

Anritsu Advancing beyond

Site Master™

Compact Handheld Cable & Antenna Analyzer with Spectrum Analyzer

S331E
2 MHz to 4.0 GHz

S332E
2 MHz to 4.0 GHz
9 kHz to 4 GHz

Cable and Antenna Analyzer
Spectrum Analyzer

S361E
2 MHz to 6.0 GHz

S362E
2 MHz to 6.0 GHz
9 kHz to 6 GHz

Cable and Antenna Analyzer
Spectrum Analyzer



Introduction

Anritsu introduces its eighth generation compact handheld Cable and Antenna Analyzers with Spectrum Analyzers for installation and maintenance of wireless networks. They feature the highest performance and the most capabilities ever offered by Anritsu in a compact handheld tester since introducing its first line sweeper in 1995.

Cable and Antenna Analyzer Highlights

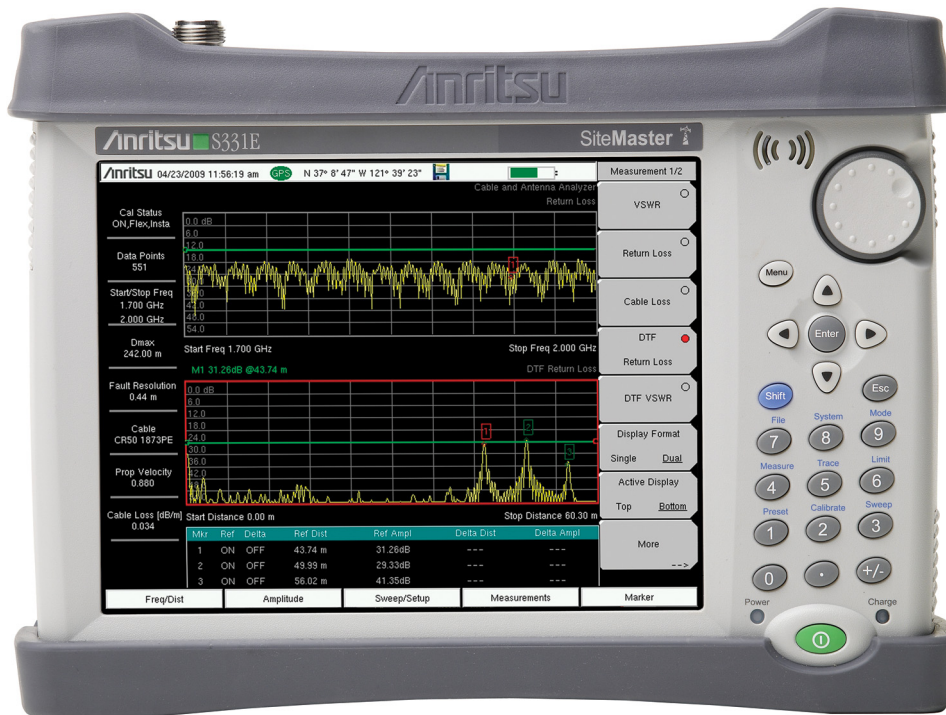
- Measurements: RL, VSWR, Cable Loss, DTF, Phase
- 2-port Transmission Measurement: High/Low Power
- Sweep Speed: 1 ms/data point, typical
- Display: Single or Dual Measurement Touchscreen
- Calibration: OSL, InstaCal™, and FlexCal™
- Bias Tee: 32 V internal

Spectrum and Interference Analyzer Highlights

- Measurements: Occupied Bandwidth, Channel Power, ACPR, C/I
- Interference Analyzer: Spectrogram, Signal Strength, RSSI, Signal ID, Interference Mapping
- Dynamic Range: > 95 dB in 10 Hz RBW
- DANL: -152 dBm in 10 Hz RBW
- Phase Noise: -100 dBc/Hz max @ 10 kHz offset at 1 GHz
- Frequency Accuracy: < ± 50 ppb with GPS On

Capabilities and Functional Highlights

- AM / FM / PM Analyzer
- EMF Test (S332E & S362E)
- High Accuracy Power Meter
- Up to 50 GHz USB Sensors
- PIM Alert Application (S332E & S362E)
- Master Software Tools™
- Line Sweep Tools™
- easyTest Tools™
- USB & Optional Ethernet (Option 413) for data transfer and instrument control
- PIM Hunting
- Handheld Interference Hunter support (S332E & S362E)
- On-Screen Interference Mapping
- On-Screen Coverage Mapping
- GPS tagging of saved traces
- Increase throughput by automating repetitive or operator intensive tasks via Ethernet or USB. Remote programming provided via Ethernet (Option 413)
- 4.5 hour battery operation time
- Store 2000 Traces internally
- Touchscreen keyboard
- Quick Name Matrix
- < 5 minute warm-up time
- E-Learning Training
- Certified Line Sweep Training



Site Master™ S331E Cable & Antenna Analyzer featuring 8.4 inch Daylight Viewable Touchscreen
 Compact Size: 273 mm x 199 mm x 91 mm (10.7 in x 7.8 in x 3.6 in), Lightweight: 2.71 kg (6.0 lb)

Table of Contents

Definitions..... 3
 Cable and Antenna Analyzer..... 4
 2-Port Transmission Measurement (Option 21)..... 5
 Bias-Tee (Option 10)..... 5
 Spectrum Analyzer..... 6
 Coverage Mapping (Option 431)..... 8
 Interference Analyzer (Option 25)..... 8
 GPS Receiver (Option 31)..... 8
 Channel Scanner (Option 27)..... 8
 CW Signal Generator (Option 28)..... 9
 Gated Sweep (Option 90)..... 9
 Electromagnetic Field Test (Option 444)..... 9
 Ethernet Connectivity (Option 413)..... 9
 Power Meter (Option 29)..... 10
 High Accuracy Power Meter (Option 19)..... 10
 AM/FM/PM Signal Analyzers (Option 509)..... 11
 General Specifications..... 12
 Line Sweep Tools..... 13
 easyTest Tools..... 13
 Master Software Tools..... 14
 Web Remote Control..... 14
 Programmable Remote Control..... 14
 Ordering Information – Options..... 15
 Standard Accessories..... 16
 USB Power Sensors..... 16
 Optional Accessories..... 17
 Manuals..... 25
 Troubleshooting Guides..... 25
 Related Literature..... 25

Definitions

Specifications	All specifications and characteristics apply to Revision 2 ¹ instruments under the following conditions, unless otherwise stated: <ul style="list-style-type: none"> • After 5 minutes of warm-up time, where the instrument is left in the ON state • Sweep mode set to Performance • When using the internal reference signal
Typical Performance	Typical performance is the measured performance of an average unit and is not warranted.
Calibration Cycle	Calibration is within the recommended 12 month period.

All specifications subject to change without notice. For the most current data sheet, please visit the Anritsu web site: www.anritsu.com

1. Applies to instruments with serial number ≥ 1606XXX.



Cable and Antenna Analyzer

Measurements

Smart Measurements	VSWR Return Loss Cable Loss Distance-to-Fault (DTF) Return Loss Distance-to-Fault (DTF) VSWR 1-Port Phase Smith Chart (50/75 Ω selectable) PIM Alert Application (available for download) PIM Hunting
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Setup Parameters

Measurement Display	Single/Dual Measurement Display with independent markers
Frequency	Start/Stop, Signal Standard, Start Cal
DTF	Start/Stop, DTF Aid, Units (m/ft), Cable Loss, Propagation Velocity, Cable, Windowing
Windowing	Rectangular, Normal Side Lobe, Low Side Lobe, Minimum Side Lobe
Amplitude	Top, Bottom Auto Scale, Full Scale
Sweep	Run/Hold, Single/Continuous, RF Immunity (High/Low), Data Points, Averaging/Smoothing, Output Power (High/Low), RF Pwr When Hold (On/Off)
Data Points	137, 275, 551, 1102, 2204
Markers	Markers 1-6 (On/Off), Delta Markers 1-6 (On/Off), Marker to Peak/Valley, Peak/Valley Auto, Marker Table (On/Off), All Markers Off
Traces	Recall, Copy to Display Memory, No Trace Math, Trace ± Memory, (Trace + Memory)/2, and Trace Overlay (On/Off)
Limit Line	On/Off, Single Limit, Multi-segment Edit, Limit Alarm (On/Off), Pass Fail Message (On/Off), Pass/Fail (Unbounded/Bounded), Warning Limit Offset, Clear Limit
Calibration	Start Cal, Cal Type (Standard/FlexCal™), Disp Valid Cal Temp Range
Save	Setups (.stp), Measurements (.dat, .vna, .csv*), Screen Shots (.jpg) *Requires V4.00 firmware or higher
Recall	Setups (.stp), Measurements (.dat, .vna)
Application Options	Bias-Tee (On/Off), Impedance (50 Ω, 75 Ω, Other)

Frequency

Frequency Range	2 MHz to 4 GHz (S331E, S332E), 2 MHz to 6 GHz (S361E, S362E)
Frequency Accuracy	≤ ± 2.5 ppm @ 25 °C
Frequency Resolution	1 kHz (RF immunity low), 100 kHz (RF immunity high)

Output Power

High	0 dBm, typical
Low	2 MHz to 1.5 GHz: -40 dBm, typical >1.5 GHz to 4/6 GHz: -30 dBm, typical

Interference Immunity

On-Channel	+17 dBm @ > 1.0 MHz from carrier frequency
On-Frequency	0 dBm within ± 10 kHz of the carrier frequency

Measurement Speed

Return Loss	≤ 1.00 ms/data point, RF immunity low, typical
Distance-to-Fault	≤ 1.25 ms/data point, RF immunity low, typical

Return Loss

Measurement Range	0 dB to 60 dB
Resolution	0.01 dB

VSWR

Measurement Range	1:1 to 65:1
Resolution	0.01

Cable Loss

Measurement Range	0 dB to 30 dB
Resolution	0.01 dB

Distance-to-Fault

Vertical Range Return Loss	0 dB to 60 dB
Vertical Range VSWR	1:1 to 65:1
Fault Resolution (meters)	$(1.5 \times 10^8 \times vp) / \Delta F$ (vp = velocity propagation constant, ΔF is F2-F1 in Hz)
Horizontal Range (meters)	0 to (Data Points-1) x Fault Resolution, to a maximum of 1500 meters (4921 ft)



Cable and Antenna Analyzer (continued)

1-Port Phase

Measurement Range -180° to +180°
Resolution 0.01°

Smith Chart

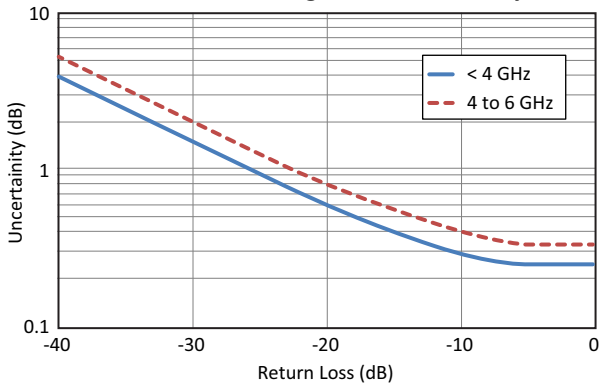
Resolution 0.01 50/75 ohm selectable

Measurement Accuracy

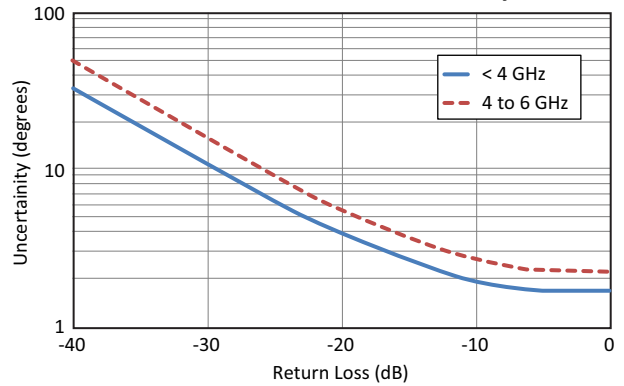
Corrected Directivity > 42 dB, OSL Calibration
> 38 dB, InstaCal™ Calibration

Measurement Uncertainty

Reflection Magnitude Uncertainty



Reflection Phase Uncertainty



2-Port Transmission Measurement (Option 21)

Frequency

Frequency Range 2 MHz to 4 GHz (S331E, S332E), 2 MHz to 6 GHz (S361E, S362E)
Frequency Resolution 10 Hz

Output Power

High 0 dBm, typical
Low 2 MHz to 1.5 GHz: -40 dBm, typical
>1.5 GHz to 4/6 GHz: -30 dBm, typical

High Dynamic Range (On)

2 MHz to 4 GHz 80 dB, 95 dB, typical
4 GHz to 6 GHz 70 dB, 85 dB, typical
Application Options Bias-Tee (On/Off), Impedance (50 Ω, 75 Ω, Other)

Bias-Tee (Option 10) (requires Option 21 for S331E and S361E)

Setup On/Off, Voltage, Current (Low/High)
Voltage Range +12 V to +32 V
Current (Low/High) 250 mA/450 mA, 1 A surge for 100 ms
Resolution 0.1 V



Spectrum Analyzer (S332E, S362E only)

Measurements

Smart Measurements	Field Strength (uses antenna calibration tables to measure dBm/m ² , dBmV/m, dBV/m, dBμV/m, Volt/m, Watt/m ² , dBW/m ² , A/m, dBA/m and Watt/cm ²) Occupied Bandwidth (measures 99 % to 1 % power channel of a signal) Channel Power (measures the total power in a specified bandwidth) ACPR (adjacent channel power ratio) AM/FM/SSB Demodulation (wide/narrow FM, USB and LSB), (audio out only) C/I (carrier-to-interference ratio) Emission Mask Coverage Mapping (requires Option 431) PIM Alert Application (available for download) PIM Hunting
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Setup Parameters

Frequency	Center/Start/Stop, Span, Frequency Step, Signal Standard, Channel #, Channel Increment
Amplitude	Reference Level (RL), Scale, Attenuation Auto/Level, RL Offset, Pre-Amp On/Off, Detection
Span	Span, Span Up/Down (1-2-5), Full Span, Zero Span, Last Span
Bandwidth	RBW, Auto RBW, VBW, Auto VBW, RBW/VBW, Span/RBW
File	Save, Save-on-Event, Recall, Copy, Delete
Save	Setups, Measurements, Screen Shots (JPEG), Limit Lines, Spurious Emission Mask
Save-on-Event	Crossing Limit Line, Sweep Complete, Save-then-Stop, Clear All
Recall	Setups, Measurements, Limit Lines, Spurious Emission Mask
Copy	Selected file or files to internal/external memory (USB)
Delete	Selected file or files from internal/external memory (USB)
Application Options	Bias-Tee (On/Off), Impedance (50 Ω, 75 Ω, Other)

Sweep Functions

Sweep	Single/Continuous, Sweep Mode (Fast, Performance, No FFT), Reset, Detection, Minimum Sweep Time, Trigger Type, Gated Sweep (see Option 90)
Detection	Peak, RMS, Negative, Sample, Quasi-peak
Triggers	Free Run, External, Video, Change Position, Manual

Trace Functions

Traces	Up to three Traces (A, B, C), View/Blank, Write/Hold, Trace A/B/C Operations
Trace A Operations	Normal, Max Hold, Min Hold, Average, # of Averages, (always the live trace)
Trace B Operations	A → B, B ↔ C, Max Hold, Min Hold
Trace C Operations	A → C, B ↔ C, Max Hold, Min Hold, A - B → C, B - A → C, Relative Reference (dB), Scale

Marker Functions

Markers	Markers 1-6 each with a Delta Marker, or Marker 1 Reference with Six Delta Markers, Marker Table (On/Off), All Markers Off
Marker Types	Style (Fixed/Tracking), Noise Marker, Frequency Counter Marker
Marker Auto-Position	Peak Search, Next Peak (Right/Left), Peak Threshold %, Set Marker to Channel, Marker Frequency to Center, Delta Marker to Span, Marker to Reference Level
Marker Table	1-6 markers frequency and amplitude plus delta markers frequency amplitude and offset

Limit Line Functions

Limit Lines	Upper/Lower, On/Off, Edit, Move, Envelope, Advanced, Limit Alarm, Default Limit
Limit Line Edit	Frequency, Amplitude, Add Point, Add Vertical, Delete Point, Next Point Left/Right
Limit Line Move	To Current Center Frequency, By dB or Hz, To Marker 1, Offset from Marker 1
Limit Line Envelope	Create Envelope, Update Amplitude, Points (41 max), Offset, Shape Square/Slope
Limit Line Advanced	Type (Absolute/Relative), Mirror, Save/Recall

Frequency

Frequency Range	9 kHz to 4 GHz (S332E), 9 kHz to 6 GHz (S362E) (useable to 0 Hz)
Tuning Resolution	1 Hz
Frequency Reference	Aging: ± 1.0 ppm/year Accuracy: ± 1.5 ppm (25 °C ± 25 °C) + aging, < ± 50 ppb with GPS On
Frequency Span	10 Hz to 4 GHz including zero span (S332E), 10 Hz to 6 GHz including zero span (S362E)
Sweep Time	Minimum 100 ms, 7 μs to 3600 s in zero span
Sweep Time Accuracy	± 2 % in zero span

Bandwidth

Resolution Bandwidth (RBW)	10 Hz to 3 MHz in 1-3 sequence ± 10% (1 MHz max in zero-span) (-3 dB bandwidth)
Video Bandwidth (VBW)	1 Hz to 3 MHz in 1-3 sequence (-3 dB bandwidth) (auto or manually selectable)
RBW with Quasi-Peak Detection	200 Hz, 9 kHz, 120 kHz (-6 dB bandwidth)
VBW with Quasi-Peak Detection	Auto VBW is On, RBW/VBW = 1



Spectrum Analyzer (S332E, S362E only) (continued)

Spectral Purity

SSB Phase Noise @ 1 GHz -100 dBc/Hz, -110 dBc/Hz typical @ 10 kHz offset
 -105 dBc/Hz, -112 dBc/Hz typical @ 100 kHz offset
 -115 dBc/Hz, -121 dBc/Hz typical @ 1 MHz offset

Amplitude Ranges

Dynamic Range > 95 dB (2.4 GHz), 2/3 (TOI-DANL) in 10 Hz RBW
 Measurement Range DANL to +26 dBm (≥ 50 MHz)
 DANL to 0 dBm (< 50 MHz)
 Display Range 1 dB to 15 dB/div in 1 dB steps, ten divisions displayed
 Reference Level Range -150 dBm to +30 dBm
 Attenuator Range 0 dB to 55 dB in 5 dB steps
 Maximum Continuous Input +30 dBm
 Amplitude Units Log Scale Modes: dBW, dBm, dBμW, dBV, dBmV, dBμV, dBA, dBmA, dBμA
 Linear Scale Modes: nV, μV, mV, V, kV, nW, μW, mW, W, kW, nA, μA, mA, A

Amplitude Accuracy

9 kHz to 100 kHz ± 2.0 dB typical (Preamp Off)
 100 kHz to 4.0 GHz ± 1.25 dB, ± 0.5 dB typical
 > 4.0 GHz to 6 GHz ± 1.50 dB, ± 0.5 dB typical

Displayed Average Noise Level (DANL)

(RBW Normalized to 1 Hz, 0 dB attenuation)	Preamp Off (Reference Level -20 dBm)		Preamp On (Reference Level -50 dBm)	
	Maximum	Typical	Maximum	Typical
10 MHz to 2.4 GHz	-141 dBm	-146 dBm	-157 dBm	-162 dBm
> 2.4 GHz to 4 GHz	-137 dBm	-141 dBm	-154 dBm	-159 dBm
> 4 GHz to 5 GHz	-134 dBm	-138 dBm	-150 dBm	-155 dBm
> 5 GHz to 6 GHz	-126 dBm	-131 dBm	-143 dBm	-150 dBm
(RBW = 10 Hz, 0 dB attenuation)				
10 MHz to 2.4 GHz	-131 dBm	-136 dBm	-147 dBm	-152 dBm
> 2.4 GHz to 4 GHz	-127 dBm	-131 dBm	-144 dBm	-149 dBm
> 4 GHz to 5 GHz	-124 dBm	-128 dBm	-140 dBm	-145 dBm
> 5 GHz to 6 GHz	-116 dBm	-121 dBm	-133 dBm	-140 dBm

Spurs

Residual Spurious < -90 dBm (RF input terminated, 0 dB input attenuation, > 10 MHz)
 Input-Related Spurious < -75 dBc (0 dB attenuation, -30 dBm input, span < 1.7 GHz, carrier offset > 4.5 MHz)
 Exceptions, typical < -70 dBc @ < 2.5 GHz, with 2072.5 MHz Input
 < -68 dBc @ F1 - 280 MHz with F1 Input
 < -70 dBc @ F1 + 190.5 MHz with F1 Input
 < -52 dBc @ 7349 - (2F2) MHz, with F2 Input, where F2 < 2437.5 MHz
 < -55 dBc @ 190.5 ± (F1/2) MHz, where F1 < 1 GHz

Third-Order Intercept (TOI)

Preamp Off (-20 dBm tones 100 kHz apart, 10 dB attenuation)
 800 MHz +16 dBm
 2400 MHz +20 dBm
 200 MHz to 2200 MHz +25 dBm, typical
 > 2.2 GHz to 5.0 GHz +28 dBm, typical
 > 5.0 GHz to 6.0 GHz +33 dBm, typical

Second Harmonic Distortion

Preamp Off, 0 dB input attenuation, -30 dBm input
 50 MHz -56 dBc
 > 50 MHz to 200 MHz -60 dBc, typical
 > 200 MHz to 3000 MHz -70 dBc, typical

VSWR

2:1, typical



Coverage Mapping (Option 431) (S332E, S362E only; requires Option 31 GPS)

Measurements

Indoor Mapping	RSSI, ACPR
Outdoor Mapping	RSSI, ACPR

Setup Parameters

Frequency	Center/Start/Stop, Span, Freq Step, Signal Standard, Channel #, Channel Increment
Amplitude	Reference Level (RL), Scale, Attenuation Auto/Level, RL Offset, Pre-Amp On/Off, Detection
Span	Span, Span Up/Down (1-2-5), Full Span, Zero Span, Last Span
BW	RBW, Auto RBW, VBW, Auto VBW, RBW/VBW, Span/VBW
Measurement Setup	ACPR, RSSI
Point Distance / Time Setup	Repeat Type Time Distance
Save Points Map	Save KML, JPEG, Tab Delimited
Recall Points Map	Recall Map, Recall KML Points only, Recall KML Points with Map, Recall Default Grid



Interference Analyzer (Option 25) (S332E, S362E only)

Measurements

Spectrum	Field Strength Occupied Bandwidth Channel Power Adjacent Channel Power Ratio (ACPR) AM/FM/SSB Demodulation (Wide/Narrow FM, Upper/Lower SSB), (audio out only) Carrier-to-Interference ratio (C/I)
Spectrogram	Collect data up to 72 hours
Signal Strength	Gives visual and aural indication of signal strength
Received Signal Strength Indicator (RSSI)	Collect data up to 168 hours (one week) Gives visual and aural indication of signal strength
Signal ID (up to 12 signals)	Center Frequency Bandwidth Signal Type (FM, GSM, W-CDMA, CDMA, Wi-Fi) Closest Channel Number Number of Carriers
Signal-to-Noise Ratio (SNR)	> 10 dB
Interference Mapping	Triangulate location of interference with on-display maps
Application Options	Bias-Tee (On/Off), Impedance (50 Ω, 75 Ω, Other) Support for MA2700A Handheld Interference Hunter

GPS Receiver (Option 31) (requires external GPS antenna, sold separately)

Setup	On/Off, Antenna Voltage 3.3/5.0 V, GPS Info
GPS Time/Location Indicator	Time, Latitude, Longitude and Altitude on display Time, Latitude, Longitude and Altitude with trace storage
High Frequency Accuracy	Spectrum Analyzer, Interference Analyzer, CW Signal Analyzers < ± 50 ppb with GPS On, GPS antenna connected, 3 minutes after satellite lock in selected mode
Connector	SMA, Female



Channel Scanner (Option 27) (S332E, S362E only)

Number of Channels	1 to 20 Channels
Measurements	Graph/Table, Max Hold (On/5 s/Off), Freq/Channel, Current/Max, Single/Dual Color
Scanner	Scan Channels, Scan Frequencies, Scan Customer List, Scan Script Master™
Amplitude	Reference Level, Scale
Custom Scan	Signal Standard, Channel, # of Channels, Channel Step Size, Custom Scan
Frequency Range	9 kHz to 4 GHz (S332E), 9 kHz to 6 GHz (S362E)
Frequency Accuracy	± 10 Hz + Time base error
Measurement Range	-110 dBm to +26 dBm
Application Options	Bias-Tee (On/Off), Impedance (50 Ω, 75 Ω, Other)



CW Signal Generator (Option 28) (S332E, S362E only; requires CW Signal Generator Kit, P/N 69793)

Setup Parameters

Frequency	Frequency, Signal Standard, Channel Number, Display Setup Help
Amplitude	Power Level (Low/High), Offset (dB)
Frequency Range	2 MHz to 2 GHz
Frequency Reference	Accuracy: ± 1.5 ppm ($25\text{ }^\circ\text{C} \pm 25\text{ }^\circ\text{C}$) + aging, $< \pm 50$ ppb with GPS On
Output Power	High 0 dBm typical, Low -30 dBm typical
	Attenuator (included in kit 69793): 0 to 90 dB in 1 dB steps

Gated Sweep (Option 90) (S332E, S362E only)

Mode	Spectrum Analyzer, Sweep
Trigger	External TTL
Setup	Gated Sweep (On/Off)
	Gate Polarity (Rising, Falling)
	Gate Delay (0 ms to 65 ms typical)
	Gate Length (1 μ s to 65 ms typical)
	Zero Span Time



Electromagnetic Field Test (Option 444) (S332E, S362E only)

Measurements

Setup	Limit lines, axis dwell time, measurement time, auto-logging, measurement units, trace display
Spectrum Analyzer	Field strength is measured
Units	dBm/m ² , dBV/m, dBmV/m, dBuV/m, V/m, W/m ² , dBW/m ² , A/m, dBA/m, W/cm ²
Results	Maximum, minimum, and average of all measurements conducted
Display	Measurement status, number of measurements taken, pass/fail indicators

Frequency Range

Supported Antenna

2000-1800-R	9 kHz to 300 MHz
2000-1792-R	30 MHz to 3 GHz
2000-1791-R	700 MHz to 6 GHz

Modes where EMF Measurements Available

Spectrum Analyzer


Ethernet Connectivity (Option 413)

Connector	RJ45
LAN Speed	10 Mbps
Mode	Static, DHCP
Static IP settings	IP address Subnet Mask IP Gateway
Remote Control	Remote capability provided with Web Remote Control and SCPI programming
Data Upload	With Line Sweep Tools through Ethernet connection

 **Power Meter (Option 29)** (S332E, S362E only)

General

Frequency	Center/Start/Stop, Span, Frequency Step, Signal Standard, Channel #, Full Band
Amplitude	Maximum, Minimum, Offset, Relative On/Off, Units, Auto Scale
Average	Acquisition Fast/Med/Slow, # of Running Averages
Limits	Limit On/Off, Limit Upper/Lower
Frequency Range	10 MHz to 4 GHz (S332E), 10 MHz to 6 GHz (S362E)
Span	1 kHz to 100 MHz
Display Range	-140 dBm to +30 dBm, ≤ 40 dB span
Measurement Range	-120 dBm to +26 dBm
Offset Range	0 dB to +100 dB (External Gain or Loss)
VSWR	2:1 typical
Maximum Continuous Input Power	+30 dBm without attenuator
Accuracy	Same as Spectrum Analyzer
Application Options	Impedance (50 Ω, 75 Ω, Other)

 **High Accuracy Power Meter (Option 19)** (requires external USB Power Sensors)

Amplitude	Maximum, Minimum, Offset, Relative On/Off, Units, Auto Scale				
Average	# of Running Averages, Max Hold				
Zero/Cal	Zero On/Off, Cal Factor (Center Frequency, Signal Standard)				
Limits	Limit On/Off, Limit Upper/Lower				
Power Sensor Model	MA24105A	MA24106A	MA24108A/18A/26A	MA24208A/18A	MA24330A/40A/50A
Description	Inline High Power Sensor	High Accuracy RF Power Sensor	Microwave USB Power Sensor	Microwave Universal USB Power Sensor	Microwave CW USB Power Sensor
Frequency Range	350 MHz to 4 GHz	50 MHz to 6 GHz	10 MHz to 8/18/26 GHz	10 MHz to 8/18 GHz	10 MHz to 33/40/50 GHz
Connector	Type N(f), 50 Ω	Type N(m), 50 Ω	Type N(m), 50 Ω (8/18 GHz) Type K(m), 50 Ω (26 GHz)	Type N(m), 50 Ω	Type K(m), 50 Ω (33/40 GHz) Type V(m), 50 Ω (50 GHz)
Dynamic Range	+3 dBm to +51.76 dBm (2 mW to 150 W)	-40 dBm to +23 dBm (0.1 μW to 200 mW)	-40 dBm to +20 dBm (0.1 μW to 100 mW)	-60 dBm to +20 dBm (1 nW to 100 mW)	-70 dBm to +20 dBm (0.1 nW to 100 mW)
Measurand	True-RMS	True-RMS	True-RMS, Slot Power, Burst Average Power	True-RMS, Slot Power, Burst Average Power	Average Power
Measurement Uncertainty	± 0.17 dB ^a	± 0.16 dB ^b	± 0.18 dB ^c	± 0.17 dB ^d	± 0.17 dB ^e
Data sheet (for complete specifications)	11410-00621	11410-00424	11410-00504	11410-00841	11410-00906

- Notes:
- a. Expanded uncertainty with K=2 for power measurements of a CW signal greater than +20 dBm with a matched load. Measurement results referenced to the input side of the sensor.
 - b. Total RSS measurement uncertainty (0 °C to 50 °C) for power measurements of a CW signal greater than -20 dBm with zero mismatch errors.
 - c. Expanded uncertainty with K=2 for power measurements of a CW signal greater than -20 dBm with zero mismatch errors.
 - d. Power uncertainty expressed with two sigma confidence level for CW measurement after zero operation. Includes calibration factor and linearity over temperature uncertainties, but not the effects of mismatch, zero set and drift, or noise.
 - e. Includes linearity over temperature uncertainties, but not the effects of calibration factor, mismatch, zero set and drift, and noise.

 **AM/FM/PM Signal Analyzers (Option 509)** (S332E, S362E only)

Measurements

Display Type	RF Spectrum AM/FM/PM	Audio Spectrum (AM)	Audio Spectrum (FM/PM)	Audio Waveform (AM)	Audio Waveform (FM/PM)	Summary (AM)	Summary (FM/PM)
Graphic Display	Power (dBm) vs. Frequency	Depth (%) vs. Modulation Frequency	Deviation (kHz/rad) vs. Modulation Frequency	Depth (%) vs. Time	Deviation (kHz/rad) vs. Time	None	None
Numerical Displays	Carrier Power Carrier Frequency Occupied Bandwidth	AM Rate RMS Depth (Pk-Pk)/2 Depth SINAD* THD* Distortion/Total Vrms*	FM/PM Rate RMS Deviation (Pk-Pk)/2 Deviation SINAD* THD* Distortion/Total Vrms*	AM Rate RMS Depth (Pk-Pk)/2 Depth SINAD* THD* Distortion/Total Vrms*	FM/PM Rate RMS Depth (Pk-Pk)/2 Depth SINAD* THD* Distortion/Total Vrms*	RMS Depth (AM) Peak + Depth Peak - Depth (Pk-Pk)/2 Depth Carrier Power Carrier Frequency Occupied Bandwidth AM Rate SINAD* THD* Distortion/Total Vrms*	RMS Deviation (FM/PM) Peak + Depth Peak - Depth (Pk-Pk)/2 Depth Carrier Power Carrier Frequency Occupied Bandwidth AM Rate SINAD* THD* Distortion/Total Vrms*

* Requires Sinewave modulation

Setup Parameters

Frequency	Center Freq, Span, Freq Step, Signal Standard, Channel, Channel Increment, Set Carrier Freq
Amplitude	Scale, Power Offset, Adjust Range
Setup	Demod Type (AM, FM, PM), IFBW, Auto IFBW
Measurements	RF Spectrum AM/FM/PM, Audio Spectrum (AM/FM/PM), Audio Waveform (AM/FM/PM), Summary (AM/FM/PM), Average
Marker	On/Off, Delta, Peak Search, Marker Freq to Center, Marker to Ref Lvl, Marker Table, All Markers Off

Specifications

AM	Modulation Rate: ± 1 Hz (< 100 Hz), $\pm 2\%$ (> 100 Hz) Depth: $\pm 5\%$ for (Modulation rates 10 Hz to 100 kHz)
FM	Modulation Rate: ± 1 Hz (< 100 Hz); $\pm 2\%$ (100 Hz to 100 kHz) Deviation Accuracy: $\pm 5\%$ (100 Hz to 100 kHz, IFBW must be greater than 95 % occupied BW)
PM	Modulation Rate: ± 1 Hz (< 100 Hz); $\pm 2\%$ (100 Hz to 100 kHz) Deviation Accuracy: $\pm 5\%$ (deviation 0 to 93 Rad, rate 10 Hz to 5 kHz, IFBW must be greater than 95 % occupied BW)
IF bandwidth	1 kHz to 300 kHz in 1-3 sequence
Frequency Span	RF Spectrum: 10 kHz to 10 MHz Audio Spectrum: 2 kHz, 5 kHz, 10 kHz, 20 kHz, 70 kHz, 140 kHz
RBW/VBW	30
Span/RBW	100
Sweep time	50 μ s to 50 ms (Audio Waveform)

General Specifications

System Parameters		
System	Status (Temperature, Battery Info, Serial Number, Firmware Version, Options Installed) Self Test, Application Self Test, GPS (see Option 31)	
System Options	Name, Date and Time, Brightness, Volume Language (English, French, German, Spanish, Chinese, Japanese, Korean, Italian, Russian, Portuguese) Reset (Factory Defaults, Master Reset, Update Firmware)	
Internal Trace/Setup Memory	2,000 traces, 2,000 setups	
External Trace/Setup Memory	Limited by size of USB Flash drive	
Mode Switching	Auto-Stores/Recalls most recently used Setup Parameters in the Mode	
File Management		
File Types	Vary with measurement mode	
File	Save, Recall, Copy, Delete	
Save	Setups, Measurements, Screen Shots (JPEG)	
Recall	Setups, Measurements	
Copy	Selected file or files to internal/external memory (USB)	
Delete	Selected file or files from internal/external memory (USB)	
File Sort Method	By Name/Date/Type, Ascend/Descend	
Connectors		
RF Out	Type N, female, 50 Ω (Reflection In)	
RF Out Damage Level	+42 dBm, \pm 50 VDC	
RF In	Type N, female, 50 Ω	
RF Input Damage Level	+30 dBm peak, \pm 50 VDC, Maximum Continuous Input (\geq 10 dB attenuation)	
GPS	SMA(f)	
External Power	5.5 mm barrel connector, 12.5 VDC to 15 VDC, < 4.0 Amps	
USB Interface (2)	Type A (Connect USB Flash Drive and Power Sensor)	
USB Interface	5-pin mini-B (Connect to PC for data transfer)	
Ethernet Interface	RJ45 connector for Ethernet 10-Base T (available with Option 413 Ethernet)	
Headset Jack	3.5 mm mini-phone plug	
External Reference In	BNC, female, Maximum Input +10 dBm, 1 MHz, 5 MHz, 10 MHz, 13 MHz	
External Trigger/Clock Recovery	BNC, female, Maximum Input \pm 5.0 VDC	
Display		
Type	Resistive Touchscreen	
Size	8.4" daylight viewable color LCD	
Resolution	800 x 600	
Pixel Defects	No more than five defective pixels (99.9989% good pixels)	
Battery		
Type	Li-Ion	
Battery Operation	4.5 hours, typical (S331E, S361E), 3.5 hours, typical (S332E, S362E)	
Regulatory Compliance		
European Union	EMC 2014/30/EU, EN 61326:2013, CISPR 11/EN 55011, IEC/EN 61000-4-2/3/4/5/6/8/11 Low Voltage Directive 2014/35/EU Safety EN 61010-1:2010 RoHS Directive 2011/65/EU	
Australia and New Zealand	RCM AS/NZS 4417:2012	
Canada	ICES-1(A)/NMB-1(A)	
South Korea	KCC-REM-A21-0004	
Environmental		
Operating Temperature Range	MIL-PRF-28800F Class 2 -10 $^{\circ}$ C to 55 $^{\circ}$ C	
Storage Temperature Range	-51 $^{\circ}$ C to 71 $^{\circ}$ C	
Maximum Relative Humidity	95 % RH at 30 $^{\circ}$ C, non-condensing	
Vibration, Sinusoidal	5 Hz to 55 Hz	
Vibration, Random	10 Hz to 500 Hz	
Half Sine Shock	30 g_n	
Altitude	4600 meters, operating and non-operating	
Explosive Atmosphere	MIL-PRF-28800F, Section 4.5.6.3 MIL-STD-810G, Method 511.5, Procedure 1	
ESD		
RF Port Center Pin	Withstands up to \pm 15 kV	
Size and Weight		
Size	273 mm x 199 mm x 91 mm (10.7 in x 7.8 in x 3.6 in)	
Weight	2.71 kg, (6.0 lb), (S331E, S361E) 3.71 kg, (8.2 lb), (S332E, S362E)	
Warranty		
Duration	Standard three-year warranty (one-year warranty on battery)	

Line Sweep Tools (for your PC)

Trace Capture

Browse to Instrument	View and copy traces from the test equipment to your PC using Windows Explorer
Open Legacy Files	Open DAT files captured with Hand Held Software Tools v6.61
Open Current Files	Open VNA or DAT files
Capture Plots To	The Line Sweep Tools screen, DAT files, Database, or JPEG

Traces

Trace Types	Return Loss, VSWR, DTF-RL, DTF-VSWR, Cable Loss, Smith Chart, and PIM
Trace Formats	DAT, VNA, CSV, PNG, BMP, JPG, HTML, Data Base, and PDF

Report Generation

Report Generator	Includes GPS location along with measurements
Report Format	Create reports in HTML or PDF format
Report Setup	Report Title, Company, Prepared for, Location, Date and Time, Filename, Company logo
Trace Setup	1 Trace Portrait Mode, 2 Trace Portrait Mode, 1 Trace Landscape Mode

Trace Validation

Presets	7 presets allow "one click" setting of up to 6 markers and one limit line
Marker Controls	6 regular Markers, Marker Peak, Marker Valley, Marker between, and frequency entry
Delta Markers	6 Delta markers
Limit Line	Enable and drag or value entry. Also works with presets
Next Trace Button	Next Trace and Previous trace arrow keys allow quick switching between traces

Tools

Cable Editor	Allows creation of custom cable parameters
Distance to Fault	Converts a Return Loss trace to a Distance to Fault trace
Measurement Calculator	Converts Real, Imaginary, Magnitude, Phase, RL, VSWR, Rho, and Transmit power
Signal Standard Editor	Creates new band and channel tables
Renaming Grid	36 user definable phrases for creation of file names, trace titles, and trace subtitles

Connectivity

Connections	USB cable, USB Memory Stick
-------------	-----------------------------

easyTest Tools (for your PC)

Instrument Mode

Cable & Antenna Analyzer Mode

Commands

Display Image	Allows putting a custom image on the instrument screen
Recall Setup	Places the instrument into a known state
Prompt	Displays instructional messages on the instrument screen
Save	Allows automatic or manual saving of traces

Connectivity

Connections	Ethernet, USB cable or USB memory stick (Ethernet requires Option 413)
-------------	--

Master Software Tools (for your PC)**Mapping** (GPS Required)

Spectrum Analyzer Mode	MapInfo, MapPoint
Mobile WiMAX OTA, LTE OTA Options	Google Earth, Google Maps, MapInfo

Folder Spectrogram (Spectrum Monitoring for Interference Analysis and Spectrum Clearing)

Folder Spectrogram – 2D View	Creates a composite file of multiple traces Peak Power, Total Power, Peak Frequency, Histogram, Average Power (Max/Min) File Filter (Violations over limit lines or deviations from averages) Playback
Video Folder Spectrogram – 2D View	Create AVI file to export for management review/reports
Folder Spectrogram – 3D View	Views (Set Threshold, Markers) - 3D (Rotate X, Y, Z Axis, Level Scale, Signal ID) - Playback (Frequency and/or Time Domain)

List/Parameter Editors

Traces	Add, delete, and modify limit lines and markers
Product Updates	Auto-checks Anritsu website for latest revision firmware
Pass/Fail	Create, download, or edit Signal Analysis Pass/Fail Limits
Languages	Add custom language or modify non-English language menus

Connectivity

Connections	Connect to PC using USB or Ethernet (Ethernet requires Option 413)
Remote Operation	Operate unit remotely with MST Remote Access Tool





Web Remote Control (requires Ethernet Option 413)

Control	Full instrument control through a browser – all instrument functions except power switch and rotary knob
Connections	RJ45 Ethernet jack Third party Wi-Fi router
Protocol	HTTP/TCP/IP
Physical Layer	Cat 5 Cable, Wi-Fi router compatible
Software Required	HTML 5 Compliant Browser – Newer versions of Chrome, Firefox, Internet Explorer and others
Operating System	iOS, Windows, Linux, Android operating systems that can host the HTML 5 Compliant browser
Remote Hardware	PCs, Tablets, and Smart Phones with Ethernet or Wi-Fi connections and a HTML 5 Compliant browser
Download	Individual instrument files downloaded via browser Multiple instrument files and directories zipped and downloaded via browser Screen capture capability
Display Modes	Normal: All modes & displays supported Fast: Spectrum traces update faster (up to 5 updates per second)
Password	The instrument can be password protected Passwords may be used to manage who is controlling the instrument
Users/Instruments	One user/device can view and control many instruments

Programmable Remote Control

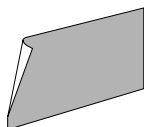


Functionality	Many instrument functions are programmable. See the Programming Manual for details.
Programming Language	Standard Commands for Programmable Instruments (SCPI)
Interfaces	USB, Ethernet (with Option 413)
Available Drivers	LabView (visit NI.com for driver)

Ordering Information – Options







	S331E 2 MHz to 4 GHz	S332E 2 MHz to 4 GHz 9 kHz to 4 GHz	S361E 2 MHz to 6 GHz	S362E 2 MHz to 6 GHz 9 kHz to 6 GHz	Description
					Cable and Antenna Analyzer 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 21 for S331E /S361E)
	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 (recommend Option 31)
		S332E-0027		S362E-0027	Channel Scanner
		S332E-0028		S362E-0028	C/W Signal Generator (requires CW Signal Generator Kit, P/N 69793)
	S331E-0031	S332E-0031	S361E-0031	S362E-0031	GPS Receiver (requires GPS Antenna)
		S332E-0090		S362E-0090	Gated Sweep
	S331E-0413	S332E-0413	S361E-0413	S362E-0413	Ethernet Connectivity
		S332E-0431		S362E-0431	Coverage Mapping (requires Option 31)
		S332E-0444		S362E-0444	EMF Measurements (requires Anritsu Isotropic Antenna)
		S332E-0509		S362E-0509	AM/FM/PM Analyzer
	S331E-0098	S332E-0098	S361E-0098	S362E-0098	Standard Calibration to ISO17025 and ANSI/NCSL Z540-1. Includes calibration certificate.
	S331E-0099	S332E-0099	S361E-0099	S362E-0099	Premium Calibration to ISO17025 and ANSI/NCSL Z540-1. Includes calibration certificate, test report, and uncertainty data.






Standard Accessories (included with instrument)

Accessory	Description
	2000-1654-R Soft Carrying Case
	2000-1691-R Stylus with Coiled Tether
	633-75 Rechargeable Li-Ion Battery, 7500 mAh
	806-141-R Automotive Power Adapter, 12 VDC, 60 W

Accessory	Description
	2000-1797-R Screen Protector Film, 8.4 inch (2, one installed)
	3-2000-1498 USB A/5-pin mini-B Cable, 10 ft
	40-187-R AC-DC Adapter

USB Power Sensors (for complete ordering information, see the respective data sheets of each sensor)

Accessory	Description
	MA24330A Microwave CW USB Power Sensor, 10 MHz to 33 GHz, +20 dBm
	MA24340A Microwave CW USB Power Sensor, 10 MHz to 40 GHz, +20 dBm
	MA24350A Microwave CW USB Power Sensor, 10 MHz to 50 GHz, +20 dBm
	MA24208A Microwave Universal USB Power Sensor, 10 MHz to 8 GHz, +20 dBm to -60 dBm
	MA24218A Microwave Universal USB Power Sensor, 10 MHz to 18 GHz, +20 dBm to -60 dBm
	MA24106A High Accuracy RF Power Sensor, 50 MHz to 6 GHz, +23 dBm to -40 dBm

Accessory	Description
	MA24108A Microwave USB Power Sensor, 10 MHz to 8 GHz, +20 dBm to -40 dBm
	MA24118A Microwave USB Power Sensor, 10 MHz to 18 GHz, +20 dBm to -40 dBm
	MA24126A Microwave USB Power Sensor, 10 MHz to 26 GHz, +20 dBm to -40 dBm
	MA24105A Inline Dual Directional High Power Sensor, 350 MHz to 4 GHz, +3 dBm to +51.76 dBm
	MA25100A RF Power Indicator

Optional Accessories

Backpack and Transit Case		Accessory	Description
	67135 Anritsu Backpack (for Handheld Instrument and PC)		760-261-R Large Transit Case with Wheels and Handle 63.1 cm x 50 cm x 30 cm (24.83" x 19.69" x 11.88"), space for MA2700A, antennas, filters, instrument inside soft case, and other interference hunting accessories/tools
	760-243-R Large Transit Case with Wheels and Handle 56 cm x 45.5 cm x 26.5 cm (22.07" x 17.92" x 10.42")		760-262-R Transit Case for MA2700A, holds several Yagi antennas and filters/port extender 96.8 x 40.6 x 15.5 cm (38.12" x 16.00" x 6.12")
	760-286-R Compact Transit Case with Wheels and Handle 55.6 cm x 35.5 cm x 22.9 cm (21.89" x 13.98" x 9.01")		760-271-R Transit Case for Portable Directional Antennas and Port Extender 52.4 cm x 42.8 cm x 20.6 cm (20.62" x 16.87" x 8.12") (for 2000-1777-R, 2000-1778-R, 2000-1779-R, 2000-1798-R)
Miscellaneous Accessories		Accessory	Description
	69793 CW Signal Generator Kit		2000-1689-R EMI Near Field Probe Kit
	2000-1374-R External Charger for Li-Ion Batteries		66864 Rack Mount Kit, Master Platform
	2000-1371-R Ethernet Cable, 213 cm (7 ft)		3-806-152 Cat 5e Crossover Patch Cable, 213 cm (7 ft)
	MA2700A Handheld Interference Hunter (For full specifications, refer to the MA2700A Technical Data Sheet 11410-00692)		2000-1884-R PIM Hunter™ Test Probe (For full specifications, refer to the 2000-1884-R Technical Data Sheet 11410-00999)



Coaxial Calibration Components, 50 Ω

Accessory	Description
	ICN50B InstaCal™ Calibration Module, 38 dB, 2 MHz to 6 GHz, N(m), 50 Ω
	OSLNF50A High Performance Type N (f), DC to 8 GHz, 50 Ω
	2000-1915-R Precision Open/Short/Load, 4.3-10(m), DC to 6 GHz, 50 Ω
	2000-1619-R Precision Open/Short/Load, 7/16 DIN(f), DC to 6 GHz, 50 Ω
	22NF50 Open/Short, N(f), DC to 18 GHz, 50 Ω
	SM/PLNF-1 Precision Load, N(f), 42 dB, 6 GHz, 50 Ω


Accessory	Description
	OSLN50A-8 High Performance Type N(m), DC to 8 GHz, 50 Ω
	2000-1914-R Precision Open/Short/Load, 4.3-10(f), DC to 6 GHz, 50 Ω
	2000-1618-R Precision Open/Short/Load, 7/16 DIN(m), DC to 6 GHz, 50 Ω
	22N50 Open/Short, N(m), DC to 18 GHz, 50 Ω
	SM/PL-1 Precision Load, N(m), 42 dB, 6 GHz, 50 Ω

Coaxial Calibration Components, 75 Ω


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

Accessory	Description
	22NF75 Open/Short, N(f), DC to 3 GHz, 75 Ω
	26NF75A Precision Termination, N(f), DC to 3 GHz, 75 Ω

Adapters Accessory	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
	1091-465-R Low PIM Adapter, DC to 6 GHz, 4.3-10(f) to N(f), 50 Ω
	1091-467-R Low PIM Adapter, DC to 6 GHz, 4.3-10(m) to N(f), 50 Ω
	1091-434-R Low PIM Adapter, DC to 3.0 GHz, 4.1to 9.5(m) to 7/16 DIN(f), 50 Ω



Precision Adapters Accessory	Description
	34NN50A N(m) to N(m), DC to 18 GHz, 50 Ω

Accessory	Description
	510-102-R N(m) to N(m), DC to 11 GHz, 50 Ω, 90 degrees 50 Ω
	510-90-R 7/16 DIN(f) to N(m), DC to 7.5 GHz, 50 Ω
	510-91-R 7/16 DIN(f) to N(f), DC to 7.5 GHz, 50 Ω
	510-92-R 7/16 DIN(m) to N(m), DC to 7.5 GHz, 50 Ω
	510-93-R 7/16 DIN(m) to N(f), DC to 7.5 GHz, 50 Ω
	510-96-R 7/16 DIN(m) to 7/16 DIN (m), DC to 7.5 GHz, 50 Ω
	510-97-R 7/16 DIN(f) to 7/16 DIN (f), DC to 7.5 GHz, 50 Ω
	1091-433-R Low PIM Adapter, 4.1/9.5(f) to 7/16 DIN(f), DC to 3.0 GHz, 50 Ω


Accessory	Description
	34NFN50 N(f) to N(f), DC to 18 GHz, 50 Ω

Attenuators	
Accessory	Description
	1010-121-R 40 dB, 100 W, DC to 18 GHz, N(m) to N(f), Uni-directional
	3-1010-122 20 dB, 5 W, DC to 12.4 GHz, N(m) to N(f)
	3-1010-123 30 dB, 50 W, DC to 8.5 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


Accessory	Description
	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)
	1010-127-R 30 dB, 150 W, DC to 3 GHz, N(m) to N(f)
	1010-128-R 40 dB, 150 W, DC to 3 GHz, N(m) to N(f)


Phase-Stable Test Port Cables, Armored w/Reinforced Grip (recommended for cable & antenna line sweep applications)			
Accessory	Description	Accessory	Description
	15RDN50-1.5-R 1.5 m, DC to 6 GHz, N(m) to 7/16 DIN(m), 50 Ω		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		15RNFN50-3.0-R 3.0 m, DC to 6 GHz, N(m) to N(f), 50 Ω
	15RDN50-3.0-R 3.0 m, DC to 6 GHz, N(m) to 7/16 DIN(m), 50 Ω		
	15RDFN50-3.0-R 3.0 m, DC to 6 GHz, N(m) to 7/16 DIN(f), 50 Ω		

Interchangeable Adapter, 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 adapter interface on the grip to four different connector types.)



Accessory	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)


Accessory	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
	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
	15NNF50-5.0C 5.0 m, DC to 6 GHz, N(m) to N(f), 50 Ω
	15NN50-5.0C 5.0 m, DC to 6 GHz, N(m) to N(m), 50 Ω

Accessory	Description
	15NDF50-1.5C 1.5 m, DC to 6 GHz, N(m) to 7/16 DIN(f), 50 Ω
	15ND50-1.5-R 1.5 m, DC to 6 GHz, N(m) to 7/16 DIN(m), 50 Ω
	15N43M50-1.5C Test Port Extension Cable, Armored, 1.5 m, DC to 6 GHz, N(m) to 4.3-10(m)
	15N43F50-1.5C Test Port Extension Cable, Armored, 1.5 m, DC to 6 GHz, N(m) to 4.3-10(f)
	15N43M50-3.0C Test Port Extension Cable, Armored, 3 m, DC to 6 GHz, N(m) to 4.3-10(m)
	15N43F50-3.0C Test Port Extension Cable, Armored, 3 m, DC to 6 GHz, N(m) to 4.3-10(f)










GPS Antennas

Accessory	Description
	2000-1528-R Magnet Mount, SMA(m) with 5 m (16.4 ft) cable, requires 5 VDC
	2000-1652-R Magnet Mount, SMA(m) with 0.3 m (1 ft) cable, requires 3.3 VDC or 5 VDC










Accessory Description

	2000-1760-R Miniature Antenna, SMA(m), requires 2.5 VDC to 3.7 VDC
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Directional Antennas

Accessory	Description
	2000-1411-R 824 MHz to 896 MHz, N(f), 12.3 dBi, Yagi
	2000-1412-R 885 MHz to 975 MHz, N(f), 12.6 dBi, Yagi
	2000-1413-R 1710 MHz to 1880 MHz, N(f), 12.3 dBi, Yagi
	2000-1414-R 1850 MHz to 1990 MHz, N(f), 11.4 dBi, Yagi
	2000-1415-R 2400 MHz to 2500 MHz, N(f), 14.1 dBi, Yagi
	2000-1416-R 1920 MHz to 2170 MHz, N(f), 14.3 dBi, Yagi
	2000-1659-R 698 MHz to 787 MHz, N(f), 10.1 dBi, Yagi
	2000-1660-R 1425 MHz to 1535 MHz, N(f), 14.3 dBi, Yagi
	2000-1715-R 698 MHz to 2500 MHz, N(f), gain of 2 dBi to 10 dBi, typical

Accessory Description

	2000-1726-R 2500 MHz to 2700 MHz, N(f), 14.1 dBi, Yagi
	2000-1747-R Log Periodic, 300 MHz to 7000 MHz, N(f), 5.1 dBi, typical
	2000-1748-R Log Periodic, 1 GHz to 18 GHz, N(f), 6 dBi, typical
	2000-1777-R 9 kHz to 20 MHz, N(f)
	2000-1778-R 20 MHz to 200 MHz, N(f)
	2000-1779-R 200 MHz to 500 MHz, N(f)
	2000-1812-R Portable Yagi Antenna, 450 MHz to 512 MHz, N(f), 7.1 dBi
	2000-1825-R Portable Yagi Antenna, 380 MHz to 430 MHz, N(f), 7.1 dBi
	2000-1798-R Port Extender, DC to 6 GHz

Portable Antennas (requires 1091-27-R SMA(f) to N(m) or 1091-172-R BNC(f) to N(m) adapter)

Accessory	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)



Accessory	Description
	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)
	2000-1487-R Telescoping Whip Antenna, BNC
	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 and Broadband Antennas



Accessory	Description
	2000-1616-R 20 MHz to 21000 MHz, N(f), 50 Ω
	2000-1646-R 750 MHz to 1250 MHz, 3 dBi peak gain, 1650 MHz to 2000 MHz, 5 dBi peak gain, 2100 MHz to 2700 MHz, 5 dBi peak gain, N(m), 50 Ω, 10 ft
	2000-1648-R 1700 MHz to 6000 MHz, 3 dBi peak gain, N(m), 50 Ω, 10 ft

Accessory	Description
	2000-1645-R 694 MHz to 894 MHz, 3 dBi peak gain 1700 MHz to 2700 MHz, 3 dBi peak gain, N(m), 50 Ω, 10 ft
	2000-1647-R Cable 1: 698 MHz to 1200 MHz, 2 dBi peak gain, 1700 MHz to 2700 MHz, 5 dBi peak gain, N(m), 50 Ω, 10 ft Cable 2: 3000 MHz to 6000 MHz, 5 dBi peak gain, N(m), 50 Ω, 10 ft Cable 3: GPS 26 dB gain, SMA(m), 50 Ω, 10 ft
	2000-1946-R Cable 1: 617 MHz to 960 MHz, 3 dBi peak gain, 1710 MHz to 3700 MHz, 4 dBi peak gain, N(m), 50 Ω, 10 ft Cable 2: 3000 MHz to 6000 MHz, 5 dBi peak gain, N(m), 50 Ω, 10 ft Cable 3: GPS 26 dB gain, SMA(m), 50 Ω, 10 ft

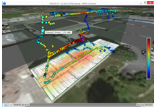

Isotropic Antennas

Accessory	Description
	2000-1800-R H-Field, 9 kHz to 300 MHz, N(m)
	2000-1792-R E-Field, 30 MHz to 3000 MHz, N(m)

Accessory	Description
	2000-1791-R 700 MHz to 6000 MHz, N(m)

Bandpass Filters		Accessory	
Accessory	Description	Accessory	Description
	1030-114-R 806 MHz to 869 MHz, N(m) to SMA(f), 50 Ω		2000-1734-R 699 MHz to 715 MHz, N(m) and N(f), 50 Ω
	1030-109-R 824 MHz to 849 MHz, N(m) to SMA(f), 50 Ω		2000-1735-R 776 MHz to 788 MHz, N(m) and N(f), 50 Ω
	1030-110-R 880 MHz to 915 MHz, N(m) to SMA(f), 50 Ω		2000-1736-R 815 MHz to 850 MHz, N(m) and N(f), 50 Ω
	1030-111-R 1850 MHz to 1910 MHz, N(m) to SMA(f), 50 Ω		2000-1737-R 1711 MHz to 1756 MHz, N(m) and N(f), 50 Ω
	1030-112-R 2400 MHz to 2484 MHz, N(m) to SMA(f), 50 Ω		2000-1738-R 1850 MHz to 1910 MHz, N(m) and N(f), 50 Ω
	1030-105-R 890 MHz to 915 MHz, N(m) to N(f), 50 Ω		2000-1739-R 880 MHz to 915 MHz, N(m) and N(f), 50 Ω
	1030-106-R 1710 MHz to 1790 MHz, N(m) to N(f), 50 Ω		2000-1740-R 1710 MHz to 1785 MHz, N(m) and N(f), 50 Ω
	1030-107-R 1910 MHz to 1990 MHz, N(m) to N(f), 50 Ω		2000-1741-R 1920 MHz to 1980 MHz, N(m) and N(f), 50 Ω
	1030-149-R High Pass, 150 MHz, N(m) to N(f), 50 Ω		2000-1742-R 832 MHz to 862 MHz, N(m) and N(f), 50 Ω
	1030-150-R High Pass, 400 MHz, N(m) to N(f), 50 Ω		2000-1743-R 2500 MHz to 2570 MHz, N(m) and N(f), 50 Ω
	1030-151-R High Pass, 700 MHz, N(m) to N(f), 50 Ω		2000-1799-R 2305 MHz to 2320 MHz, N(m) and N(f), 50 Ω
	1030-152-R Low Pass, 200 MHz, N(m) to N(f), 50 Ω		2000-1911-R 703 MHz to 748 MHz, N(m) and N(f), 50 Ω
	1030-153-R Low Pass, 550 MHz, N(m) to N(f), 50 Ω		2000-1912-R 788 MHz to 798 MHz, N(m) and N(f), 50 Ω
	1030-155-R 2500 MHz to 2700 MHz, N(m) to N(f), 50 Ω		2000-1925-R 663 MHz to 698 MHz, N(m) and N(f), 50 Ω
	1030-178-R 1920 MHz to 1980 MHz, N(m) to N(f), 50 Ω		2000-1926-R 776 MHz to 806 MHz, N(m) and N(f), 50 Ω
	1030-179-R 777 MHz to 798 MHz, N(m) to N(f), 50 Ω		
	1030-180-R 2500 MHz to 2570 MHz, N(m) to N(f), 50 Ω		

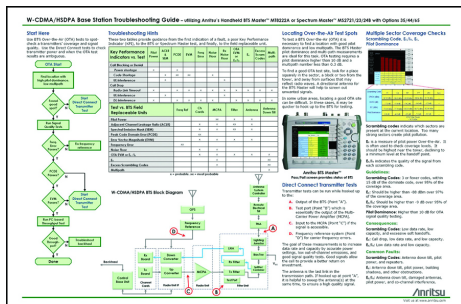
NEON® MA8100A Signal Mapper

Accessory	Description	Accessory	Description
	MA8100A-000 NEON Signal Mapper with Anritsu Integration and Tracking Unit. Includes 1 year NEON Software License with 1 year of maintenance and support and 1 year of Cloud Service (PN: 2300-607).		2300-606 Perpetual NEON Software License with 3 years of maintenance and support and 3 years of Cloud Service. Part number can also be used to order a perpetual license after a limited term license has expired.
	MA8100A-001 NEON Signal Mapper with Anritsu Integration and Tracking Unit. Includes 1 year NEON Software License with 1 year of maintenance and support and 1 year of Cloud Service (PN: 2300-574).		2300-612 Renewal of 1 year NEON Software License with 1 year of maintenance and support and 1 year of Cloud Service.
	MA8100A-003 NEON Signal Mapper with Anritsu Integration and Tracking Unit. Includes 3 year NEON Software License with 3 years of maintenance and support and 3 years of Cloud Service (PN: 2300-575).		2300-613 Renewal of 3 year NEON Software License with 3 years of maintenance and support and 3 years of Cloud Service.
	MA8100A-005 NEON Signal Mapper with Anritsu Integration and Tracking Unit. Includes 5 year NEON Software License with 5 years of maintenance and support and 5 years of Cloud Service (PN: 2300-576).		2300-614 Renewal of 5 year NEON Software License with 5 years of maintenance and support and 5 years of Cloud Service.
	MA8100A-100 NEON Signal Mapper with Anritsu Integration and Tracking Unit. Includes Perpetual NEON Software License with 3 years of maintenance and support and 3 years of Cloud Service (PN: 2300-606).		
	2000-1852-R NEON Tracking Unit (includes USB cable and belt clip, Worldwide version)		
	2000-2015-R NEON Tracking Unit (includes USB cable and belt clip, Japan version)		
	2000-1853-R Belt clip (for NEON Tracking Unit)		

Manuals (available at www.anritsu.com)

Part Number	Description
10100-00065	Product Information, Compliance, and Safety
10580-00252	Site Master User Guide
10580-00241	Cable and Antenna Analyzer Measurement Guide
10580-00242	2-Port Transmission Measurement Guide
10580-00349	Spectrum Analyzer Measurement Guide
10580-00240	Power Meter Measurement Guide
10580-00455	EMF Measurement Guide
10580-00256	Programming Manual

Troubleshooting Guides (available at www.anritsu.com)



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

Related Literature For related literature, visit your product page:

- <https://www.anritsu.com/en-us/test-measurement/products/s331e>
- <https://www.anritsu.com/en-us/test-measurement/products/s332e>
- <https://www.anritsu.com/en-us/test-measurement/products/s361e>
- <https://www.anritsu.com/en-us/test-measurement/products/s362e>

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• 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 Elettronica 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, Immeuble Goyave,
91140 VILLEBON SUR YVETTE, France
Phone: +33-1-60-92-15-50

• 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.
Spaces Eur Arte, Viale dell'Arte 25, 00144 Roma, Italy
Phone: +39-6-509-9711

• Sweden

Anritsu AB
Kistagången 20 B, 2 tr, 164 40 Kista, Sweden
Phone: +46-8-534-707-00

• Finland

Anritsu AB
Technopolis Aviapolis, Teknobulevardi 3-5 (D208.5.),
FI-01530 Vantaa, Finland
Phone: +358-20-741-8100

• Denmark

Anritsu A/S
c/o Regus Winghouse, Ørestads Boulevard 73, 4th floor,
2300 Copenhagen S, Denmark
Phone: +45-7211-2200

• 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
Paseo de la Castellana, 141.
Planta 5, Edificio Cuzco IV
28046, Madrid, Spain
Phone: +34-91-572-6761

• Austria

Anritsu EMEA GmbH
Am Belvedere 10, A-1100 Vienna, Austria
Phone: +43-(0)1-717-28-710

• United Arab Emirates

Anritsu EMEA Ltd.
Anritsu A/S
Office No. 164, Building 17, Dubai Internet City
P. O. Box - 501901, Dubai, United Arab Emirates
Phone: +971-4-3758479

• India

Anritsu India Private Limited
6th Floor, Indiqube 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

• Vietnam

Anritsu Company Limited
16th Floor, Peakview Tower, 36 Hoang Cau Street,
O Cho Dua Ward, Dong Da District, Hanoi, Vietnam
Phone: +84-24-3201-2730

• 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

• South Korea

Anritsu Corporation, Ltd.
5FL, 235 Pangyoeyeok-ro, Bundang-gu, Seongnam-si,
Gyeonggi-do 13494, South 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

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