ethernet Service Interface
8. DC Input (18 VDC)
9. CPRI SFP Port 2
10. CPRI SFP Port 1
11. SMA (f), GPS connection for use with MU100040B-010 only



Network Master Pro MT1000A Mainframe

User Interfaces

Display	9-inch active TFT display (800 × 480 pixels) and touch screen
Supported Languages	English

Service Interfaces

USB Data Interface	MT1000A operates as host: USB 2.0 type A (2 ports) MT1000A operates as device: USB 2.0 type Mini-B (1 port)
Ethernet Interface	Ethernet 10M/100M/1000M, Connector: RJ45
WLAN Interface[1]	IEEE 802.11 b/g/n
Bluetooth Interface[1]	Bluetooth 2.1 +EDR

Other Interfaces

Audio Interface	For connection of CTIA Standard head set Connector: 3.5 mm diameter jack
AUX Connector	For connection of optional G0325A GPS receiver With MT1000A-005: For connection of optional MU100090A
Built-in Loudspeaker	Monitors voice channel Output level: user-controlled from user interface
Ext. Clock Input	For connection of external clock signals: SETS (E1: 2.048 Mbps), BITS (DS1: 1.544 Mbps) or 2.048 MHz TTL signal in accordance with ITU-T G.703, 10 MHz Connector: BNC

Miscellaneous

Battery	10.8 V rechargeable and replaceable intelligent Li-ion battery Operating time: 4 hours (typical) Charging time: 3 to 6 hours (typical) Remaining capacity indication: %
Mains Adapter	Input: 100 VAC to 240 VAC, 50 Hz/60 Hz Output: 18 VDC, 3.62 A (max) Power Consumption: ≤ 65 W With MT1000A-006[2] Input: 100 VAC to 240 VAC, 50 Hz/60 Hz Output: 18 VDC, 6.6 A (max) Power Consumption: ≤ 120 W
Dimensions and Mass	255 (W) × 164 (H) × 80 (D) mm ≤2.6 kg (including MT1000A, MU100040B and battery)

Environmental

Temperature	Operating: 0 °C to +45 °C (non-condensing) with MU100040B Charging: 0 °C to +40 °C (non-condensing) Storage: –30 °C to +60 °C (non-condensing, without battery or AC adapter) –20 °C to +50 °C (non-condensing, with battery and AC adapter)
Humidity	Operating: ≤ 85 % RH (non-condensing) Storage and Transportation: ≤ 90 % RH (non-condensing)

Compliance and Safety

EMC	EN61326-1, EN61000-3-2
LVD	EN61010-1
Laser Safety[3]	IEC 60825-1: 2007 CLASS 1, 21CFR1040.10, and 1040.11[4] (MU100040B with optical modules)

1. Available for certified countries and regions including USA, Canada, Japan and all EU countries. Please visit www.anritsu.com for updated information.
2. Required for MU100011A (100G Multirate Module).
3. Safety measures for laser products. This product complies with optical safety standards in 21CFR1040.10, 1040.11, and IEC 60825-1. The descriptive labels are affixed to the product.
4. Excludes deviations caused by conformance to Laser Notice No. 50 dated June 24, 2007.

CPRI LTE RF Measurements (Option 1)

Measurements (CPRI RF measurements support LTE technology)

Spectrum	LTE Uplink and Downlink
Spectrogram	LTE Uplink and Downlink
Layer 2 Alarms	Signal Loss, LOS, LOF, LSS, Remote LOS, Remote LOF, RAI, SDI, Reset
SFP Data	Reads device information
Optical Power	Reads Tx/Rx Optical Power from SFP

Setup Parameters

Frequency	Center, Span
Amplitude	Reference Level (RL), Scale
Bandwidth	RBW, Auto RBW, VBW, Auto VBW, VBW/Average Type, RBW/VBW, Span/RBW
Measurements	CPRI Spectrum, Spectrogram, Layer 2 Alarms, SFP Data (SFP Info/Compliance Info)
CPRI Configure	Line Rate, AxC Container #, CPRI BW, Radio Presets
Radio Presets	Ericsson (Uplink/Downlink), Alcatel (Uplink/Downlink) Huawei (Uplink/Downlink), Advanced
Advanced	IQ Bit Width, Number of Reserve Bits, Aggregation (On/Off)

Sweep Functions

Sweep	Single/Continuous

Trace Functions

Traces	Up to three Traces (1, 2, 3), Blank, Hold/View, Active
Trace 1 Operations	Normal, Max Hold, Min Hold, Average (2 to 512 averages)
Trace 2 Operations	Max Hold, Min Hold
Trace 3 Operations	Max Hold, Min Hold

Marker Functions

Markers	Markers 1 to 6, Marker Table (On/Off), All Markers Off
Marker Auto-Position	Peak Search, Next Peak (Right/Left), Marker Frequency to Center, Fine Tune Marker Control (Right/Left)
Marker Table	1 to 6 markers frequency and amplitude

Limit Line Functions

Limit Lines	Upper/Limit, On/Off, Move, Limit Alarm
Limit Line Move	By dB

Bandwidth

Resolution Bandwidth (RBW)	10 Hz to 3 MHz in 1-3-10 sequence ±10 % (–3 dB bandwidth point) typical
Video Bandwidth (VBW)	10 Hz to 3 MHz in 1-3-10 sequence ±10 % (–3 dB bandwidth) typical
Line Bit Rate	Line bit rate 1: 614.4 Mbit/s Line bit rate 2: 1228.8 Mbit/s Line bit rate 3: 2457.6 Mbit/s Line bit rate 4: 3072.0 Mbit/s Line bit rate 5: 4915.2 Mbit/s Line bit rate 6: 6144.0 Mbit/s Line bit rate 7: 9830.4 Mbit/s

CPRI Parameters

IQ Sample Width	10 bits, 12 bits, 15 bits, 16 bits
Bandwidth	5 MHz, 10 MHz, 15 MHz, 20 MHz
Aggregation	On/Off

CPRI Interfaces Two SFP (small form factor pluggable) optical transceiver ports.

SFP 4.25G	850 nm
SFP+ 8G-FC/10G-SR	850 nm
SFP 2.7G	1310 nm
SFP+ 10G-LR	1310 nm
SFP 3.07Gbps	1310 nm
SFP 3.7Gbps	850 nm
SFP+ 10.5Gbps	1310 nm
SFP+ 10.5Gbps	850 nm

CPRI Base Band Unit Emulation ALu-Nokia LTE (Option 10)

Measurements

BBU Test	Initialization; RRH information Manufacturer Model Number Serial Number Frequency Range Output Power Firmware SFP Location
SFP Data	Reads SFP information installed in RRH
CPRI Alarms	LOS, LOF, RAI, SDI status lights

RF Measurements

RRH Antenna VSWR/Return Loss	While RRH is transmitting; Pass/Fail Limit
Uplink Spectrum	While RRH is transmitting; Uplink Markers Limit Lines Max., Min. Traces RBW/VBW Pan & Zoom
Uplink Spectrogram	While RRH is transmitting; Uplink Markers Limit Lines Max., Min. Traces RBW/VBW Pan & Zoom

RF Transmission

Test Models	LTE test model waveforms Test models: E-Tm1.1, E-Tm1.2, E-Tm2, E-Tm3.1, E-Tm3.2, E-Tm3.3 Bandwidths: 5 MHz, 10 MHz, 15 MHz, 20 MHz
Single Carrier Over CPRI	Adjust transmit power and center frequency of RRH
Waveform Manager	Manages waveforms for transmission

GPS Receiver

GPS data	Number of Tracked Satellites, Latitude, Longitude, Altitude, Fix available Yes/No, Almanac, Antenna and Receiver Status, Antenna Voltage, Current
GPS Lock Accuracy	$\pm 5.0 \times 10^{-8}$, 3 minutes after satellite lock, 0 °C to 50 °C ambient temperature
Connector	SMA, female
Supplied Antenna	2000-1760-R GPS Antenna, SMA (m), 25 dB gain, 2.5 VDC to 3.7 VDC

Ordering Information

Please specify the model/part number, description, and quantity when ordering.

Mainframe

Part Number	Description
MT1000A	Network Master Pro
Standard Accessories	
MT1000A-006[a]	High Power Supply
B0690A	Soft Case
B0728A	Rear Panel and Screw Kit
G0310A	Li-ion Battery
G0385A	High Power AC Adapter
J1565A[b]	Line Cord USA
J1594A[b]	Line Cord Japan
J1566A[b]	Line Cord Europe
J1567A[b]	Line Cord UK
J1568A[b]	Line Cord Australia
J1596A[b]	Line Cord Korea
Z1746A	Stylus
Z1747A[c]	Shoulder Strap
Z1748A[d]	Handgrip
Options	
MT1000A-003[e]	Connectivity for WLAN/Bluetooth
MT1000A-005[f]	AUX I/O

a. Required for MU100011A (100G Multirate Module).
b. One of the power line cords is supplied with the MT1000A.
c. This strap is mounted on the MT1000A.
d. This handgrip is mounted on the MT1000A.
e. Available for certified countries and regions including USA, Canada, Japan and all EU countries. Please visit the Anritsu web site for updated information.
f. Required to carry MU100090A. Contact Anritsu to retrofit your instrument.

CPRI RF Module

Part Number	Description
MU100040B	CPRI RF Module (requires Option 1)
Options	
MU100040B-001	Option 1, CPRI LTE RF Measurements
MU100040B-010	Option 10, CPRI Base Band Unit Emulation ALu-Nokia LTE
Accessories (included with Option 10)	
2000-1760-R	GPS Antenna, SMA (m), 25 dB gain, 2.5 VDC to 3.7 VDC
Optional CPRI Accessories	
67-12-R	80/20 Optical Tap; Single Mode/Multi Mode
67-13-R	80/20 Optical Tap; Single Mode
67-14-R	50/50 Optical Tap; Single Mode/Multi Mode
67-15-R	50/50 Optical Tap; Single Mode
68-5-R	SFP (Optical Module), 4.25G, 850 nm, 500 m
68-6-R	SFP+ (Optical Module), 8G FC/10G SR 850 nm
68-7-R	SFP (Optical Module), 2.7G, 1310 nm, 15 km
68-8-R	SFP+ (Optical Module), 10G LR, 1310 nm
68-9-R	SFP (Optical Module), 3.07Gbps SFP, 1310 nm
68-10-R	SFP (Optical Module), 3.7Gbps SFP, 850 nm
68-11-R	SFP (Optical Module), 10.5Gbps SFP+, 1310 nm
68-12-R	SFP (Optical Module), 10.5Gbps SFP+, 850 nm
68-16-R	SFP (Optical Module), 9.83Gbps SFP+, 1310 nm
2100-29-R	Fiber Optic Cable, 3 m, LC/UPC, Single Mode (SM), Simplex
2100-30-R	Fiber Optic Cable,10 m, LC-SC, Multi Mode (MM), Simplex
2100-31-R	Fiber Optic Cable, 3 m, LC/UPC, Single Mode (SM), Duplex
971-14-R	Ferrule Cleaner, 2.5 mm SC
971-15-R	Ferrule Cleaner, 1.25 mm LC
971-16-R	Fiber Ferrule Cleaner
808-16-R	3m, DUPLEX, MM, LC-LC
808-17-R	3m, SIMPLEX, MM, LC-LC
2000-1849-R	ESD Box

Miscellaneous Accessories

Part Number	Description
760-286-R	Compact Transit Case with Wheels and Handle 55.6 cm x 35.5 cm x 22.9 cm (22" x 14" x 9")
G0309A	AC Adapter
G0324A	Battery Charger
J1569B	Car 12 VDC Adapter
J1667A[a]	GPIB–USB Converter
Operation Manuals	
10580-00443	MT1000A/MU100040B Network Master Pro Operation Manual

a. J1667A is required for SCPI remote control via GPIB.

Ordering Information (Continued)

Maintenance Service

Part Number	Description
MT1000A-ES210	2 Years Extended Warranty Service
MT1000A-ES310	3 Years Extended Warranty Service
MT1000A-ES510	5 Years Extended Warranty Service
MU100040B-ES210	2 Years Extended Warranty Service
MU100040B-ES310	3 Years Extended Warranty Service
MU100040B-ES510	5 Years Extended Warranty Service

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List Revision Date: 20160317

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