

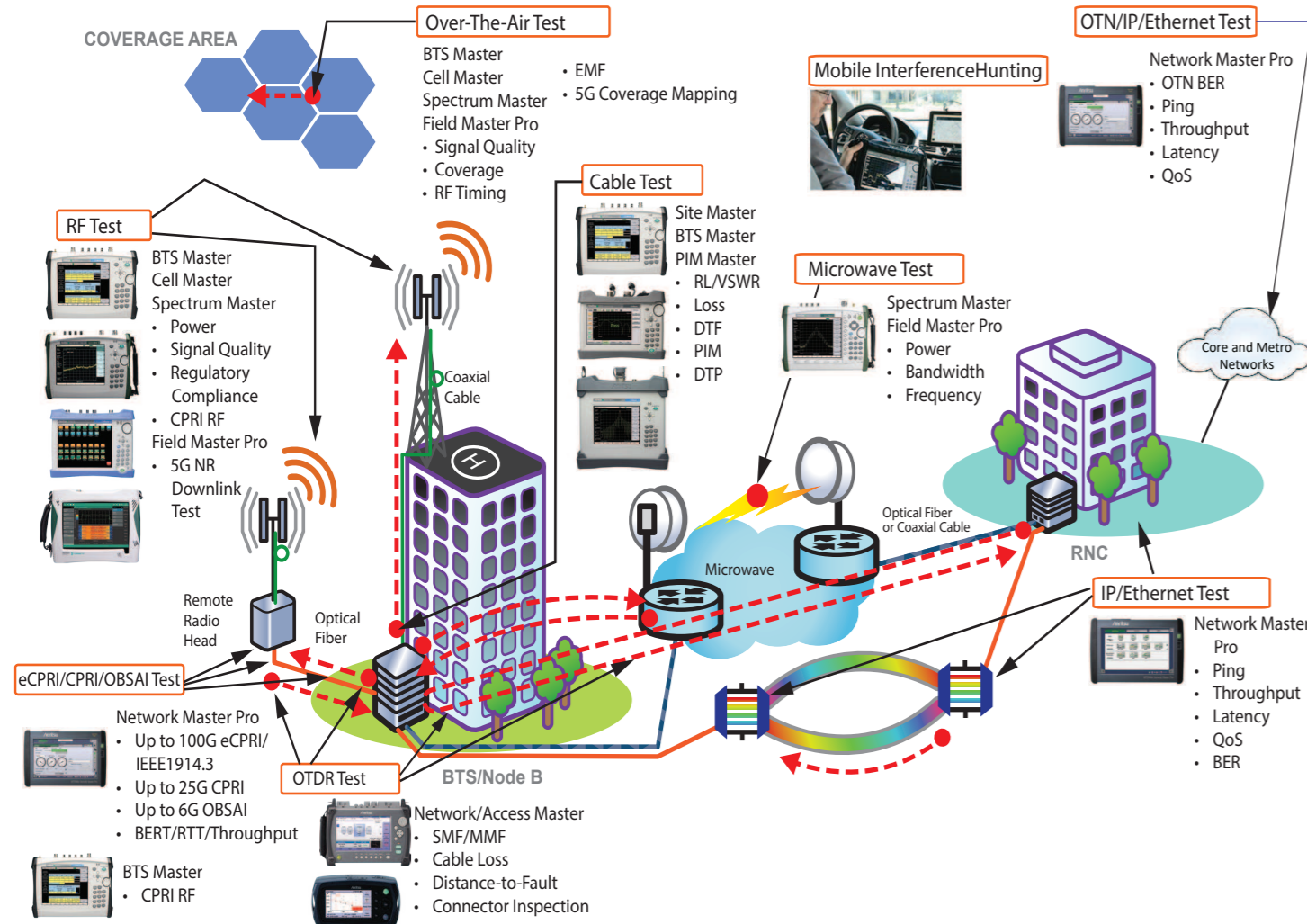
Installation, Maintenance and Optimization Solutions

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

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



Base Station Field Test Environment



• **United States**
Anritsu Americas Sales Company
 450 Century Parkway, Suite 190, Allen, TX 75013 U.S.A.
 Phone: +1-800-Anritsu (1-800-267-4878)

• **Canada**
Anritsu Electronics Ltd.
 700 Silver Seven Road, Suite 120, Kanata, Ontario K2V 1C3, Canada
 Phone: +1-613-591-2003
 Fax: +1-613-591-1006

• **Brazil**
Anritsu Eletronica Ltda.
 Praça Amadeu Amaral, 27 - 1 Andar 01327-010 - Bela Vista - Sao Paulo - SP Brazil
 Phone: +55-11-3283-2511
 Fax: +55-11-3288-6940

• **Mexico**
Anritsu Company, S.A. de C.V.
 Blvd Miguel de Cervantes Saavedra #169 Piso 1, Col. Granada Mexico, Ciudad de Mexico, 11520, MEXICO
 Phone: +52-55-4169-7104

• **United Kingdom**
Anritsu EMEA Ltd.
 200 Capability Green, Luton, Bedfordshire, LU1 3LU, U.K.
 Phone: +44-1582-433200
 Fax: +44-1582-731303

• **France**
Anritsu S.A.
 12 avenue du Québec, Bâtiment Iris 1- Silic 612, 91140 VILLEBON SUR YVETTE, France
 Phone: +33-1-60-92-15-50
 Fax: +33-1-64-46-10-65

• **Germany**
Anritsu GmbH
 Nemetschek Haus, Konrad-Zuse-Platz 1 81829 München, Germany
 Phone: +49-89-442308-0
 Fax: +49-89-442308-55

• **Italy**
Anritsu S.r.l.
 Via Elio Vittorini 129, 00144 Roma, Italy
 Phone: +39-6-509-9711
 Fax: +39-6-502-2425

• **Sweden**
Anritsu AB
 Isafjordsgatan 32C, 164 40 KISTA, Sweden
 Phone: +46-8-534-707-00

• **Finland**
Anritsu AB
 Teknobulevardi 3-5, FI-01530 VANTAA, Finland
 Phone: +358-20-741-8100
 Fax: +358-20-741-8111

• **Denmark**
Anritsu A/S
 Torveporten 2, 2500 Valby, Denmark
 Phone: +45-7211-2200
 Fax: +45-7211-2210

• **Russia**
Anritsu EMEA Ltd.
Representation Office in Russia
 Tverskaya str. 16/2, bld. 1, 7th floor. Moscow, 125009, Russia
 Phone: +7-495-363-1694
 Fax: +7-495-935-8962

• **Spain**
Anritsu EMEA Ltd.
Representation Office in Spain
 Edificio Cuzco IV, Po. de la Castellana, 141, Pta. 5 28046, Madrid, Spain
 Phone: +34-915-726-761
 Fax: +34-915-726-621

• **United Arab Emirates**
Anritsu EMEA Ltd.
Dubai Liaison Office
 902, Aurora Tower, P O Box: 500311- Dubai Internet City Dubai, United Arab Emirates
 Phone: +971-4-3758479
 Fax: +971-4-4249036

• **India**
Anritsu India Private Limited
 6th Floor, Indique ETA, No.38/4, Adjacent to EMC2, Doddanekundi, Outer Ring Road, Bengaluru - 560048, India
 Phone: +91-80-6728-1300
 Fax: +91-80-6728-1301

• **Singapore**
Anritsu Pte. Ltd.
 11 Chang Charn Road, #04-01, Shriro House Singapore 159640
 Phone: +65-6282-2400
 Fax: +65-6282-2533

• **P.R. China (Shanghai)**
Anritsu (China) Co., Ltd.
 Room 2701-2705, Tower A, New Caohejing International Business Center No. 391 Gui Ping Road Shanghai, 200233, P.R. China
 Phone: +86-21-6237-0898
 Fax: +86-21-6237-0899

• **P.R. China (Hong Kong)**
Anritsu Company Ltd.
 Unit 1006-7, 10/F., Greenfield Tower, Concordia Plaza, No. 1 Science Museum Road, Tsim Sha Tsui East, Kowloon, Hong Kong, P.R. China
 Phone: +852-2301-4980
 Fax: +852-2301-3545

• **Japan**
Anritsu Corporation
 8-5, Tamura-cho, Atsugi-shi, Kanagawa, 243-0016 Japan
 Phone: +81-46-296-6509
 Fax: +81-46-225-8352

• **Korea**
Anritsu Corporation, Ltd.
 5FL, 235 Pangyoyeok-ro, Bundang-gu, Seongnam-si, Gyeonggi-do, 13494 Korea
 Phone: +82-31-696-7750
 Fax: +82-31-696-7751

• **Australia**
Anritsu Pty. Ltd.
 Unit 20, 21-35 Ricketts Road, Mount Waverley, Victoria 3149, Australia
 Phone: +61-3-9558-8177
 Fax: +61-3-9558-8255

• **Taiwan**
Anritsu Company Inc.
 7F, No. 316, Sec. 1, NeiHu Rd., Taipei 114, Taiwan
 Phone: +886-2-8751-1816
 Fax: +886-2-8751-1817

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 **5G** technology with legacy **LTE** 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.



Network Master™ Pro
MT1000A
I&M Transport Analyzer

Highlights:

- Complete 1.5 Mbps to 10 Gbps Transport Analyzer – eCPRI, CPRI, OBSAI, Ethernet, SONET/SDH, OTN, Fibre Channel
- High-Resolution Latency (Delay) Measurement
- PTP-based Time Synchronization Measurement
- WLAN/Bluetooth/LAN Connectivity
- Simple User Interface
- PDF, CSV and XML Report Generation for Documentation of Test Results
- Allows Execution of Multiple Test Via One-Button Selection



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 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



ACCESS Master™
MT9085 Series
Optical Time Domain Reflectometer (OTDR)

Highlights:

- 8-Inch Wide Touchscreen and Hard Keys
- 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
G0306B/G0382A
Connector Inspection Microscope

Highlights:

- Autofocus Type (G0382A)
- Manual Type (G0306B)
- Simple PASS/FAIL Analysis for Tower Cables, RRU/DAS Jumpers, SFPs
- IE61300-3-35 Compliant, Ensures all Technicians and Contractors Use the Same Criteria

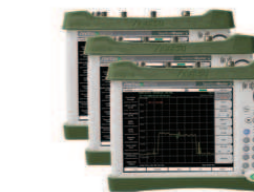
	Network Element							Coverage Area
	Fronthaul or Backhaul			Base Station Transmitter	Antenna System			
	Ethernet or CPRI	Fiber	Microwave		Antenna	RF Feeder	DAS	
Dropped Calls								
Insufficient Coverage				BTS Master Cell Master Spectrum Master Field Master Pro	Site Master	Site Master	Site Master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



Field Master Pro™
MS2090A
RF Spectrum Analyzer

Highlights:

- Models to 54 GHz
- 100 MHz analysis bandwidth
- 5G NR downlink analysis
- RTSA for interference hunting
- Channel power, OBW, ACPR, SEM
- DANL -164 dBm for small signal detection



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

Highlights:

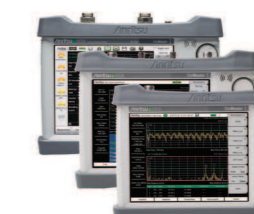
- Interference hunting, microwave backhaul, and quality of the transmitter
- Benchtop performance in a handheld package
- 2G, 3G, 4G signal analysis options
- Channel Power, OBW, ACPR, SEM and Spurious Emissions
- Interference analysis, GPS, coverage mapping and I/Q capture.
- CPRI RF (MS2712E & MS2713E)



BTS Master™ MT8220T
Cell Master™ MT8213E
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)



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

Highlights:

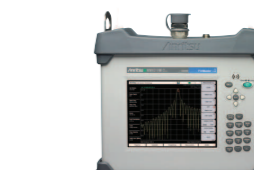
- Cable and Antenna Analyzer
- Field Strength
- Spectrum Analyzer (some models)
- Channel Power, Occupied Bandwidth, ACPR, C/I
- Return Loss, Cable Loss, DTF
- S820E model to 40 GHz
- CPRI RF (S331E, S332E, S361E, S362E)



Mobile Interference Hunting System
MX280007A

Highlights:

- Quickly find interfering, single and multiple, signals
- Spectrum clearing mode
- Uses Google Maps™
- Quickly drive to interfering signal location
- Locate multiple emitters such as cable TV leakage
- Works with Spectrum Master, BTS Master, Cell Master, Field Master Pro, and Site Master models with spectrum analyzer



PIM Master™
MW82119B
PIM Analyzer

Highlights:

- 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