



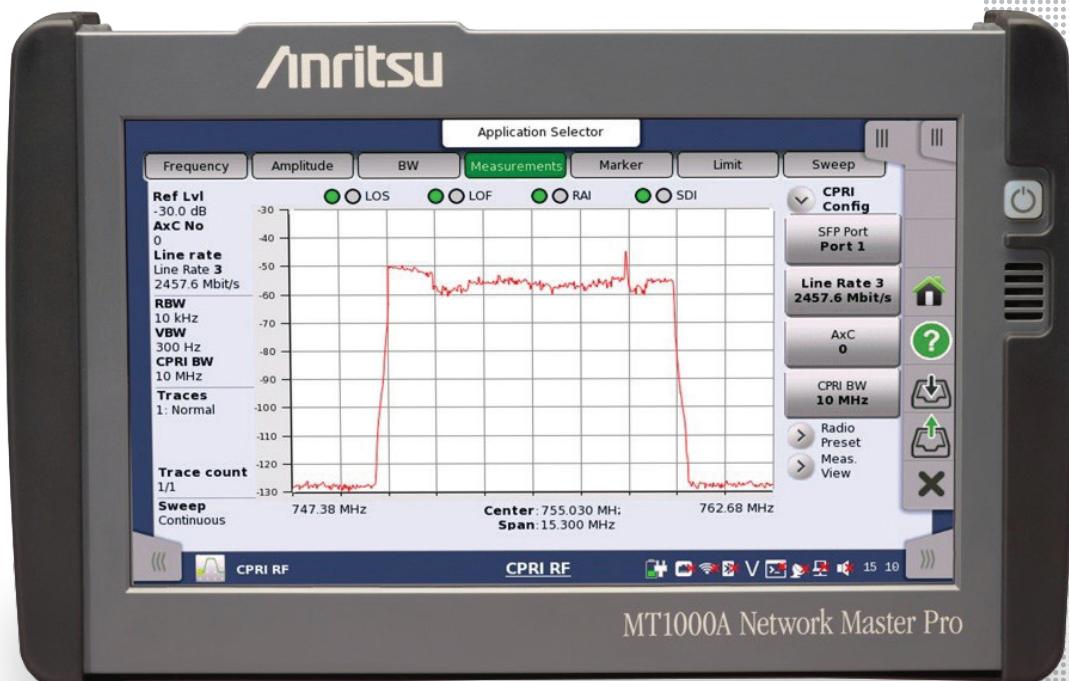
# Network Master™ Series

## Network Master Pro

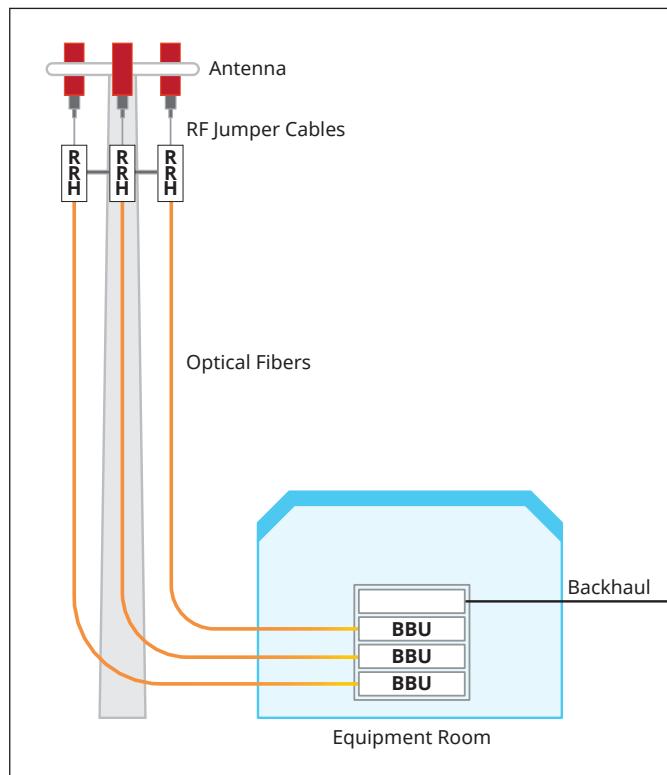
MT1000A

## CPRI RF Module

MU100040A



## The migration to CPRI technology in cellular networks



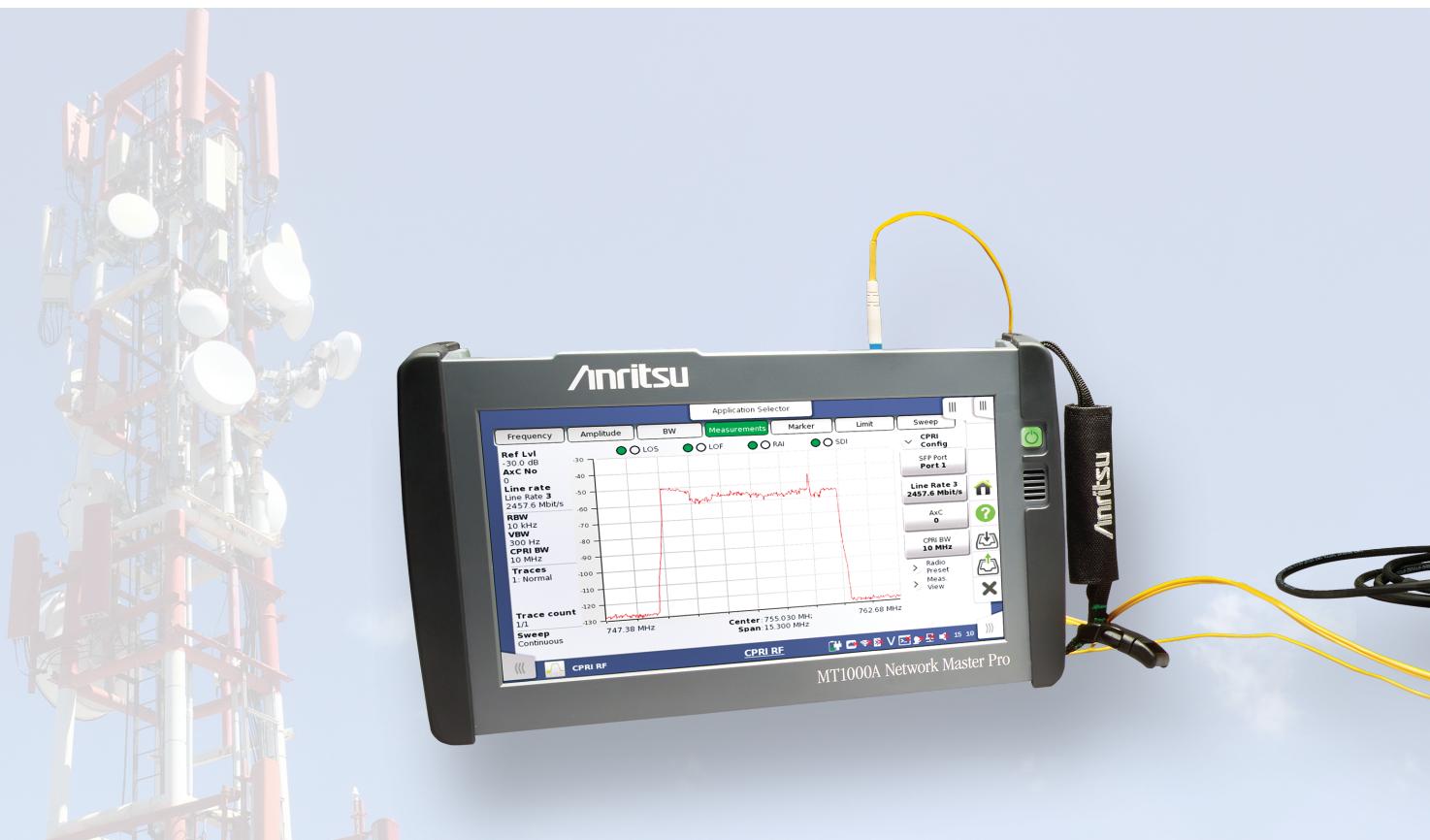
The architecture of cellular networks is evolving rapidly. Demand for greater data throughput from the network and the need to reduce operating costs has led to the implementation of networks that separate the radio from the baseband units.

By moving away from traditional macro cell sites in which ground based radios are connected to tower mounted antennas by long RF cable runs, to using a Remote Radio Head (RRH) at the tower top connected to a BaseBand Unit (BBU) at ground level, the deployment of the cell site can be much more flexible.

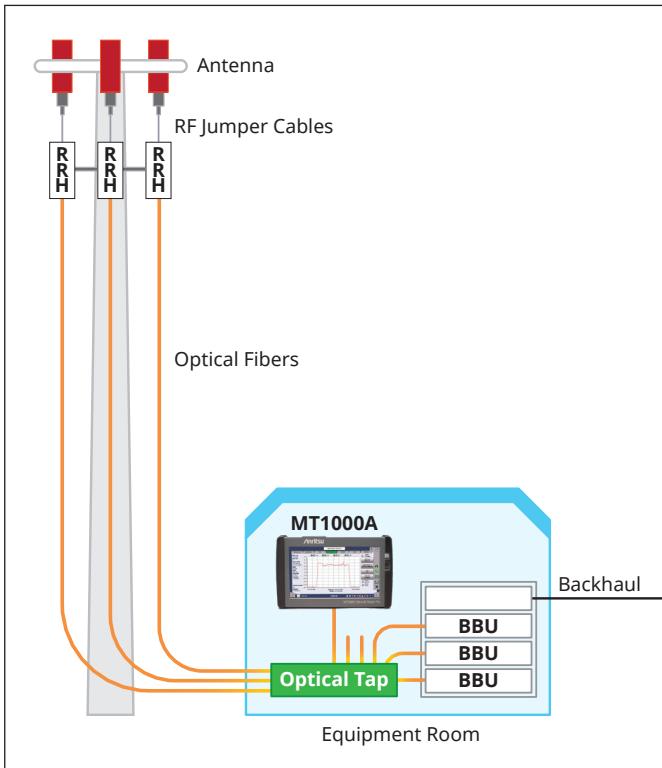
BBUs can be located locally at the host cell site or grouped together at BBU hotels up to 25 km from the RRH. This "Hotelling" of BBUs allows radio resources to be allocated dynamically, greatly increasing network efficiency. The interface between the BBU and the RRH is typically a fiber optic cable supporting the Common Public Radio Interface (CPRI) communication standard. The CPRI standard delivers a high speed serial interface with low latency required for LTE network roll out.

Separating the RRH from the BBU has the benefit of reducing the power consumption in the cell site equipment room and reducing the demands on air conditioning, greatly reducing operational expenditure. It also potentially reduces or even eliminates the need for long RF cable runs that can result in significant radio signal losses.

Testing the CPRI link between the BBU and RRH introduces new challenges for the field technician installing and maintaining the network. As the radio may now be located at the top of a tower, access to RF measurements could require the use of a certified tower climbing crew. However, by tapping into the CPRI link, RF measurements can be made from ground level without the need for any tower climb.



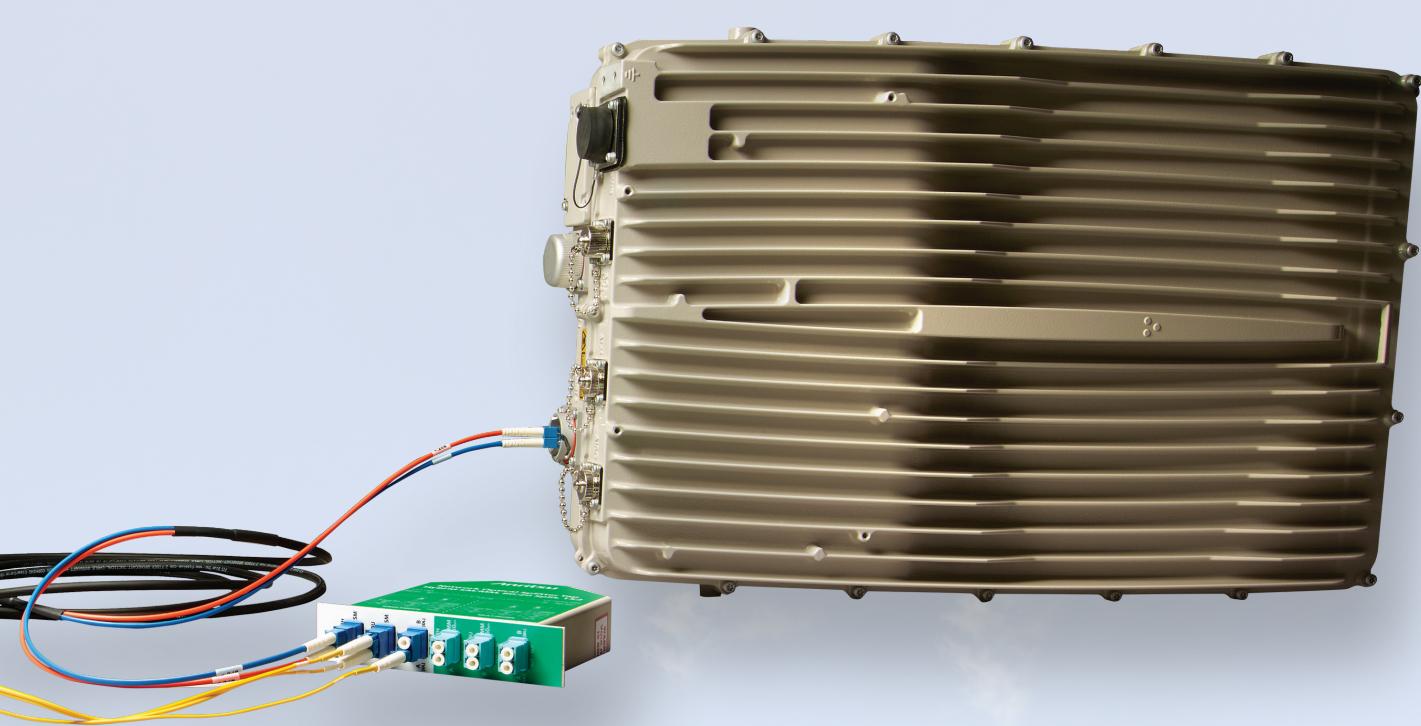
## Test challenges for CPRI cell sites implementing CPRI technology



Moving the radio to the tower top and hosting the BBU at the base of the tower or in remote hotels increases network flexibility and performance as well as reducing costs. The increased spectral densification that has been implemented with the roll out of LTE networks as well as overall spectral congestion has made these networks vulnerable to interference and intermodulation. This network degradation may first show up when monitoring KPIs. Especially for dropped calls and reduced data throughput.

MU100040A CPRI RF Module displays the LTE spectrum of the uplink or downlink of Alcatel Lucent/Nokia, Ericsson and Huawei radios.

By monitoring the LTE uplink spectrum on the CPRI uplink, it is possible to monitor for interferers from ground level. The MU100040A CPRI RF Module for the MT1000A Network Master Pro provides the ideal instrument for this application.



# Network Master™ Series MT1000A/MU100040A

## CPRI RF module for the MT1000A Network Master Pro

### Key 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
- 2 SFP slots for simultaneous uplink and downlink testing
- SFP data reading and display
- Layer 2 alarm monitoring and display
- Auto configuration of CPRI parameters
- Modular design for use with MT1000A OTDR and 10G transport test modules
- Battery powered for field use

The MU100040A 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 MT1000A means that it can be configured just for CPRI measurements or combined with the 10G transport module and OTDR module to create the most comprehensive and versatile fiber and transport tester available.

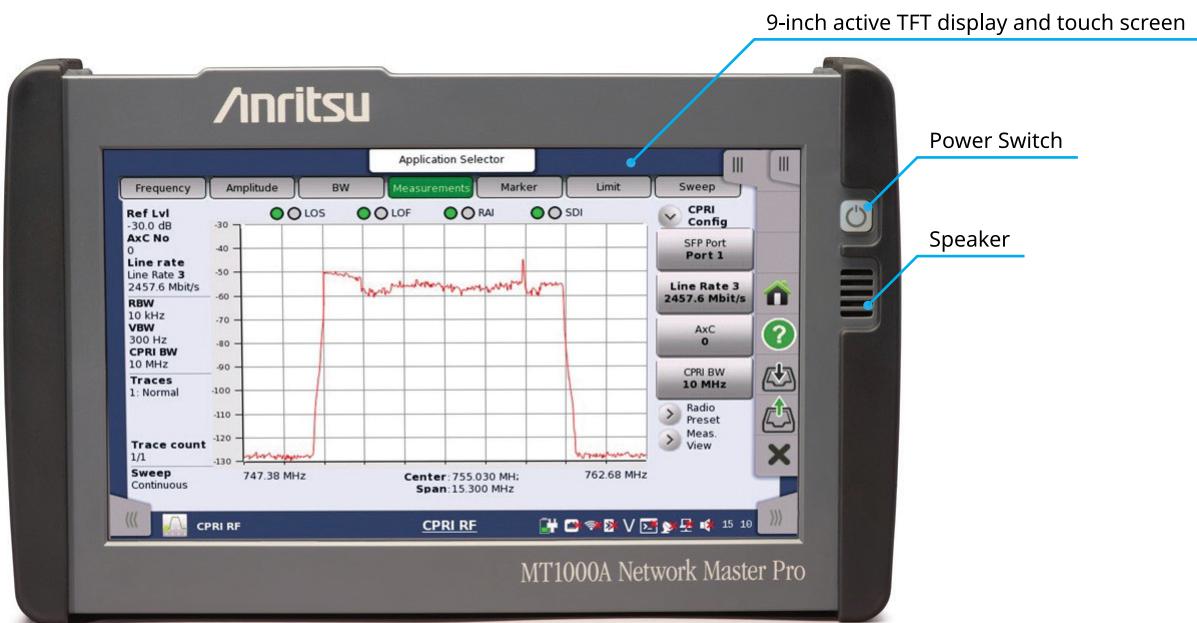
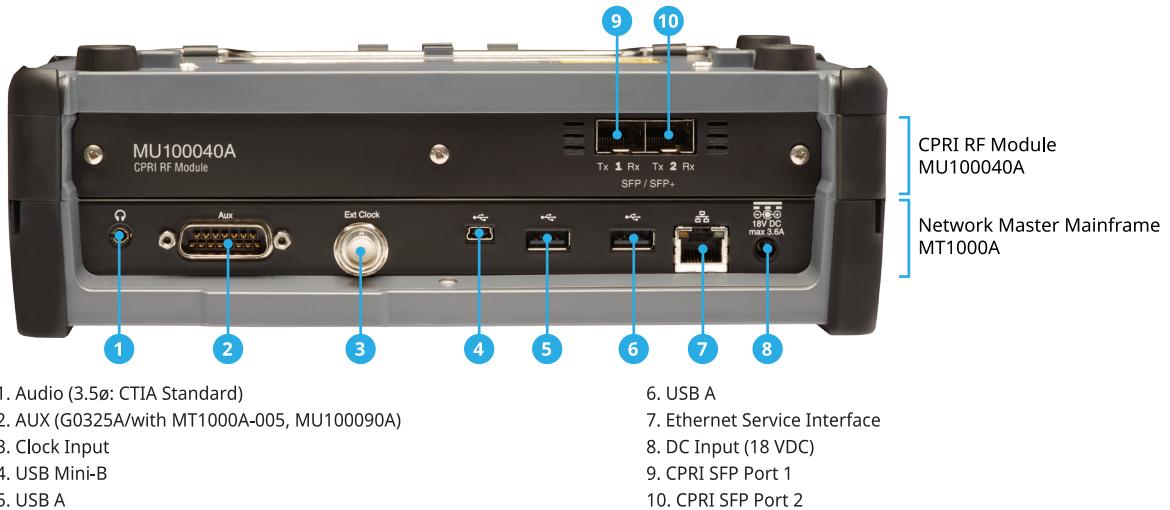
### CPRI RF measurements

The MT1000A Network Master Pro is a hand held battery power 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.



# Network Master™ Series MT1000A/MU100040A

## Panel Layout

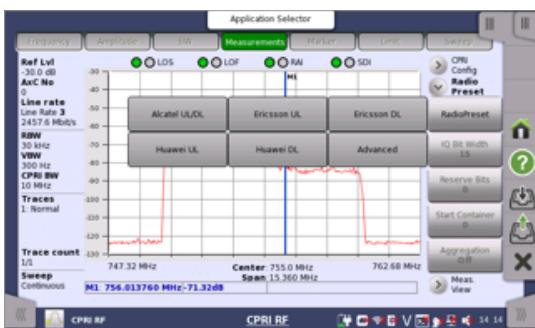


# Network Master™ Series MT1000A/MU100040A

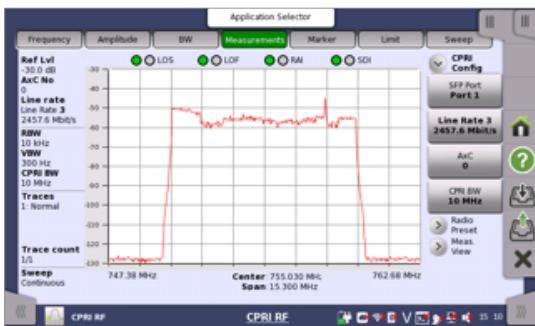
## CPRI RF Module Applications



The MT1000A displays all the applications available from the installed modules. For CPRI RF measurements, select the CPRI RF application icon.

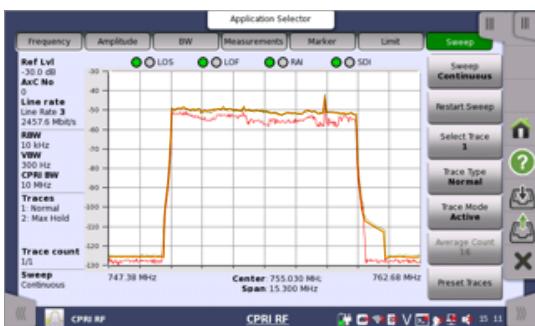


OEM radio presets simplify instrument configuration. By presetting the MT1000A to match the radio under test, key CPRI parameters are automatically configured, reducing chances of incorrect set up giving false results.

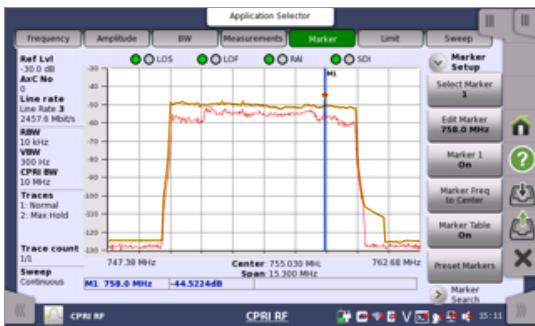


View the live spectrum of an LTE uplink. The fast update rate shows resource blocks being activated dynamically as well as enhancing ability to see intermittent interferers. Layer 2 alarms are displayed by indicator lamps at the top of the screen to confirm the integrity of the signal.

An interfering signal is clearly visible in the LTE spectrum.



Activating a second trace with Max Hold simplifies identification of intermittent interferers.



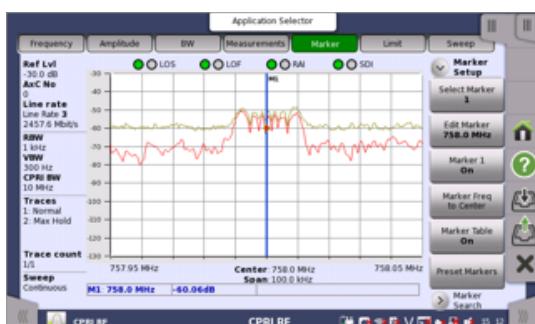
Up to 8 markers can be activated on the trace. Full marker features including Peak Find, Next Peak Left/Right, Marker to Center Frequency and Marker Tables are supported.

# Network Master™ Series MT1000A/MU100040A

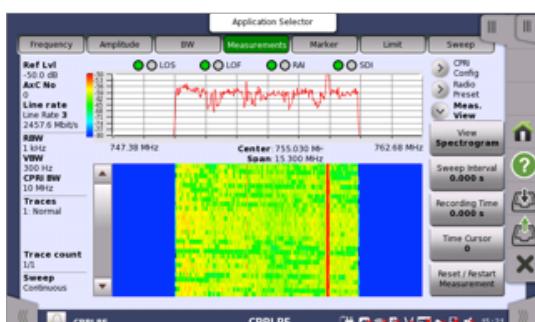
## Analyzing the CPRI Uplink



Marker to center frequency positions the interferer to be examined in the center of the display, allowing the user to zoom into the signal for detailed examination.



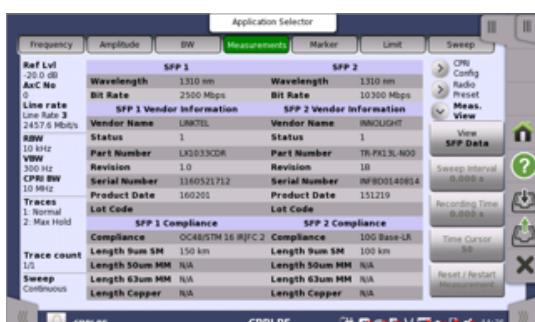
Reducing the span bandwidth gives a detailed view of the interferer signal spectrum, in this case an FM signal. Knowledge of the nature of the interferer gives invaluable information to enable the source to be located.



A spectrogram feature is ideal for long term monitoring of the spectrum. The spectrogram provides a timed history of all captured spectrums, so intermittent interferers are not lost.



The Layer 2 alarms screen shows full details of both test ports status.



It is essential that the SFP in the tester matches the requirements of the CPRI link under test. Typically the SFP capability data is hard to read from the manufacturer's label. MT1000A conveniently displays the full configuration of each SFP inserted into ports 1 and 2.

# Network Master™ Series MT1000A/MU100040A

## Ordering Information

### Mainframe



Part Number	Description
MT1000A	Network Master

#### Standard Accessories

J1565A <sup>a</sup>	Line Cord USA
J1594A <sup>a</sup>	Line Cord Japan
J1566A <sup>a</sup>	Line Cord Europe
J1567A <sup>a</sup>	Line Cord UK
J1568A <sup>a</sup>	Line Cord Australia
J1596A <sup>a</sup>	Line Cord Korea
Z1746A	Stylus
G0309A	AC Adapter
Z1817A <sup>b</sup>	Utilities ROM
G0310A	Li-ion Battery
Z1747A <sup>c</sup>	Shoulder Strap
Z1748A <sup>d</sup>	Handgrip

#### Options

MT1000A-003 <sup>e</sup>	Connectivity for WLAN/Bluetooth
MT1000A-005 <sup>f</sup>	AUX I/O

- a. One of the power line cords is supplied with the MT1000A.
- b. This DVD-R includes the operation manual for each module (MU100010A and MU100040A) used by the MT1000A.
- d. This strap is mounted on the MT1000A.
- e. This handgrip is mounted on the MT1000A.
- f. Available for certified countries and regions including USA, Canada, Japan and all EU countries. Please visit the Anritsu web site for updated information.  
Not supported for MU100020A/MU100021A.
- g. Required to carry MU100090A. MT1000A-205 is a retrofit option.

### CPRI RF Measurement Module



Part Number	Description
MU100040A	CPRI RF Measurement Module

#### Options

MU100040A-001	CPRI LTE Spectrum Measurements
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#### 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
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	Fiber Ferrule Cleaner
808-16-R	3m, DUPLEX, MM, LC-LC
808-17-R	3m, SIMPLEX, MM, LC-LC
2000-1849-R	ESD Box

# Network Master™ Series MT1000A/MU100040A

## Accessories

### 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")
G0324A	Battery Charger
J1569A	Car 12 VDC Adapter
J1667A <sup>a</sup>	GPIB-USB Converter

#### Operation Manuals

10580-00423	MT1000A/MU100040A Network Master Pro Operation Manual
Z1821A <sup>b</sup>	Utilities on USB device

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

b. Includes MT1000A Operation Manual and the Remote Script Manual.

### 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
MU100040A-ES210	2 Years Extended Warranty Service
MU100040A-ES310	3 Years Extended Warranty Service
MU100040A-ES510	5 Years Extended Warranty Service

## G0306B Video Inspection Probe

The product name and listed name may be different sometimes; contact your sales representative for more details.

#### Model/Order Number Name

G0306B Video Inspection Probe (x400)

#### Standard Accessories

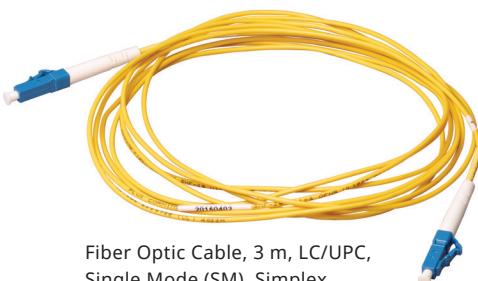
Operation Manual (Printed)  
Soft Bag  
Seven Connector Tips

#### Application Parts

H0360A	2.5PC-M
H0361A	1.25PC-M
H0362A	2.5APC-M
H0363A	LC-PC-F
H0364A	FC-PC-F
H0365A	SC-PC-F
H0366A	SC-APC-F
H0372A	E2000-C-F
H0373A	FC-APC-F
H0375A	ST-PC-F
H0376A	1.25APC-M
H0380A	LC65-PC-F



80/20 Optical Tap; Single Mode/Multi Mode



Fiber Optic Cable, 3 m, LC/UPC,  
Single Mode (SM), Simplex



A range of SFP's are available as  
optional accessories



Compact transit Case with wheels and handle  
55.6 cm x 35.5 cm x 22.9 cm (22" x 14" x 9")

## Video Inspection Probe G0306B

Dirty or damaged optical connectors can greatly affect the performance of the CPRI fiber between the BBU and RRH. Scratches, chips and contamination on optical fiber connector end faces reduce transmission quality and increase errors. This leads to additional I&M work and cost. The Video Inspection Probe G0306B can reduce these issues by verifying the condition and cleanliness of connector end faces during the installation phase. The connector image and detailed PASS/FAIL status is displayed as defined by IEC 61300-3-35 ensuring quality and consistency from connector to connector, technician to technician.

The G0306B probe connects directly to the USB port on the MT1000A mainframe.

- 400x digital probe
- USB 2.0/1.1 supported
- Drivers pre-installed
- Auto Pass/Fail analysis
- Multiple connector tips



The probe is supplied with multiple tips and a soft carry case.



MT1000A screen displays details of the fiber tip core, cladding, adhesive and contact, with automatic Pass/Fail result judgement.

## Notes

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Specifications are subject to change without notice.

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Anritsu utilizes recycled paper and environmentally conscious inks and toner.



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11410-00963, Rev. A Printed in United States 2016-09  
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