Anritsu

envision : ensure

Site Master™

Compact Handheld Cable & Antenna Analyzer with Spectrum Analyzer

S331E	S332E	S361E	S362E	
2 MHz to 4 GHz	2 MHz to 4 GHz	2 MHz to 6 GHz	2 MHz to 6 GHz	Cable & Antenna Analyzer
	9 kHz to 4 GHz		9 kHz to 6 GHz	Spectrum Analyzer

From the Leader in Cable and Antenna Analysis
Anritsu Introduces Its 8th Generation Site Master

The wireless communications market continues to evolve at a rapid pace. Operators and service providers have to maintain old networks while upgrading to the new 3G and 4G networks so as to keep up with changing consumer demands. They face the additional challenge of needing to ensure their networks are competitive from a reliability, quality, and cost perspective. As a result of all this, they expect more of the contractors and technicians who maintain their networks. To stay competitive, these contractors and technicians must maintain more base stations than before and complete a wide variety of tasks in the shortest time possible.

Anritsu is pleased to introduce its eighth-generation compact handheld Site Master cable and antenna analyzer series with integrated spectrum analyzer. The new Site Master analyzers offer the same ease of use, ruggedness, and familiar menus as its predecessor S331D and S332D. In addition, Anritsu has enhanced the Site Master to address all the customer requirements and suggestions received over the years.

Indeed, for nearly two decades, Anritsu's Site Master has been the de facto standard for contractors, installers, and wireless service providers who need a portable and rugged cable and antenna analyzer. The Site Master reduces per site maintenance expense, maximizes system up-time, and breaks away from the traditional fix-after-failure maintenance mode by finding small problems before major failures occur. Radio frequency (RF) engineers and field technicians in the U.S. Navy, U.S. Air Force, and other global defense programs responsible for installing and maintaining communication systems use Site Master's frequency domain reflectometry (FDR)-based approach to improve the quality of their communication systems.

Although the new Site Master resides in a modern platform that takes advantage of the latest technologies and is loaded with features that will enhance productivity, it provides more value for better productivity without giving up the familiar look and feel.
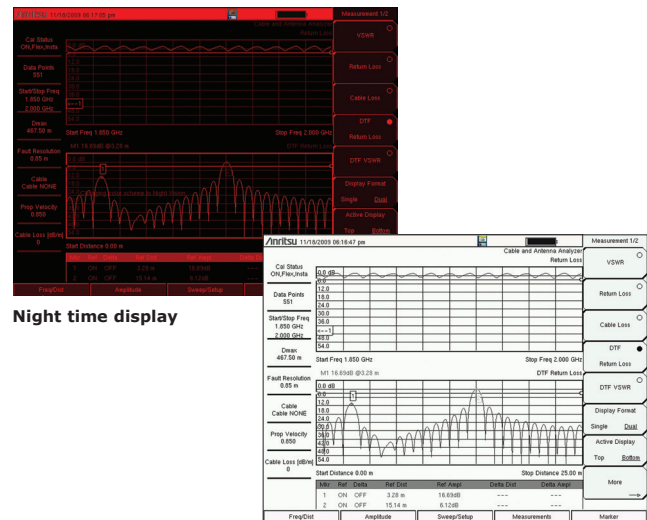
Integrated

The Site Master is a 4 or 6 GHz cable and antenna analyzer that can be configured to include either a 4 or 6 GHz spectrum analyzer, 2-port transmission measurement with built-in 32V bias tee, an interference analyzer with spectrogram displays, a channel scanner, power meter, high accuracy power meter, and GPS receiver for time and location stamping. Because of its multi-functional capabilities, it eliminates the need for you to carry and learn multiple instruments.

Trusted

Anritsu builds upon its expertise in portable compact cable and antenna analyzers and spectrum analyzers. The Site Master is approved by all major operators and service providers worldwide.

Designed for Field Use

The Site Master is designed specifically for field environments. It weighs less than 6 lbs and its field replaceable Li-Ion battery typically lasts for more than 4 hours. A new bright 8.4-inch color display provides visibility even in broad daylight. With an operating temperature range from -10 °C to 55 °C, the Site Master will work in the most extreme weather conditions. The analyzer is almost impervious to the bumps and bangs typically encountered by portable field equipment. Its ruggedized case and splash proof design allow you to depend on high performance anywhere, anytime.

Night time display

Black and White display

Site Master is the Preferred Cable and Antenna Analyzer of Wireless Service Providers, Contractors and Installers
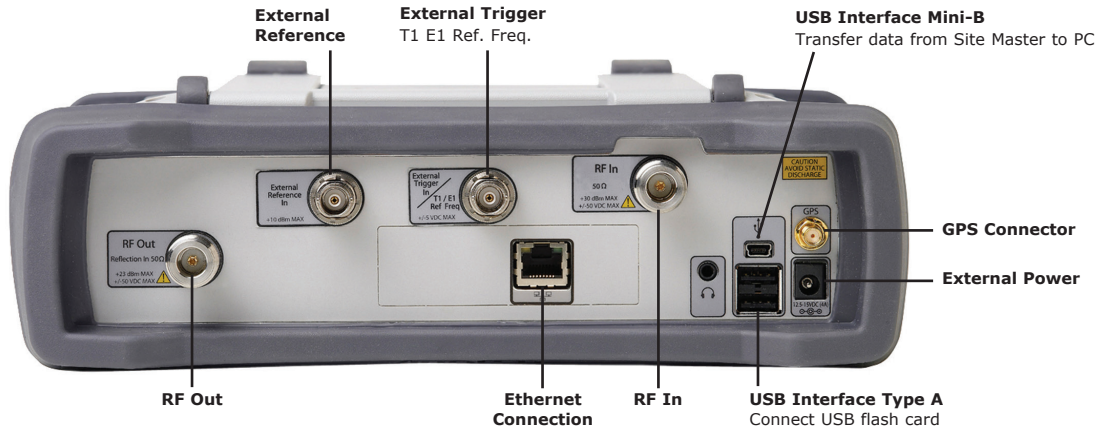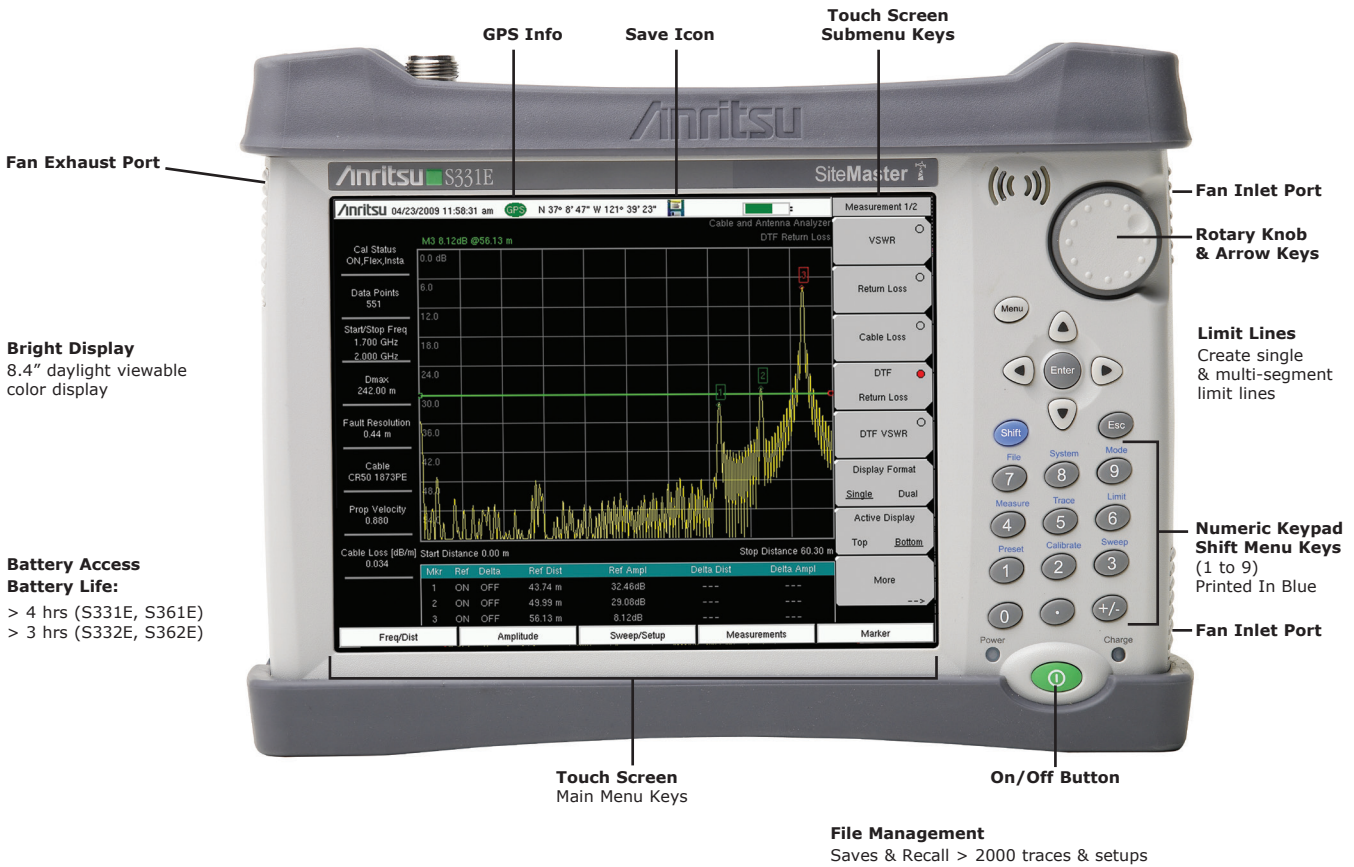
INTEGRATED MEASUREMENT CAPABILITIES

Configuration Overview

Function	Description
Cable and Antenna Analyzer, 2 MHz to 4/6 GHz	Characterizes cable and antenna systems with return loss, cable loss, VSWR, distance-to-fault measurements. Also includes 1-port phase and Smith chart displays. Offers faster than 1 ms/data point sweep speed and a dual display.
Spectrum Analyzer, 9 kHz to 4/6 GHz	Locates and identifies various signals over a wide frequency range. Detect signals as low as -152 dBm with phase noise better than -100 dBc/Hz.
2-port Transmission Measurement (Option 21)	Provides high and low power settings for both TMA gain and antenna-antenna isolation measurements. Offers better than 80 dB dynamic range.
Bias Tee (Option 10)	Provides built-in adjustable 12 - 32V bias tee that can be turned on as needed, and which eliminates the need to carry an external supply.
High Accuracy Power Meter (Option 19)	Connects high accuracy 4, 6, 8, 18, and 26 GHz USB power sensors with up to ± 0.16 dB accuracy.
Power Meter (Option 29)	Makes channelized transmitter power measurements.
Interference Analyzer (Option 25)	Includes the popular spectrogram display for monitoring intermittent signals over time. Pin point the interfering source with on screen interference mapping.
Channel Scanner (Option 27)	Measures the power of multiple transmitted signals.
Coverage Mapping (Option 431)	Outdoor and indoor coverage mapping for RSSI and ACPR measurements.
CW Signal Generator (Option 28)	Includes CW source to test low noise amplifiers, repeaters. (This requires an external CW generator kit.)
GPS Receiver (Option 31)	Provides location and UTC time information. Also improves the accuracy of the reference oscillator.
Gated Sweep (Option 90)	Views pulsed or burst signals such as WiMAX, GSM, and TD-SCDMA only when they are on.
AM/FM/PM Analyzer (Option 509)	Analyzes AM/FM/PM signals and measures FM/PM deviation, AM depth, SINAD, Total Harmonic Distortion and much more.
Ethernet Connectivity (Option 411)	Provides the ability to operate automated testing from remote PC, or conversely, to upload data from field test to the PC. Remote access control is also provided through Master Software Tools.
CPRI RF Measurements (option 751)	Converts the CPRI IQ data into RF measurements.

Designed for the Field

External Reference

External Trigger
T1 E1 Ref. Freq.

USB Interface Mini-B
Transfer data from Site Master to PC

GPS Connector

External Power

RF Out

Ethernet Connection

RF In

USB Interface Type A
Connect USB flash card

All Connectors Are Conveniently Located On The Top Panel, Leaving The Sides Clear For Handheld Use.

GPS Info

Save Icon

Touch Screen Submenu Keys

Fan Exhaust Port

Fan Inlet Port

Rotary Knob & Arrow Keys

Bright Display
8.4" daylight viewable color display

Limit Lines
Create single & multi-segment limit lines

Battery Access
Battery Life:
> 4 hrs (S331E, S361E)
> 3 hrs (S332E, S362E)

Numeric Keypad Shift Menu Keys
(1 to 9)
Printed In Blue

Fan Inlet Port

Touch Screen
Main Menu Keys

On/Off Button

File Management
Saves & Recall > 2000 traces & setups

4

Convenient Soft Case and Tilt Bail

Tilt Bails Are Integrated Into The Case And Soft Case For Better Screen Viewing

Master Cable & Antenna Analysis, Anywhere, Anytime

The majority of the problems you find at a typical cell site are caused by problematic cables, pinched cables, corroded connectors, antennas, lightning strikes, rain getting into cables, and bullet holes. Degraded cable systems and badly positioned antennas affect overall system coverage and eventually result in dropped calls. Site Master's FDR-based return loss and DTF measurements can pinpoint an antenna problem from ground level in a few seconds, enabling Site Master to identify small problems before they become big problems.

Return Loss/VSWR

Distance-to-Fault

2-Port Transmission Measurements
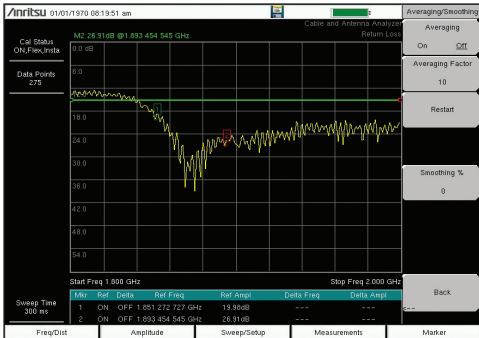
Return Loss / VSWR

Use the Site Master to make return loss and VSWR and verify that the cable and antenna system conforms to performance specifications.

Cable Loss

Cable Loss metrics measure the level of insertion loss within the cable feedline system. This measurement can be verified prior to deployment, when you have access to both ends. Site Master automatically calculates the average cable loss.
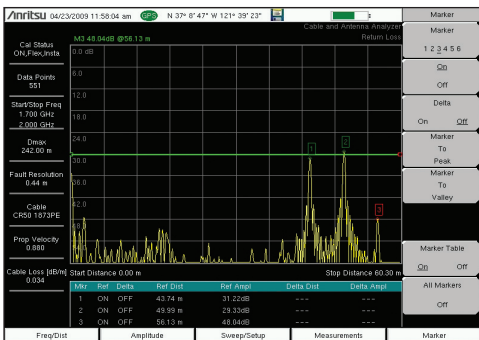
Distance-To-Fault

While the return loss metric is the best measurement to verify the health of a system, distance-to-fault (DTF) is used to troubleshoot systems and locate the problem.

The Site Master's DTF measurement uses the fast Fourier transform to convert frequency data to the time domain and displays signal anomalies with respect to distance. Using the standard trace math feature, you can monitor small relative changes over time.
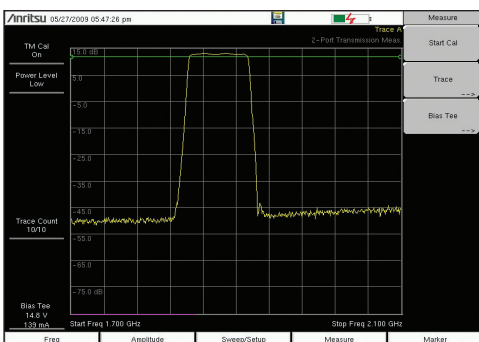
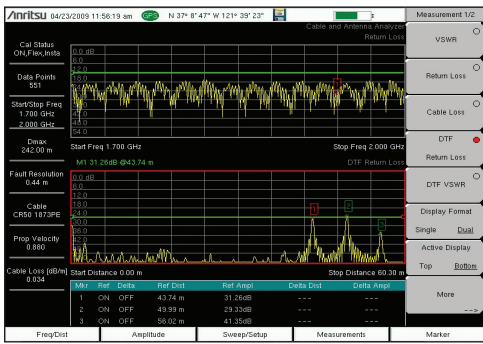## 2-port Transmission Measurements (Option 21)

Cellular/PCS and 3G base stations today use diplexers, duplexers, and tower-mounted amplifiers to extend the coverage area. Site Master's 2-port transmission measurement enables you to make gain, isolation, and insertion loss measurements as well as verify sector-to-sector isolation.

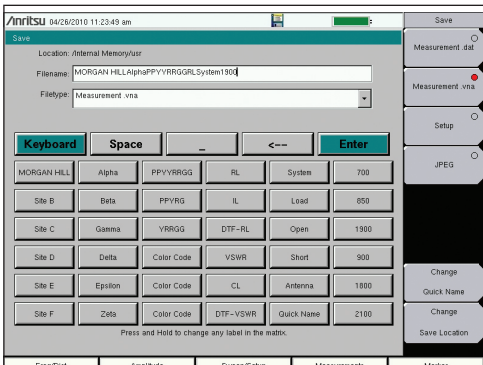## Bias Tee (Option 10) requires Option 21

The built-in bias tee can be turned on as needed to place +12 to +32V on the center conductor of the RF in port, eliminating the need for you to carry external supplies in the field.

Enhance Productivity with Dual Displays and Instant Calibration

Dual Display

Quick Name Matrix

InstaCal

Dual Display

The dual display enables users to view two cable and antenna measurements on the same display. Because you can control the top and bottom displays independently, you can set markers and limit lines on each display. This results in significant time savings as there's no need to make two measurements.

Quick Name Matrix

The integrated quick name matrix and keyboard enables you to preset up to 42 commonly used names. The quick name matrix allows you to save long file names with cell site ID, sector information, color coding, measurement type, frequency, and termination in less than five seconds. Now you can label the traces of the entire site in minutes instead of hours.

InstaCal™ Calibration

Although you need to get the job done as quickly as possible, you still need to make reliable and accurate measurements. Anritsu's InstaCal module enables you to make accurate calibrations at the end of the phase stable cable without connecting a short/open/load. This calibration method can cut the calibration time by as much as 50 percent and still deliver accurate calibrations.

Standard OSL Calibration

Open-Short-Load (OSL) calibration comes standard with the Site Master. All errors from source match, directivity, and frequency response are mathematically removed, allowing you to make accurate vector-corrected measurements. Directivity is usually the main contributor to measurement uncertainty, and corrected directivity of 42 dB or better is common using Anritsu's precision components.

FlexCal™

The Site Master's FlexCal™ broadband calibration feature is an calibration method that allows you to perform a broadband calibration and change the frequency range after calibration without having to recalibrate the instrument.

RF Immunity

Site Master's unique RF immunity algorithm solution enables you to make accurate cable and antenna measurements even in the presence of strong RF activity from co-located cell sites.

Cable and Antenna Analyzer Highlights

- Return loss, VSWR, cable loss, DTF

- 2-port transmission measurements with 32V bias tee

- 1-port phase, Smith chart

- Quick Name Matrix reduces trace labeling time in the field

- PIM 3rd, 5th and 7th Order Frequency measurements

- Dual display mode capabilities

- Built-in, editable signal standard and cable standard lists

- Calibration: OSL Cal, FlexCal, InstaCal

- 137, 275, 551, 1102, 2204 data points

- < 1 msec per datapoint sweep speed

- Trace overlay and trace math to monitor changes with Reference traces

- Marker table with automatic peak/valley markers

- GPS tagging

- Limit lines and alarming for providing reference standards

- GPS tagging of data to verify location of tests

- Line Sweep Tools and Master Software Tools for post-analysis and report generation

Best Performance in its Class

Site Master S332E and the S362E Site Master with integrated spectrum analysis capability provide users with a high-performance, easy-to-use, feature-rich spectrum analyzer for field environments and applications requiring mobility.

Site Master's integrated high performance spectrum analyzer makes it ideal for a broad range of activities, including spectrum monitoring, AM/FM broadcast proofing, interference analysis, field strength measurements, transmitter spectrum analysis, electro magnetic field strength, signal strength mapping, and overall field analysis of cellular 2G/3G/4G, land mobile radio, Wi-Fi, and broadcast signals.

Dynamic Range Performance

Low Level Performance

Limit Envelope

Comprehensive Marker Menu
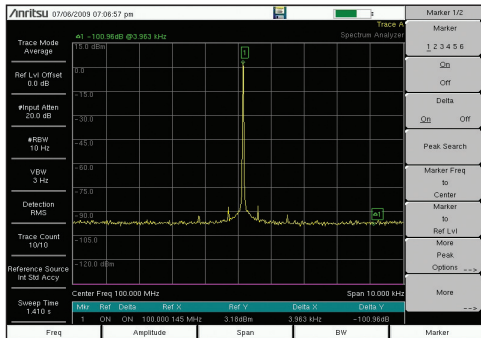
High Performance

The dynamic range is better than 95 dB in 10 Hz RBW, enabling measurement of very small signals in the presence of much larger signals. The picture demonstrates the dynamic range in the Site Master

Displayed Average Noise Level

Site Master delivers impressive and best-in-class DANL performance. With the built-in pre-amp, better than -152 dBm DANL can typically be realized in 10 Hz RBW and -162 dBm when normalized to 1 Hz. This low-level performance capability is essential when looking for low-level interference signals.

GPS-Assisted Frequency Accuracy

With GPS Option 0031 the frequency accuracy is < 50 ppb. This additional accuracy is important when characterizing 3GPP signals using counted frequency markers. Also all measurements can be GPS tagged for exporting to maps.
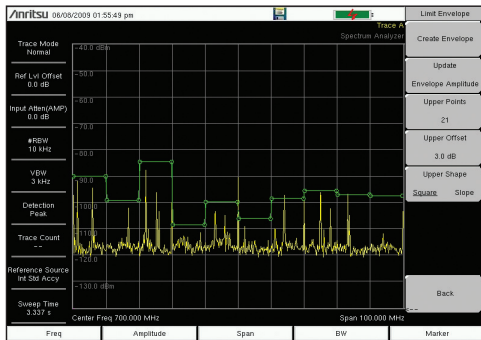
Simple But Powerful for Field Use

Convenience is a must in the field. This is why the Site Master is equipped with features that will enhance productivity in the field.

The Site Master is equipped with limit lines for all user levels. You can create single limit lines and segmented limit lines in one step using the one-button limit envelope feature.

The Site Master automatically sets the fastest sweep possible while still ensuring accurate measurements. This allows users to rely on the instrument to optimize accuracy and consistency.

Auto Attenuation ties the input attenuation to the reference level eliminating the need for the user to determine how much attenuation is needed.

Six regular and six delta markers can be displayed with a marker table that can be turned on as needed. The capability to measure noise level in terms of dBm/Hz or dBμV/Hz is a standard feature of the Site Master.
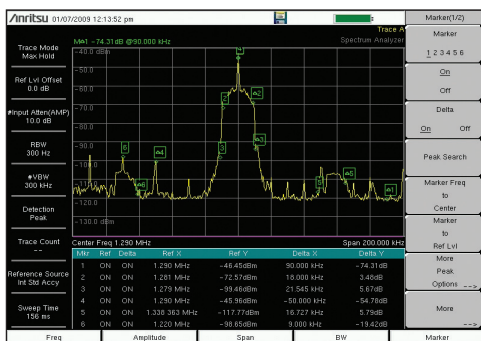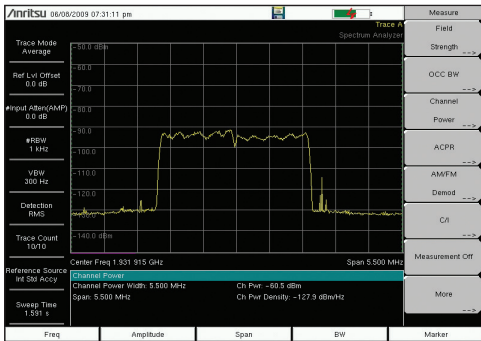
Master Transmitter Testing

Smart Measurements for Transmitter Systems

Commonly needed transmitter measurements are built in and can be accessed easily. These include field strength, occupied bandwidth, channel power, adjacent channel power ratio (ACPR), and emission mask.


Occupied Bandwidth

Adjacent Channel Power Ratio

Emission Mask

Occupied Bandwidth

This measurement determines the amount of spectrum used by a modulated signal. The Site Master allows you to choose between two different methods of determining bandwidth: the percent-of-power method or the "x" dB down method.

Adjacent Channel Power Ratio

Adjacent Channel Power Ratio is a common transmitter measurement. High ACPR will create interference for neighboring carriers. This measurement can be used to replace the traditional two-tone Intermodulation Distortion (IMD) test for system non-linear behavior.
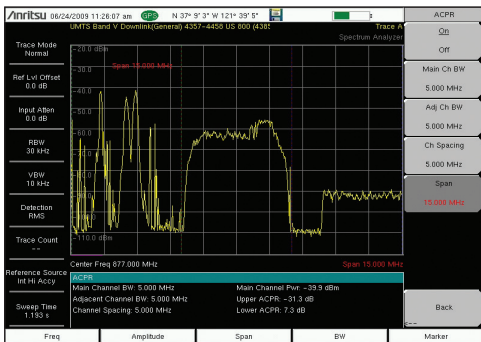
Field Strength Measurements

The Site Master can determine the effects of electromagnetic fields caused by transmitter systems. Specific antenna factors of the connected antenna are automatically taken into account, and field strength is displayed directly in dBµV/m. The Site Master also supports a wide range of directional antennas. If you are using a different antenna, Master Software Tools can be used to edit the antenna list and upload the custom antenna list to the instrument to accurately measure the maximum field strength.

Emission Mask

The emission mask is a segmented upper limit line that will display frequency range, peak power and frequency, relative power and pass/fail status for each segment of the mask. The emission mask must have at least two segments. Emission mask adjusts to the peak power value of transmitted signal level per government emission mask requirements.
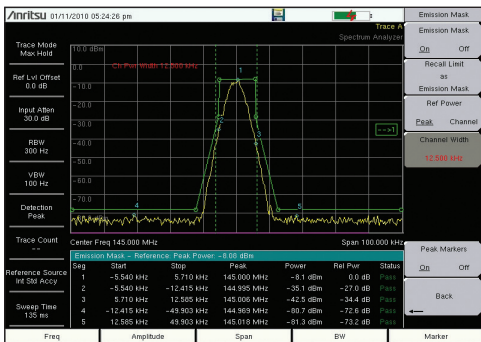
Spectrum Analyzer Highlights

- Measurements: Occupied bandwidth, channel power, ACPR, C/I, AM/FM demod, field strength, emission mask

- Interference analyzer: spectrogram, signal strength, RSSI, signal ID, Interference Mapping

- Dynamic range: > 95 dB

- DANL: -162 dBm typical (normalized to 1 Hz)

- Phase noise: -100 dBc/Hz @ 10 kHz offset

- Frequency accuracy: < ± 50 ppb with GPS on

- Advanced marker functions: noise marker, frequency counter, fixed, tracking

- Advanced limit line functions: one-button envelope creation

- Detection methods: peak, RMS, negative, sample, quasi-peak

- Save-on-event: automatically saves a sweep when crossing a limit line

- Gated sweep: view pulsed or burst signals only when they are on, or off

Master the Location of Interference

As the wireless industry continues to expand, more diverse uses for the radio spectrum emerge, and the number of signals that may potentially cause interference is constantly increasing.

Compounding the problem are the many sources that can generate interference, including intentional radiators, unintentional radiators, and self interference. Interference causes Carrier-to-Interference degradation robbing the network of capacity. The goal of these measurements is to resolve interference issues as quickly as possible.
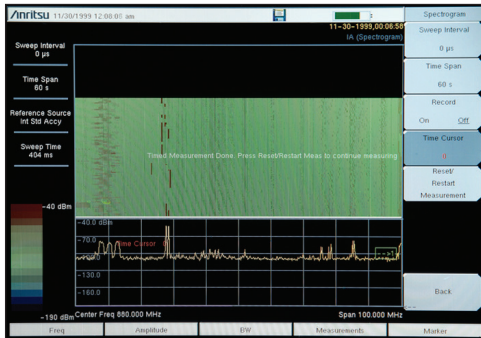
Spectrogram Display

Interference Analysis (Option 25)

The interference analyzer option provides you with a spectrogram display, RSSI, signal strength meter, signal ID, and Interference Mapping capabilities. Site Master's integrated spectrum analyzer can detect signals as low as -152 dBm.

Spectrogram Display

This option provides you with a three-dimensional display of frequency, power, and time of the spectrum activity to identify intermittent interference and track signal levels over time. The dual display screen allows for easy viewing of both the spectrum and 3D display. The Site Master allows you to save a history of data up to 72 hours.
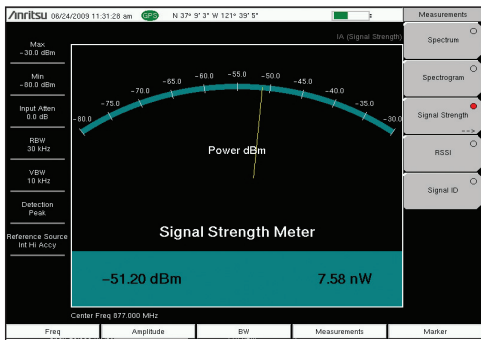
Signal Strength Meter

Signal Strength Meter

The Site Master's signal strength meter can locate an interfering signal by using a directional antenna and measuring the signal strength. It displays power in Watts or dBm, in the graphical analog meter display and by an audible beep proportional to its strength.
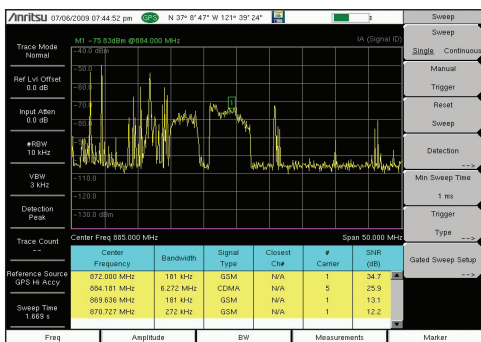
Signal ID

Signal ID

Site Master's signal ID feature in the interference analyzer can help you quickly identify the type of the interfering signal. You can configure this measurement to identify all signals in the selected band or to simply monitor one single interfering frequency. The Site Master then displays results that include center frequency, signal bandwidth, and signal type (FM, GSM/GPRS/EDGE, W-CDMA/HSDPA, CDMA/EV-DO, Wi-Fi).
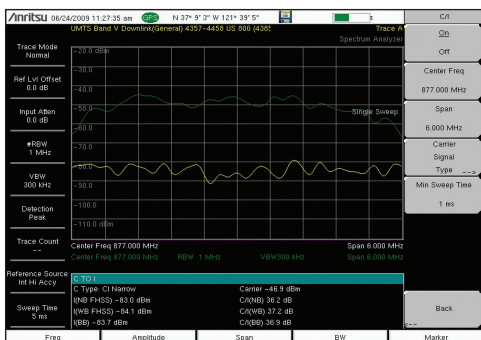

Carrier-to-Interference (C/I)

Carrier-To-Interference Measurement

Site Master's carrier-to-interference measurement capability makes it simple for you to determine if the level of interference will affect users in the intended service area.

AM/FM/SSB Demodulation

A built-in demodulator for AM, narrowband FM, wideband FM and single sideband allows you to easily identify the interfering signal.

Pin Point Location of Interfering Signal with Interference Mapping
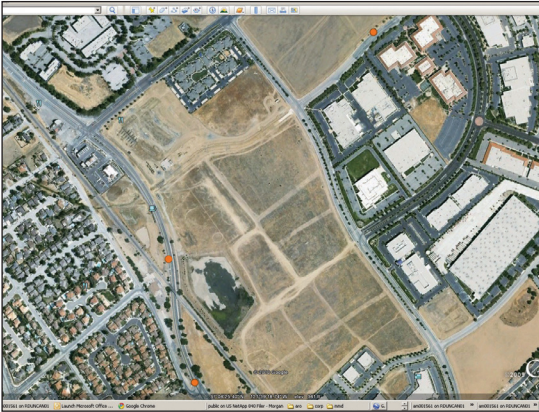

Interference Mapping with Google Earth™

Interference Mapping

The Interference Mapping measurement eliminates the need to use printed maps and draw lines to triangulate the interfering signal.

Using Map Master™, it is easy to convert maps and make them compatible with the Site Master. With a valid GPS signal, the instrument identifies the user location on the map. Using one of the recommended Anritsu Yagi antennas, you can identify the direction of the interfering signal and input the angle information with the rotary knob. With two or more lines from different locations, it is possible to obtain an estimate location of the interfering signal. The Interference Mapping can be done directly on the Site Master. Files can also be saved as kml and opened with Google Earth.
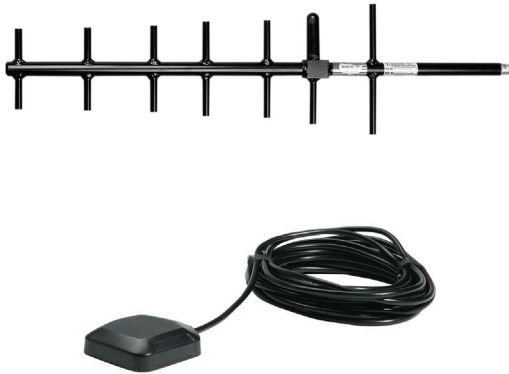
Directional Antennas

Anritsu offers several different directional antennas covering a wide range of common frequency bands including: 822 to 900 MHz, 885 to 975 MHz, 1710 to 1880 MHz, 1850 to 1990 MHz, 2400 to 2500 MHz, 1920 to 2170 MHz, 500 to 3000 MHz, and 600 to 21000 MHz.

GPS Antenna

The 2000-1528-R GPS antenna and option (31) are required for the interference mapping and coverage mapping measurements.
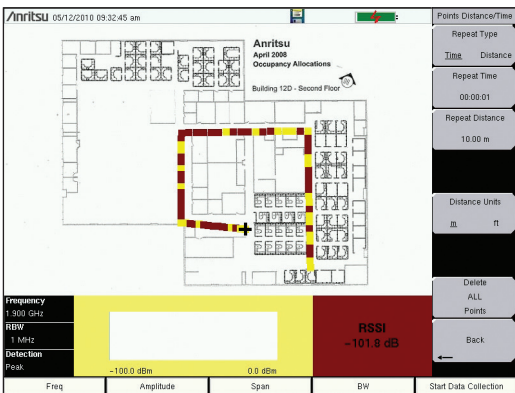

On Screen Interference Mapping

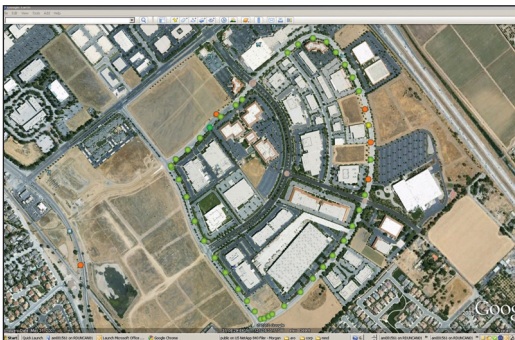# Indoor and Outdoor Coverage Mapping Solutions (Option 0431)

There is a growing demand for coverage mapping solutions. Anritsu's Coverage Mapping measurements option provides wireless service providers, public safety users, land mobile ratio operators, and government officials with indoor and outdoor mapping capabilities
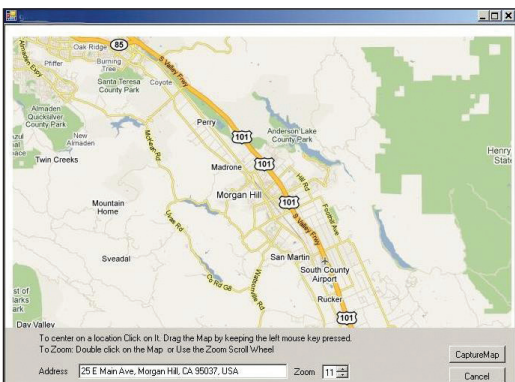

Outdoor Mapping

Outdoor Mapping

With a GPS antenna connected to the instrument and a valid GPS signal, the instrument monitors RSSI and ACPR levels automatically. Using a map created with Map Master, the instrument displays maps, the location of the measurement, and a special color code for the power level. The refresh rate can be set up in time or distance.

The overall amplitude accuracy coupled with the GPS update rate ensures accurate and reliable mapping results

Indoor Mapping

Indoor Mapping

When there is no GPS signal valid, the Site Master uses a start-walk-stop approach to record RSSI and ACPR levels. You can set the update rate, start location, and end location and the interpolated points will be displayed on the map.


Saved KML File

Export KML Files

Save files as KML or JPEG. Open kml files with Google Earth™. When opening up a pin in Google Earth, center frequency, detection method, measurement type, and RBW are shown on screen.

Create maps with Map Master

Map Master

The Map Master program creates maps compatible with the Site Master. Maps are created by typing in the address or by converting existing JPEG, TIFF, BMP, GIF, and PNG files to MAP files. Utilizing the built-in zoom in and zoom out features, it is easy to create maps of the desired location and transfer to the instrument with a USB flash card. Map Master also includes a GPS editor for inputting latitude and longitude information of maps from different formats.

Power Measurements for a Wide Range of Applications

The Anritsu Site Master provides many different power measurements to support a wide range of applications. The high-accuracy broadband sensor family provides the best accuracy (±0.16 dB) over a wide frequency range. The power meter is ideal for users looking to making channelized measurements in a few keystrokes with minimal training. Site Master's channel power measurement also makes channelized measurements but requires more knowledge and is recommended for more advanced users. And when you are measuring multiple channels, the channel scanner is your perfect choice.

Power Meter

High Accuracy Power Meter

High Accuracy Power Sensors

Channel Scanner
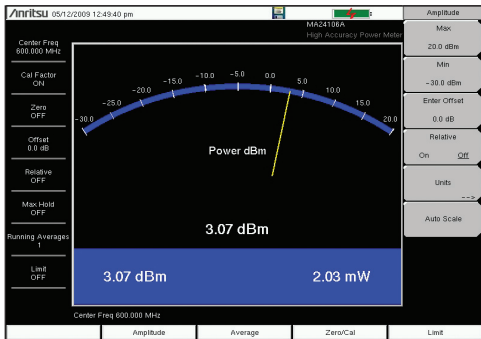
Channel Power

Use Site Master's channel power measurement to determine the power and power density of a transmission channel. Using the built-in signal standard list, you can measure the channel power of a wide range of signals.

Power Meter (Option 29)

Site Master's internal power meter provides power measurements without any additional tools and is ideal for making channelized power measurements. You can display the results in both dBm and Watts. This option is easy to use and requires limited setup entries.

High Accuracy Power Meter (Option 19)

Anritsu's high accuracy power meter option enables you to make high accuracy RMS measurements. This capability is perfect for measuring both CW and digitally modulated signals such as CDMA/EV-DO, GSM/EDGE, WCDMA/HSPA+, and P25. You can select from a wide range of USB sensors delivering better than ±0.16 dB accuracy. An additional benefit of using the USB connection is that a separate DC supply (or battery) is not needed since the necessary power is supplied by the USB port.
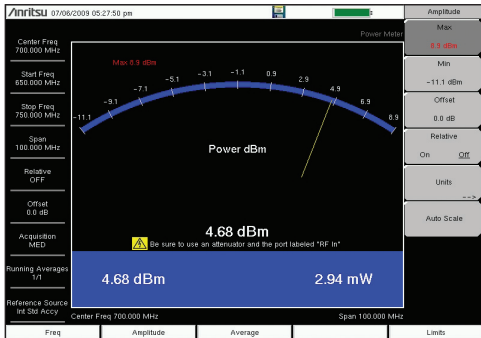
- PSN50 High Accuracy RF Power Sensor, 50 MHz to 6 GHz,
  -30 to +20 dBm, True-RMS

- MA24105A Inline Peak Power Sensor, 350 MHz to 4 GHz,
  +3 to +51.76 dBm (150W), True-RMS

- MA24106A High Accuracy RF Power Sensor, 50 MHz to 6 GHz,
  -40 to +23 dBm, True-RMS

- MA24108A Microwave USB Power Sensor, 10 MHz to 8 GHz,
  -40 to +20 dBm, True-RMS

- MA24118A, Microwave USB Power Sensor, 10 MHz to 18 GHz,
  -40 to +20 dBm, True-RMS

- MA24126A, Microwave USB Power Sensor, 10 MHz to 26 GHz,
 -40 to +20 dBm, True-RMS

PC Power meter

These power sensors can be used with a PC running Microsoft Windows® via USB. They come with PowerXpert™ application, a data analysis, and control software. The application has abundant features, such as data logging, power versus time graph, big numerical display, and many more, that enable quick and accurate measurements.

Channel Scanner (Option 27)

The channel scanner option measures the power of multiple transmitted signals, making it very useful for simultaneously measuring channel power of up to 20 channels in GSM, TDMA, CDMA, W-CDMA, HSDPA, and public safety networks. You can select the frequencies or the scanned data to be displayed by frequencies or the channel number. And in the custom setup menu each channel can be custom built with different frequency bandwidth, or with channels from different signal standards. With Script Master, scans can be automated for up to 1200 channels.
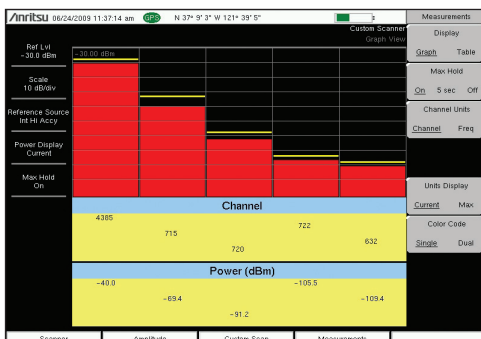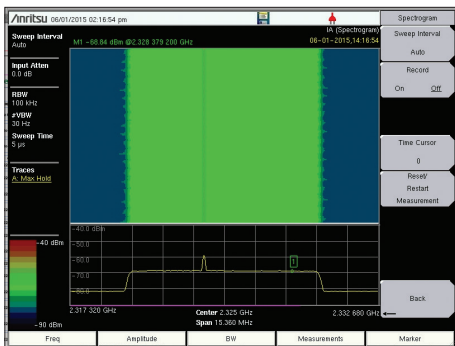
Site Master™ Valuable Options and Features

CPRI RF Measurements (Option 0751)
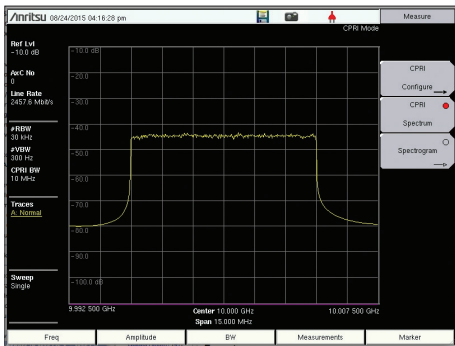
CPRI Spectrum

Tapping into the optical CPRI link allows the user to monitor either uplink or downlink spectrums

CPRI Spectrogram

Identifies transient or intermittent interference signals on the uplink over time

Layer 2 Alarms

Verify CPRI transport layer

SFP Data

Easily Determine the type of SFP is installed in the MT8220T

CPRI RF Measurements

The CPRI RF measurement option allows the user to make RF based measurements over a fiber optic CPRI link (fiber connection between the BBU & RRU).

Measurements include:

- CPRI spectrum
- CPRI spectrogram
- Layer 2 Alarms
- SFP Data

Uplink Interference

One of the biggest issues facing operators is interference on the uplink which can drastically affect KPIs. By tapping into the CPRI fiber link, the uplink spectrum can be monitored.

The ultra-fast sweep speed of the CPRI RF measurements makes it easy to capture and analyze transient and bursty signals typical of many types of interference. For added convenience, the user may tune to anywhere within the spectrum and zoom in for more detailed analysis.

Automatic Configuration

To improve productivity, preconfigured radio setups and an Auto Detect function allow quick and simple configuration of the CPRI RF measurements.

Layer 2 Alarms

Ability to verify and troubleshoot the CPRI (optical) connection with CPRI Layer 2 Alarms.The key Layer 2 Alarms are always visible at the top of the screen. Optical Power is also available on the Layer 2 Alarm screen.

SFP Data

Ability to read the embedded SFP data, quickly determine wavelength, supported line rate, manufacturer information and more.

Measurements

CPRI Spectrum
Spectrogram
Layer 2 Alarms
SFP Data

# Site Master™ Valuable Options and Features
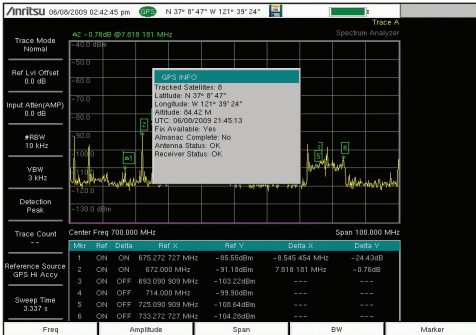
GPS Receiver

GPS Receiver (Option 31)

Site Master's GPS option can be used to confirm the exact measurement location (longitude, latitude, altitude) and Universal Time (UT) information. Each trace can be stamped with location information to ensure you are taking measurements at the right location.

In addition, the GPS option enhances the frequency accuracy of the internal reference oscillator. Within three minutes of acquiring the GPS satellite, the built-in GPS receiver provides a frequency accuracy to better than 50 ppb, for Spectrum Analyzer measurements.
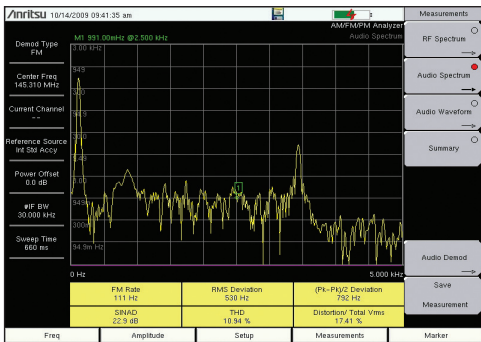
AM/FM/PM Analyzer

AM/FM/PM Analyzer (Option 509)

The AM/FM/PM analyzer provides analysis and display of analog modulation. Four measurement displays are provided.

The RF Spectrum display shows the spectrum with carrier power, frequency, and occupied BW. The Audio Spectrum display shows the demodulated audio spectrum along with the Rate, RMS deviation, Pk-Pk/2 deviation, SINAD, Total Harmonic Distortion (THD), and Distortion/Total. Audio Waveform display shows the time-domain demodulated waveform. Finally, there is a Summary Table Display that includes all the RF and Demod parameters.
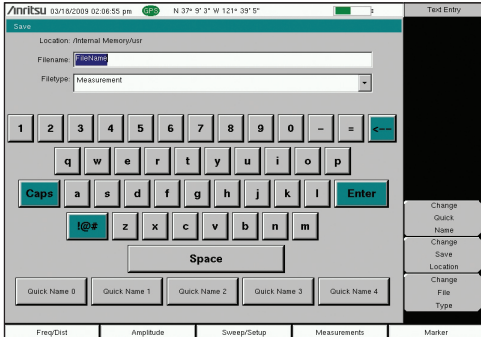
Touch screen keyboard

Built-in Keyboard

The built-in touch screen keyboard gives you access to a fully functional keyboard, saving valuable time in the field when entering trace names. You can create shortcuts to customer-configurable user "quick names" to program frequently used words.

CW Signal Generator (Option 28)

This option provides a CW signal generator from 2 MHz to 4 or 6 GHz. The signal at the output port can be set high (approximately 0 dBm) or low (-30 dBm). With the use of the CW Signal Generator Kit's attenuator connected to the RF port, the level can be varied in 1 dB steps, giving you the ability to generate signals as low as -110 dBm for receiver sensitivity measurements. The included splitter divides the signal, allowing for a simultaneous power measurement.

Ethernet connectivity

Ethernet Connectivity (Option 0411)

By enabling the S331E, S332E, S361E, and S362E to communicate with PCs via Ethernet, you gain the ability to operate automated testing from your PC, or conversely, to upload data from field test to the PC. By using the Remote Access Tool (a utility provided with Anritsu's Master Software Tools), remote access control is provided.

Local Language Support

Site Master features eight languages including English, Japanese, Chinese, Italian, French, German, Spanish, Russian and Korean. One custom user-defined language can be uploaded into the instrument using Master Software Tools.
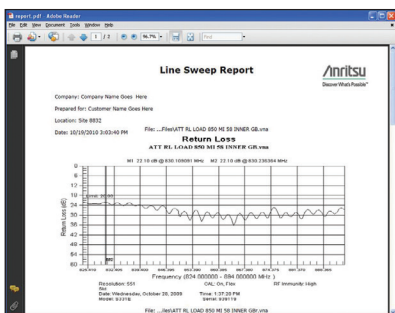
Site Master™ Valuable Options and Features

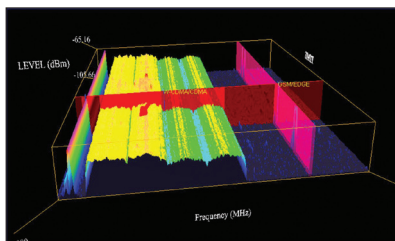## Line Sweep Tools™, Master Software Tools™ and easyTest Tools™ (for your PC)

Trace Validation
Marker and Limit Line presets allow quick checks of traces for limit violations.

Report Generation
Create reports with company logo, GPS tagging information, calibration status, and serial number of the instrument for complete reporting.
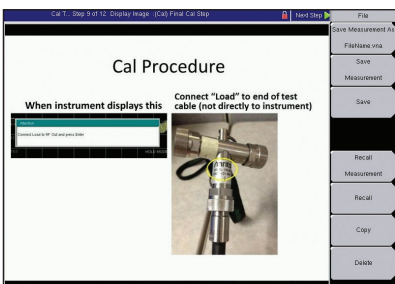

3D Spectrogram
For in-depth analysis with 3-axis rotation viewing, threshold, reference level, and marker control. Turn on Signal ID to see the types of signals.
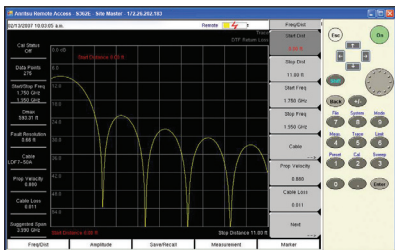
Remote Access Tool
The Remote Access Tool allows supervisor's to remotely view and control the instrument over the Internet.

easyTest Tools
easyTest Tools is a PC based program that helps create, distribute and display work instructions on Anritsu's Cable and Antenna Analyzers.

Line Sweep Tools

Line Sweep Tools increases productivity for people who deal with dozens of Cable and Antenna traces, or Passive Inter-Modulation (PIM) traces, every day.

- User Interface will be familiar to users of Anritsu's Hand Held Software Tools. This will lead to a short learning curve.
- Marker and Limit Line Presets make applying markers and a limit line to similar traces, as well as validating traces, a quick task.
- Renaming Grid makes changing file names, trace titles, and trace subtitles from field values to those required for a report much quicker than manual typing and is less prone to error.
- Report Generator will generate a professional looking PDF of all open traces with additional information such as contractor logos and contact information.

Master Software Tools

Master Software Tools (MST) is a powerful PC software post-processing tool designed to enhance the productivity of technicians in data analysis and testing automation.

Folder Spectrogram – creates a composite file of up to 15,000 multiple traces for quick review, also create:

- Peak Power, Total Power, and Peak Frequency plotted over time
- Histogram – filter data and plot number of occurrences over time
- Minimum, Maximum, and Average Power plotted over frequency
- Movie playback – playback data in the familiar frequency domain view
- 3D Spectrogram – for in-depth analysis with 3-axis rotation viewing control

easyTest Tools

Anritsu's easyTest Tools is a PC based program that can help create, distribute, and display work instructions on Anritsu's Cable and Antenna Analyzers. easyTest can:

- **Create** – easyTest Tools has a simple-to-use tool set to help create an on-instrument procedure, with setups, pictures, prompts, and easy methods to save results.
- **Distribute** – An easyTest procedure is completely contained in a single compressed file, making electronic distribution simple.
- **Display** – work instructions on the instrument. Prompts, photos, and even Power Point slides can be displayed on your Anritsu handheld cable and antenna analyzers. The ability to recall setups and automatically save results make using easyTest even easier.

Line Sweep Features

Presets
7 sets of 6 markers and 1 limit line
Next trace capability

File Types
Input: HHST DAT, VNA Measurements: Return Loss (VSWR), Cable Loss, DTF-RL, DTF-VSWR, PIM
Output: LS DAT, VNA, CSV, PNG, BMP, JPG, PDF

Report Generator
Logo, title, company name, customer name, location, date and time, filename, PDF, HTML, all open traces

Tools
Cable Editor
Distance to Fault
Measurement calculator
Signal Standard Editor
Renaming Grid

Interfaces
Serial, Ethernet, USB

Capture Plots to
Screen, Database, DAT files, JPEG, Instrument

Master Software Tools Features

Database Management
Full Trace Retrieval
Trace Catalog
Group Edit
Trace Editor

Data Analysis
Trace Math and Smoothing
Data Converter
Measurement Calculator

Mapping (GPS Required)
Spectrum Analyzer Mode
Mobile WiMAX OTA Option
TS-SCDMA OTA Option
LTE, both FDD and TDD Options

Folder Spectrogram
Folder Spectrogram – 2D View
Video Folder Spectrogram – 2D View
Folder Spectrogram – 3D View

List/Parameter Editors
Traces
Antennas, Cables, Signal Standards
Product Updates
Firmware Upload
Pass/Fail
VSG Pattern Converter
Languages
Mobile WiMAX
Display

Connectivity
USB
Download measurements and live traces
Upload Lists/Parameters
Firmware Updates
Remote Access Tool over the Internet

easyTest Tools
Create tests
Distribute procedures
Display instructions

# Site Master™ Ordering Information

Ordering Information – Options

	S331E	S332E	S361E	S362E	Description
	2 MHz to 4 GHz	2 MHz to 4 GHz	2 MHz to 6 GHz	2 MHz to 6 GHz	Cable and Antenna Analyzer
		9 kHz to 4 GHz		9 kHz to 6 GHz	Spectrum Analyzer
	Options	**Options**	**Options**	**Options**	
	S331E-0021	S332E-0021	S361E-0021	S362E-0021	2-Port Transmission Measurement
	S331E-0010	S332E-0010	S361E-0010	S362E-0010	Bias-Tee (requires Option 0021 for S331E /S361E)
	S331E-0031	S332E-0031	S361E-0031	S362E-0031	GPS Receiver (requires Antenna P/N 2000-1528-R)
	S331E-0019	S332E-0019	S361E-0019	S362E-0019	High-Accuracy Power Meter (requires External Power Sensor)
		S332E-0029		S362E-0029	Power Meter
		S332E-0025		S362E-0025	Interference Analyzer (Option 0031 recommended)
		S332E-0027		S362E-0027	Channel Scanner
		S332E-0431		S362E-0431	Coverage Mapping (requires Option 0031)
		S332E-0090		S362E-0090	Gated Sweep
		S332E-0028		S362E-0028	C/W Signal Generator (requires CW Signal Generator Kit, P/N 69793)
		S332E-0509		S362E-0509	AM/FM/PM Analyzer
	S331E-0751	S332E-0751	S361E-0751	S362E-0751	CPRI RF Measurements
	S331E-0411	S332E-0411	S361E-0411	S362E-0411	Ethernet Connectivity
	S331E-0098	S332E-0098	S361E-0098	S362E-0098	Standard Calibration (ANSI 2540-1-1994)
	S331E-0099	S332E-0099	S361E-0099	S362E-0099	Premium Calibration to Z540 plus test data

Power Sensors (For complete ordering information see the respective datasheets of each sensor)

Model Number	Description
PSN50	High Accuracy RF Power Sensor, 50 MHz to 6 GHz, +20 dBm
MA24105A	Inline Peak Power Sensor, 350 MHz to 4 GHz, +51.76 dBm
MA24106A	High Accuracy RF Power Sensor, 50 MHz to 6 GHz, +23 dBm
MA24108A	Microwave USB Power Sensor, 10 MHz to 8 GHz, +20 dBm
MA24118A	Microwave USB Power Sensor, 10 MHz to 18 GHz, +20 dBm
MA24126A	Microwave USB Power Sensor, 10 MHz to 26 GHz, +20 dBm

Manuals (soft copy included on Handheld Instruments Documentation Disc and at www.anritsu.com)
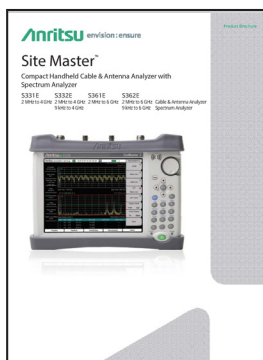
Part Number	Description
10920-00060	Handheld Instruments Documentation Disc
10580-00252	Site Master User Guide (Hard copy included)
10580-00241	Cable and Antenna Analyzer Measurement Guide
10580-00242	2-Port Transmission Measurement - Bias-Tee

10580-00244	Spectrum Analyzer Measurement Guide
	 - Interference Analyzer, Channel Scanner, Gated Sweep,
	   CW Signal Generator, AM/FM/PM Analyzer,
	   Interference Mapping, Coverage Mapping

10580-00240	Power Meter Measurement Guide - High Accuracy Power Meter
10580-00256	Programming Manual
10580-00280	PIM Master User Guide

Troubleshooting Guides (soft copy at www.anritsu.com)

Part Number	Description
11410-00473	Cable, Antenna and Components
11410-00551	Spectrum Analyzers
11410-00472	Interference

Site Master™ Ordering Information

Standard Accessories (included with instrument)

Part Number	Description
10920-00060	Handheld Instruments Documentation Disc
10580-00252	Site Master User Guide
2000-1654-R	Soft Carrying Case
2300-498	Master Software Tools (MST) CD Disc
2300-530	Anritsu Tool Box with Line Sweep Tools (LST) DVD Disc
633-75	Rechargeable Li-Ion Battery
40-168-R	AC-DC Adapter
806-141-R	Automotive Cigarette Lighter 12 VDC Adapter
3-2000-1498	USB A/5-pin mini-B Cable, 10 feet/305 cm
2000-1797-R	Screen Protector Film 8.4 in. (2, one installed)
11410-00484	Site Master™ S331E, S332E, S361E, S362E Technical Data Sheet Three Year Warranty (Firmware, and software), One Year (Battery) Certificate of Calibration and Conformance

Optional Accessories

Calibration Components, 50 Ω

Part Number	Description
ICN50B	InstaCal™ Calibration Module, 38 dB, 2 MHz to 6.0 GHz, N(m), 50 Ω
OSLN50-1	Precision Open/Short/Load, N(m), 42 dB, 6.0 GHz, 50 Ω
OSLNF50-1	Precision Open/Short/Load, N(f), 42 dB, 6.0 GHz, 50 Ω
2000-1618-R	Precision Open/Short/Load, 7/16 DIN(m), DC to 6.0 GHz 50 Ω
2000-1619-R	Precision Open/Short/Load, 7/16 DIN(f), DC to 6.0 GHz 50 Ω
22N50	Open/Short, N(m), DC to 18 GHz, 50 Ω
22NF50	Open/Short, N(f), DC to 18 GHz, 50 Ω
SM/PL-1	Precision Load, N(m), 42 dB, 6.0 GHz, 50 Ω
SM/PLNF-1	Precision Load, N(f), 42 dB, 6.0 GHz, 50 Ω

Calibration Components, 75 Ω

Part Number	Description
22N75	Open/Short, N(m), DC to 3 GHz, 75 Ω
22NF75	Open/Short, N(f), DC to 3 GHz, 75 Ω
26N75A	Precision Termination, N(m), DC to 3 GHz, 75 Ω
26NF75A	Precision Termination, N(f), DC to 3 GHz, 75 Ω
12N50-75B	Matching Pad, DC to 3 GHz, 50 Ω to 75 Ω

Phase-Stable Test Port Cables, Armored w/ Reinforced Grip (recommended for cable & antenna line sweep applications)

Part Number	Description
15RNFN50-1.5-R	1.5 m, DC to 6 GHz, N(m) to N(f), 50 Ω
15RDFN50-1.5-R	1.5 m, DC to 6 GHz, N(m) to 7/16 DIN(f), 50 Ω
15RDN50-1.5-R	1.5 m, DC to 6 GHz, N(m) to 7/16 DIN(m), 50 Ω
15RNFN50-3.0-R	3.0 m, DC to 6 GHz, N(m) to N(f), 50 Ω
15RDFN50-3.0-R	3.0 m, DC to 6 GHz, N(m) to 7/16 DIN(f), 50 Ω
15RDN50-3.0-R	3.0 m, DC to 6 GHz, N(m) to 7/16 DIN(m), 50 Ω

InterChangeable Adaptor Phase Stable Test Port Cables, Armored w/Reinforced Grip (recommended for cable and antenna line sweep applications. It uses the same ruggedized grip as the Reinforced grip series cables. Now you can also change the adaptor interface on the grip to four different connector types)

Part Number	Description
15RCN50-1.5-R	1.5 m, DC to 6 GHz, N(m), N(f), 7/16 DIN(m), 7/16 DIN(f), 50 Ω
15RCN50-3.0-R	3.0 m, DC to 6 GHz, N(m), N(f), 7/16 DIN(m), 7/16 DIN(f), 50 Ω

Phase-Stable Test Port Cables, Armored (recommended for use with tightly spaced connectors and other general purpose applications)

Part Number	Description
15NNF50-1.5C	1.5 m, DC to 6 GHz, N(m) to N(f), 50 Ω
15NN50-1.5C	1.5 m, DC to 6 GHz, N(m) to N(m), 50 Ω
15NDF50-1.5C	1.5 m, DC to 6 GHz, N(m) to 7/16 DIN(f), 50 Ω
15ND50-1.5C	1.5 m, DC to 6 GHz, N(m) to 7/16 DIN(m), 50 Ω
15NNF50-3.0C	3.0 m, DC to 6 GHz, N(m) to N(f), 50 Ω
15NN50-3.0C	3.0 m, DC to 6 GHz, N(m) to N(m), 50 Ω

Site Master™ Ordering Information

Optional Accessories (continued)

Adapters

Part Number	Description
1091-26-R	SMA(m) to N(m), DC to 18 GHz, 50 Ω
1091-27-R	SMA(f) to N(m), DC to 18 GHz, 50 Ω
1091-80-R	SMA(m) to N(f), DC to 18 GHz, 50 Ω
1091-81-R	SMA(f) to N(f), DC to 18 GHz, 50 Ω
1091-172-R	BNC(f) to N(m), DC to 1.3 GHz, 50 Ω
510-90	7/16 DIN(f) to N(m), DC to 7.5 GHz, 50 Ω
510-91	7/16 DIN(f) to N(f), DC to 7.5 GHz, 50 Ω
510-92	7/16 DIN(m) to N(m), DC to 7.5 GHz, 50 Ω
510-93	7/16 DIN(m) to N(f), DC to 7.5 GHz, 50 Ω
510-96	7/16 DIN(m) to 7/16 DIN (m), DC to 7.5 GHz, 50 Ω
510-97	7/16 DIN(f) to 7/16 DIN (f), DC to 7.5 GHz, 50 Ω
1091-379-R	7/16 DIN(f) to 7/16 DIN(f), DC to 6 GHz, 50 Ω, w/ Reinforced Grip
510-102-R	N(m) to N(m), DC to 11 GHz, 50 Ω, 90 degrees right angle

Precision Adapters

Part Number	Description
34NN50A	Precision Adapter, N(m) to N(m), DC to 18 GHz, 50 Ω
34NFNF50	Precision Adapter, N(f) to N(f), DC to 18 GHz, 50 Ω

Miscellaneous Accessories

Part Number	Description
2000-1528-R	GPS Antenna, SMA(m) with 15 ft cable
2000-1652-R	GPS Antenna, SMA(m) with 1 ft cable
69793	CW Signal Generator Kit
2000-1520-R	USB Flash Drive
2000-1374	External Charger for Li-Ion Batteries
2000-1371-R	Ethernet Cable, 7 ft/213 cm
3-806-152	Cat 5e Crossover Patch Cable, 7 ft/213 cm)
2000-1797-R	Screen Protector Film 8.4 in.
2300-517	Phase Noise Measurement Software (requires Ethernet Option 0411)
2300-532	Map Master CD

Backpack and Transit Case

Part Number	Description
67135	Anritsu Backpack (For Handheld Instrument and PC)
760-243-R	Large Transit Case with Wheels and Handle

Directional Antennas
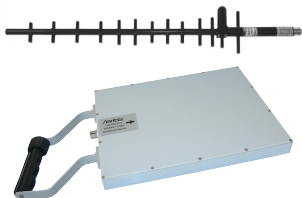
Part Number	Description
2000-1411-R	822 MHz to 900 MHz, N(f), 10 dBd, Yagi
2000-1412-R	885 MHz to 975 MHz, N(f), 10 dBd, Yagi
2000-1413-R	1710 MHz to 1880 MHz, N(f), 10 dBd. Yagi
2000-1414-R	1850 MHz to 1990 MHz, N(f), 9.3 dBd, Yagi
2000-1415-R	2400 MHz to 2500 MHz, N(f), 10 dBd, Yagi
2000-1416-R	1920 MHz to 2170 MHz, N(f), 10 dBd, Yagi
2000-1519-R	500 MHz to 3 GHz, log periodic

Site Master™ Ordering Information

Optional Accessories (continued)

Portable Antennas

Part Number	Description
2000-1200-R	806 MHz to 866 MHz, SMA(m), 50 Ω
2000-1473-R	870 MHz to 960 MHz, SMA(m), 50 Ω
2000-1035-R	896 MHz to 941 MHz, SMA(m), 50 Ω (1/2 wave)
2000-1030-R	1710 MHz to 1880 MHz, SMA(m), 50 Ω (1/2 wave)
2000-1474-R	1710 MHz to 1880 MHz with knuckle elbow (1/2 wave)
2000-1031-R	1850 MHz to 1990 MHz, SMA(m), 50 Ω (1/2 wave)
2000-1475-R	1920 MHz to 1980 MHz and 2110 MHz to 2170 MHz, SMA(m), 50 Ω
2000-1032-R	2400 MHz to 2500 MHz, SMA(m), 50 Ω (1/2 wave)
2000-1361-R	2400 MHz to 2500 MHz, 5000 MHz to 6000 MHz, SMA(m), 50 Ω
2000-1636-R	Antenna Kit (Consists of: 2000-1030-R, 2000-1031-R, 2000-1032-R, 2000-1200-R, 2000-1035-R, 2000-1361-R, and carrying pouch)

Mag Mount Broadband Antenna

Part Number	Description
2000-1647-R	Cable 1: 698-1200 MHz 2 dBi peak gain, 1700-2700 MHz 5 dBi peak gain, N(m), 50 Ω, 10 ft Cable 2: 3000-6000 MHz 5 dBi peak gain, N(m), 50 Ω, 10 ft Cable 3: GPS 26 db gain, SMA(m), 50 Ω, 10 ft
2000-1645-R	694-894 MHz 3 dBi peak gain, 1700-2700 MHz 3dBi peak gain, N(m), 50 Ω, 10 ft
2000-1646-R	750-1250 MHz 3 dBi peak gain, 1650-2000 MHz 5 dBi peak gain, 2100-2700 MHz 3 dBi peak gain, N(m), 50 Ω, 10 ft
2000-1648-R	1700-6000 MHz 3 dBi peak gain, N(m), 50 Ω, 10 ft

Filters

Part Number	Description
1030-114-R	806 MHz to 869 MHz, N(m) to SMA(f), 50 Ω
1030-109-R	824 MHz to 849 MHz, N(m) to SMA(f), 50 Ω
1030-110-R	880 MHz to 915 MHz, N(m) to SMA(f), 50 Ω
1030-105-R	890 MHz to 915 MHz Band, 0.41 dB loss, N(m) to SMA(f), 50 Ω
1030-111-R	1850 MHz to 1910 MHz, N(m) to SMA(f), 50 Ω
1030-106-R	1710 MHz to 1790 MHz Band, 0.34 dB loss, N(m) to SMA(f), 50 Ω
1030-107-R	1910 MHz to 1990 MHz Band, 0.41 dB loss, N(m) to SMA(f), 50 Ω
1030-112-R	2400 MHz to 2484 MHz, N(m) to SMA(f), 50 Ω
1030-149-R	High Pass, 150 MHz, N(m) to N(f), 50 Ω
1030-150-R	High Pass, 400 MHz, N(m) to N(f), 50 Ω
1030-151-R	High Pass, 700 MHz, N(m) to N(f), 50 Ω
1030-152-R	Low Pass, 200 MHz, N(m) to N(f), 50 Ω
1030-153-R	Low Pass, 550 MHz, N(m) to N(f), 50 Ω
1030-155-R	2500 MHz to 2700 MHz, N(m) to N(f), 50 Ω

PIM Alert

Anritsu has created a new PIM Alert application that uses the built in Spectrum Analyzer of Anritsu touchscreen hand-held test equipment to check the Uplink Band of mobile carriers for the possibility of PIM (Passive Intermodulation).

This application is complimentary to Anritsu's PIM Master product line which will provide an accurate measurement and locate the source of PIM problems.

PIM Alert can be downloaded for free of charge from the Anritsu website product page, and installed into the following Anritsu hand-held instruments, MT8220T, MS2720T, MS271xE, MT821xE, S332E & S362E.

PIM Alert uses the easyTestTM script capability.

Site Master™ Ordering Information

Optional Accessories (continued)

Attenuators
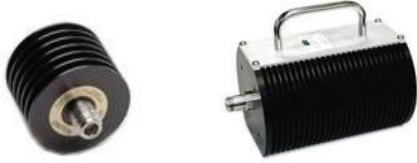
Part Number	Description
3-1010-122	20 dB, 5 W, DC to 12.4 GHz, N(m) to N(f)
42N50-20	20 dB, 5 W, DC to 18 GHz, N(m) to N(f)
42N50A-30	30 dB, 50 W, DC to 18 GHz, N(m) to N(f)
3-1010-123	30 dB, 50 W, DC to 8.5 GHz, N(m) to N(f)
1010-127-R	30 dB, 150 W, DC to 3 GHz, N(m) to N(f)
3-1010-124	40 dB, 100 W, DC to 8.5 GHz, N(m) to N(f), Uni-directional
1010-121	40 dB, 100 W, DC to 18 GHz, N(m) to N(f), Uni-directional
1010-128-R	40 dB, 150 W, DC to 3 GHz, N(m) to N(f)

CPRI RF Measurement Accessories

Part Number	Description
67-12-R	Optical Tap; Single Mode/Multi Mode
67-13-R	Optical Tap; Single Mode
68-5-R	SFP (Optical Module), 4.25G, 850nm, 500m
68-6-R	SFP+ (Optical Module), 8G FC/10G SR 850nm
68-7-R	SFP (Optical Module), 2.7G, 1310nm, 15km
68-8-R	SFP+ (Optical Module), 10G LR 1310nm
2000-1849-R	ESD Box for SFP (Optical Modules)
2100-29-R	Fiber Optic Cable, 3m, LC/UPC, Single Mode (SM), Simplex
2100-30-R	Fiber Optic Cable, 10m, LC-SC, Multi-Mode (MM), Simplex
2100-31-R	Fiber Optic Cable, 3m, LC/UPC, Single Mode (SM), Duplex
971-14-R	Ferrule cleaner, 2.5mm SC
971-15-R	Ferrule cleaner, 1.25mm LC
971-16-R	Fiber ferrule cleaner

Notes

Notes

Anritsu envision : ensure

MASTER USERS GROUP

The Master Users Group is an organization dedicated to providing training, technical support, networking opportunities and links to Master product development teams. As a member you will receive the Insite Quarterly Newsletter with user stories, measurement tips, new product news and more.

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