



The Broadband Initiative

Anritsu's role in bringing high speed communications to rural America



Broadband Stimulus: A timely opportunity for America

Through the American Recovery and Reinvestment Act of 2009, \$7.2 billion was made available to expand broadband access to unserved and underserved communities across the United States. The initiative is coordinated by the Department of Agriculture's Rural Utilities Service (RUS) and The Department of Commerce's National Telecommunications Information Administration (NTIA).

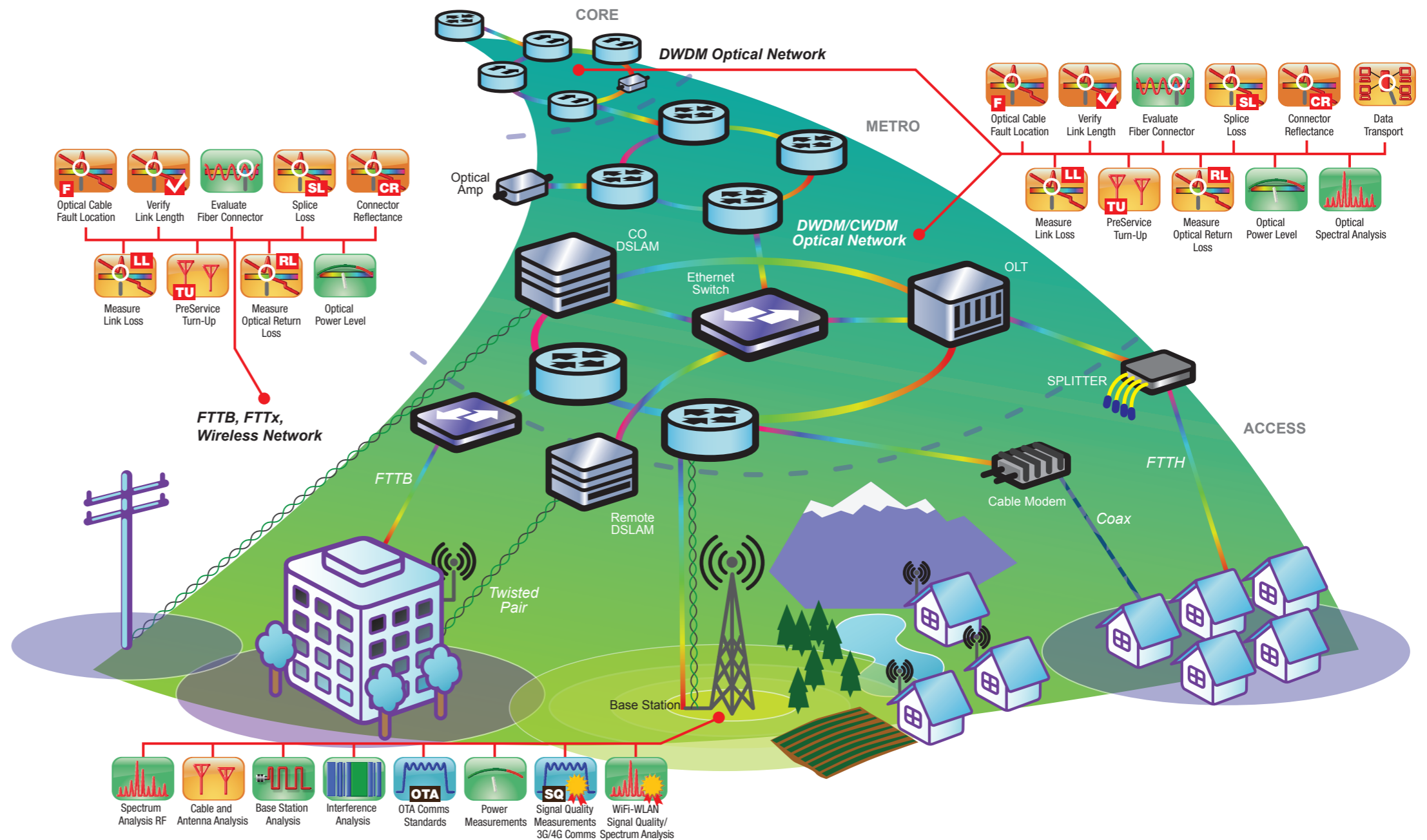
As a major partner of American and multinational wireless companies, Anritsu believes that wireless broadband will be key to meeting the challenges posed by the Broadband Stimulus initiative.

The first challenge is cost. While high-density optical fiber is the logical choice for regional and long-haul connections, it becomes impractical and expensive for long runs across rural areas to serve a handful of users. Copper can be used when it is already in place, but extending copper networks is labor-intensive and the price of copper itself is near all-time highs.

The next challenge is speed. New lines must be deployed, base stations built and end-to-end fault testing completed on a tight schedule in remote areas. Installation and maintenance crews must be nimble and resourceful. There won't be time to wait for replacement parts or to re-check faulty lines buried in a trench across a rural right-of-way. Everything needs to be right the first time.

Wireless broadband, whether point-to-point, WiMAX or another implementation, eliminates the need to make physical connections over difficult terrain such as forests, water and mountains. It can be deployed rapidly with little or no trenching required. And today's wireless delivers the performance to meet the standards that broadband requires.

Bringing broadband to rural America



















The "Broadband Stimulus" initiative creates jobs, improves infrastructure and benefits the American economy by bringing high-speed communications to underserved rural areas.

Existing and new networks must be built out quickly and cost-effectively. Fiber, coax or other connectivity must be deployed to the access level in remote areas where service could not be provided economically in the past. In some cases, the "last mile" may lay across fields or up mountain slopes to serve a handful of users, with wireless being the only practical choice.

Continuous testing and measurement of network links and equipment is an essential part of the process. The above chart shows where Anritsu equipment is in use at each stage along the way.

The Broadband Initiative: where Anritsu products fit in

Metro Network Performance Optical Backhaul Solutions						
Tests to Perform		MT9090A	MT9083	CMA5000a	CMA50	CMA5
 Optical Cable Fault Location		■	■	■		
 Verify Link Length		■	■	■		
 Evaluate Fiber Connector		■	■	■		
 Splice Loss		■	■	■		
 Connector Reflectance			■	■		
 Measure Link Loss		■	■	■	■	■
 PreService Turn-Up		■	■	■	■	■
 Measure Optical Return Loss			■	■	■	
 Optical Power Level		■	■	■	■	■
 Optical Spectral Analysis		■		■		
 Data Transport		■		■		

Anritsu products for Metro network testing

The higher your connection is in the broadband ecosystem, the more important it is to meet QoS standards the first time and every time. A particular challenge is that existing and new networks from multiple carriers, using a variety of media, must be joined and transformed into a permanent network. That's where Anritsu instruments excel.

Anritsu's network testing tools offer high resolution to see splices and connectors at close range, while also certifying long spans quickly and accurately. Power meters and modular testers combine speed and sensitivity for installation and troubleshooting applications. And because Anritsu products typically offer multiple test sets or application modules in a single instrument, you can carry all the measurement firepower you require to the remote site, get the job done, then you're on your way to the next challenge.

Best for optical fiber testing from core to access levels:

CMA5000a Multi-Layer Network Test and Measurement Platform

The CMA5000a is a field portable testing platform for installation, maintenance and troubleshooting of today's complex networks. It features a common user interface, open architecture design and numerous test technologies that allow the platform to evolve with user testing needs and to address ever-changing telecommunication infrastructures. Key technologies include OTDR, Optical Spectrum Analysis, Dispersion, SONET and Ethernet up to 10Gbs.

Typical applications: optical fault location, verify link length, evaluate fiber connector, splice loss, connector reflectance, link loss, measure optical return loss, optical power levels, optical spectral analysis, data transport

MT9083 Access Master OTDR

Anritsu's new line of MT9083 ACCESS Master OTDRs provides all the measurement functions and performance required for optical fiber construction and maintenance of access, FTTx, LAN and metro networks in a compact, lightweight, all-in-one unit that eliminates the burden of carrying many different test sets and instruments on-site. The ACCESS Master MT9083 is the first all-in-one tool that does not compromise performance. It features extremely high resolution to see those closely spaced splices and connectors, while still being able to certify 200+ km spans—quickly and accurately.

Typical applications: optical cable fault location, verify link length; evaluate fiber connector; splice loss; connector reflectance; measure link loss; measure optical return loss, optical power levels, pre-service turn-up

CMA50 Loss Test Sets

Fast, accurate and easy-to-use, Anritsu's CMA50 line of Loss Test Sets are designed for attenuation and throughput measurements of fiber optic links. With up to four lasers in the same unit, a power meter calibrated to 26 different wavelengths, PASS/FAIL analysis and automated bi-directional testing, the CMA50 meets any testing requirement from FTTx to CWDM, to long haul telephony links to multimode LAN, and CATV.

Typical applications: measure link loss, pre-service tune-up; measure optical return loss, optical power levels

CMA5 Series Handheld Power Meter/Light Sources

Economical, accurate and easy to use for basic power throughput and attenuation measurements on point-to-point fiber optic links. Ideal for testing single-mode and multimode fibers in various types of applications, thanks to multiple wavelength calibration at 850/1300 nm for datacom testing needs, 1310/1550/1625 nm for all WDM testing, as well as 1490 nm for FTTx testing needs.

Typical applications: measure link loss, pre-service turn up, optical power levels,

Network Master MT9090A The new, palm-size MT9090A modular platform from Anritsu is designed for technicians to quickly and cost-effectively isolate network problems. Available modules include:

MU909020A Optical Channel Analyzer Module provides fast and accurate monitoring of all 18 CWDM channels that are used in metro networks and to supply high bandwidth backhaul to cell sites.

MU909011A Drop Cable Fault Locator Module evaluates optical cables for wireless backhaul with less than 1 m dead zones, an exclusive integrated launch cable, full trace view and easy PASS/FAIL analysis.

MU909060A 10MB/100MB/1GB Ethernet Module is a comprehensive installation and maintenance tool for certifying optical or copper based Ethernet networks.

Typical applications: optical spectral analysis, optical cable fault location, data transport

Access Network Performance



Tests to Perform		MT8212E	MS2712E	MT9090A	MT8221B	S331D/E	S332D/E	S361E/S362E	MS2721B
	Spectrum Analysis RF	■	■		■		■	■	■
	Cable and Antenna Analysis	■			■	■		■	
	Base Station Analysis	■	■		■				
	Optical Cable Fault Location			■				■	
	Cable Sweeps	■	■		■	■	■	■	
	Interference Analysis	■	■		■		■	■	■
	OTA (Over the Air) Comms Standards	■	■		■				■
	Power Measurements	■	■		■	■	■	■	■
	Signal Quality Measurements 3G/4G Comms	■	■		■				■
	WiFi-WLAN Signal Quality and Spectrum Analysis		■						■

Anritsu products for Access network testing

Whether it's point-to-point wireless, WiMAX or another implementation, Anritsu's spectrum analyzers and base station testers are ideally suited to "last mile" application in remote areas. They are rugged and weather-resistant and designed for outdoor use in the wind and the rain. Most instruments are far lighter in weight than previous generation technology, and can be handheld or carried up a tower using the included soft case.

Many are multipurpose solutions combining diverse measurements and capabilities in a single box, further easing the load on the tech and reducing the need for multiple instruments. And many Anritsu instruments feature a common interface so the user's learning curve is reduced.

Primarily for testing of base stations and "last mile" wireless installations:

MT8212E/MT8213E Cell Master™

Originally designed for cell site testing, the Cell Master combines all the tools needed for field wireless testing in a compact, hand-held instrument. Includes cable and antenna analyzer, spectrum analyzer, power meter, transmitter analyzer (CDMA & GSM), transmission analyzer for 2-port devices, interference analyzer, GPS and T1/E1 analyzer in a lightweight hand-held instrument.

Typical applications: spectrum analysis; cable and antenna analysis; base station analysis; optical cable fault location; cable sweeps; measuring OTA communication standards; power measurement; signal quality measurements for 3G/4G communications

S331D/E, S332D/E and S361E/S362E Site Master

The industry standard for installing, provisioning, maintaining and troubleshooting wireless base station cable and antenna systems covering the 2 MHz to 6 GHz spectrum. Includes precision return loss/VSWR, cable loss and distance-to-fault (DTF) measurements; the S332D Site Master includes a spectrum analyzer as well.

Typical applications: spectrum analysis; cable and antenna analysis; optical cable fault location

MS2721B/MS2723B/MS2724B Spectrum Master

Handheld spectrum analyzers cover 9 kHz to 7.1 GHz/13GHz/20GHz for highly accurate measurements of wireless signals with wide frequency range and low phase noise. Measure WiFi-WLAN signal quality with smart built-in measurements including channel power, adjacent channel power ratio, Carrier to Interference ratio (C/I), and field strength.

Typical applications: spectrum analysis; interference analysis; measuring OTA communications standards; power measurement; signal quality measurements for 3G/4G communications

MS2712E/MS2713E Spectrum Master

The MS2712E/MS2713E Spectrum Masters deliver the ease of use, rich functionality, and best-in-class price/performance you've come to expect from Anritsu. Designed to handle the most punishing field conditions, the MS2712E/MS2713E allows you to monitor, locate, identify, and analyze a broad range of cellular, 2G/3G/4G, land mobile radio, Wi-Fi, and broadcast signals.

Typical applications: spectrum analysis; interference analysis; measuring OTA communications standards; power measurement; and signal quality measurements for 3G/4G communications

MT8221B BTS Master The smallest, lightest, and most economical handheld base station test solution available, complete with WCDMA/HADPA, GSM/GPRS/EDGE, and Fixed WiMAX testing as well as a 2-port cable and antenna analyzer, spectrum analyzer, power meter, interference analyzer and more.

Typical applications: spectrum analysis; cable and antenna analysis; base station analysis; cable sweeps; interference analysis; measuring OTA communications standards; power measurement



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