

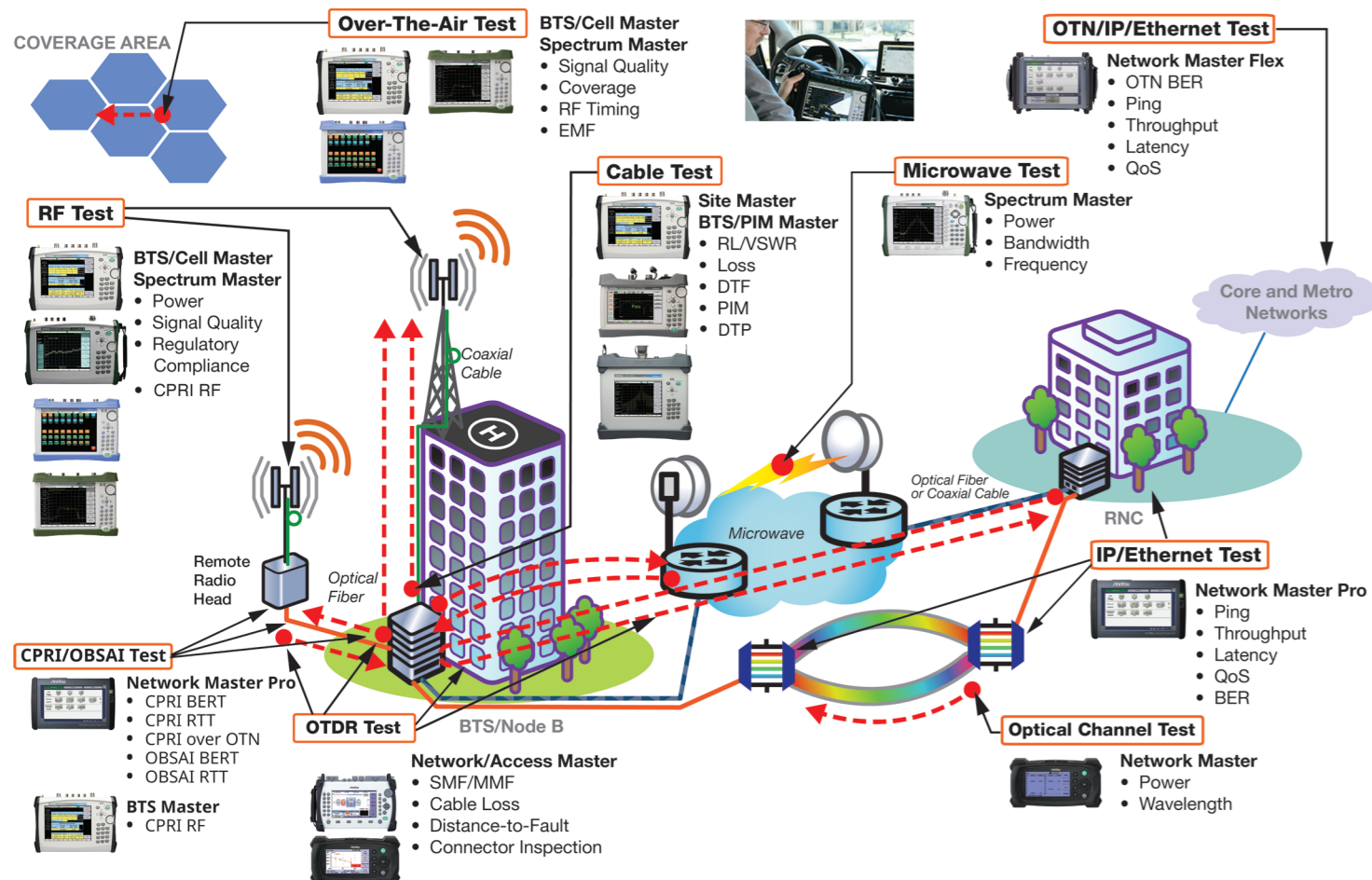
Installation, Maintenance and Optimization Solutions

Antenna Systems, Backhaul/Fronthaul, Base Stations, Air Interface

The right tools to achieve best-in-class network reliability



Base Station Field Test Environment



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Network reliability has the biggest impact on churn for wireless network operators.

Poor network reliability, perceived or real, is a primary reason subscribers leave a network; something the industry calls “churn”. Key performance indicators (KPI) such as blocked or dropped calls and data sessions or low data throughput are monitored and are identified by network operators as the main reasons customers churn.

Additionally, operators are having to overcome the multiple challenges of co-siting new **LTE-A 4G** technology with legacy **3G** and 2G infrastructure, new base station types such as remote radio heads (**RRH**) using the optical **CPRI** interface for fronthaul, advanced **MIMO** transmission techniques, providing reliable in-building coverage using distributed antenna systems (**DAS**), increasing passive intermodulation (**PIM**) and interference levels and sometimes periodic mandatory regulatory testing, all while keeping installation, maintenance and optimization costs under control.

Anritsu products and cloud-based services are focused on maximizing technician productivity and consequently keeping operating costs down. Giving technicians the right, **simple-to-use** tools to optimize network performance is more cost effective than trying to replace lost subscribers, which are becoming harder and more costly to find.

Discover **Anritsu's best-in-class tools** which will help your technicians and engineers optimize all areas of your network and elevate your network reliability to best-in-class.

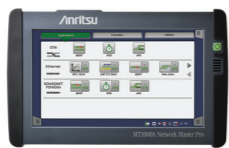
For more information about these products go to anritsu.com



Network Master™ Flex
MT1100A
Core/Metro Transport Analyzer

Highlights:

- All-in-One Transport Tester – supports testing from 1.5 Mbps to 100 Gbps – CPRI, OBSAI, Ethernet, SONET/SDH, OTN, Fibre Channel
- Up to 4 Ports independent operation at all rates
- Client testing mapped into OTN
- WLAN/Bluetooth/LAN connectivity
- PDF, CSV and XML report generation for documentation of test results
- Remote Operation (VNC) and Remote Control (Scripting)



Network Master™ Pro
MT1000A
Backhaul and Fronthaul Transport Analyzer

Highlights:

- Complete 1.5 Mbps to 10 Gbps Transport Analyzer – CPRI, OBSAI, Ethernet, SONET/SDH, OTN, Fiber Channel
- WLAN/Bluetooth/LAN connectivity
- Independent, Dual Port operation
- Simple user interface
- Verify Backhaul and Fronthaul throughput and performance



Network Master™
MT9090A
Gigabit Ethernet Analyzer

Highlights:

- Comprehensive 10/100/1000 Mbps Ethernet Analyzer for I&M
- Verify throughput and transport signal quality
- PING, RFC2544, Y.1564, Multiple Stream Generation
- Channel Stats - troubleshooting utility
- RJ45 and SFP interfaces



Network Master™
MT9090A
Optical Channel Analyzer

Highlights:

- CWDM Backhaul Analyzer
- Monitor wavelength and drift on all 18 CWDM channels
- ITU-T G.695 and G.694.2 compliant



Network Master™
MT9083x2 series
Optical Time Domain Reflectometer (OTDR)

Highlights:

- Pocket-Sized Optical Fiber Analyzer
- High Resolution, 4.3 in indoor/outdoor color display
- Simple Operation and PDF Reporting with Fiber Visualizer
- Complete I&M tool in One Unit: OTDR, Light Source, Power Meter, and Connector Microscope

	Network Element							
	Fronthaul or Backhaul			Base Station Transmitter	Antenna System			Coverage Area
	Ethernet or CPRI	Fiber	Microwave		Antenna	RF Feeder	DAS	
Dropped Calls								
Insufficient Coverage				BTS Master Cell Master Spectrum Master	Site Master	Site Master	Site Master	BTS Master Cell Master Spectrum Master
Wrong Downtilt								BTS Master Cell Master Spectrum Master
Low Power or Bad Frequency Response at Antenna			Site Master	BTS Master Cell Master Spectrum Master	Site Master	Site Master	Site Master	BTS Master Cell Master Spectrum Master
Transmitter Problems			Spectrum Master	BTS Master Cell Master Spectrum Master				BTS Master Cell Master Spectrum Master
PIM					PIM Master	PIM Master	PIM Master	
Uplink Interference				BTS Master Cell Master Spectrum Master	PIM Master	PIM Master	PIM Master	BTS Master Cell Master Spectrum Master Mobile InterferenceHunter Handheld InterferenceHunter
Backhaul Problems	Network Master Flex Network Master Pro Network Master Gigabit Ethernet	Access Master Network Master Video Inspection Probe	Site Master Spectrum Master					
Fronthaul Problems	Network Master Flex Network Master Pro BTS Master	Access Master Network Master Video Inspection Probe	Site Master Spectrum Master					
Blocked Calls								
Uplink Interference				BTS Master Cell Master Spectrum Master	PIM Master	PIM Master	PIM Master	BTS Master Cell Master Spectrum Master Mobile InterferenceHunter Handheld InterferenceHunter
PIM					PIM Master	PIM Master	PIM Master	
Transmitter Problems			Spectrum Master	BTS Master Cell Master Spectrum Master				BTS Master Cell Master Spectrum Master
Backhaul Problems	Network Master Flex Network Master Pro Network Master Gigabit Ethernet	Access Master Network Master Video Inspection Probe	Site Master Spectrum Master					
Fronthaul Problems	Network Master Flex Network Master Pro BTS Master	Access Master Network Master Video Inspection Probe	Site Master Spectrum Master					
Low Throughput								
Transmitter Problems			Spectrum Master	BTS Master Cell Master Spectrum Master				BTS Master Cell Master Spectrum Master
Backhaul Problems	Network Master Flex Network Master Pro Network Master Gigabit Ethernet	Access Master Network Master Video Inspection Probe	Site Master Spectrum Master					
Fronthaul Problems	Network Master Flex Network Master Pro BTS Master	Access Master Network Master Video Inspection Probe	Site Master Spectrum Master					
Low Power or Bad Frequency Response at Antenna			Site Master	BTS Master Cell Master Spectrum Master	Site Master	Site Master	Site Master	
DAS Problems		Access Master Network Master Video Inspection Probe		BTS Master Cell Master Spectrum Master	Site Master	PIM Master Site Master	PIM Master Site Master	BTS Master Cell Master Spectrum Master
Uplink Interference				BTS Master Cell Master Spectrum Master	PIM Master	PIM Master	PIM Master	BTS Master Cell Master Spectrum Master Mobile InterferenceHunter Handheld InterferenceHunter
PIM					PIM Master	PIM Master	PIM Master	
Complaints from other Operators								
Transmitter Problems			Spectrum Master	BTS Master Cell Master Spectrum Master				BTS Master Cell Master Spectrum Master
PIM					PIM Master	PIM Master	PIM Master	
Regulatory Compliance								
Transmitter Problems			Spectrum Master	BTS Master Cell Master Spectrum Master				



ACCESS Master™
MT9083x2 series
Optical Time Domain Reflectometer (OTDR)

Highlights:

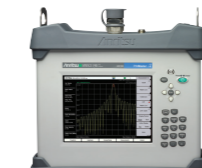
- Optical Fiber Analyzer
- Simple, Graphical summary of results and close-out reporting
- Complete Fiber Test Tool: OTDR, light source, power meter, VFL, microscope
- Rugged, sealed design for reliability



Video Inspection Probe
G0306A
Connector Inspection Microscope

Highlights:

- Optical Fiber Connector Condition Analysis
- Simple PASS/FAIL Analysis for Tower Cables, RRU/DAS Jumpers, SFPs
- IEC61300-3-35 Compliant, ensures all technicians and contractors use the same criteria



PIM Master™
MW82119B
PIM Analyzer

Highlights:

- Passive intermodulation (PIM) analyzer
- PIM vs.Time, Swept PIM, Distance-to-PIM (DTP), Noise Floor
- Battery Operated: > 3 hour
- 20 dBm (0.1 Watt) to 46 dBm (40 Watt)
- Field-proven design: rugged, compact, daylight viewable display



Mobile Interference
Hunting System
MX280007A

Highlights:

- Multi-emitter mode of operation
- Squelch Control
- Choice of Google Maps™ or OpenStreetMap™
- Quickly drive to interfering signal location
- Find exact location with spectrum analyzer and directional antenna
- Complements MA2700A Handheld InterferenceHunter™
- Locate multiple emitters such as Cable TV leakage
- Works with Spectrum Master, BTS Master, Cell Master, and Site Master models with spectrum analyzer



Site Master™
S331L/S33xE/S36xE/S820E
Handheld Cable and Antenna Analyzer

Highlights:

- Cable and Antenna Analyzer
- Field Strength
- Spectrum Analyzer (some models)
- Channel Power
- Occupied Bandwidth
- Adjacent Channel Power Ratio (ACPR)
- Carrier-to-Interference ratio (C/I)
- Return Loss, Cable Loss
- Distance-to-Fault (DTF)
- S820E model to 40 GHz
- CPRI RF (S331E, S332E, S361E, S362E)



BTS Master™ MT8220T
Cell Master™ MT8212E/13E
Base Station Signal Analyzer

Highlights:

- Cable and Antenna Analyzer
- Spectrum Analyzer
- Vector Signal Generator (MT8220T)
- Interference Analyzer with mapping
- Power Meter
- Signal Analyzers: LTE/LTE-A FDD/TDD, W-CDMA/HSPA+, GSM/GPRS/EDGE, TD-SCDMA/HSPA+, CDMA, EV-DO, Fixed and Mobile WiMAX
- CPRI RF (MT8220T)



Spectrum Master™
MS2711E/12E/13E & MS2720T
Spectrum Analyzer

Highlights:

- Interference hunting, microwave backhaul and quality of the transmitter
- Bench top performance in a handheld package
- 2G, 3G, 4G signal analysis options
- Full suite of spectrum analyzer measurements including Channel Power, OBW, ACPR, SEM and Spurious Emissions
- Wide range of optional capabilities, including interference analysis, GPS, coverage mapping and I/Q capture.
- CPRI RF (MS2712E & MS2713E)

For more information about these products go to anritsu.com