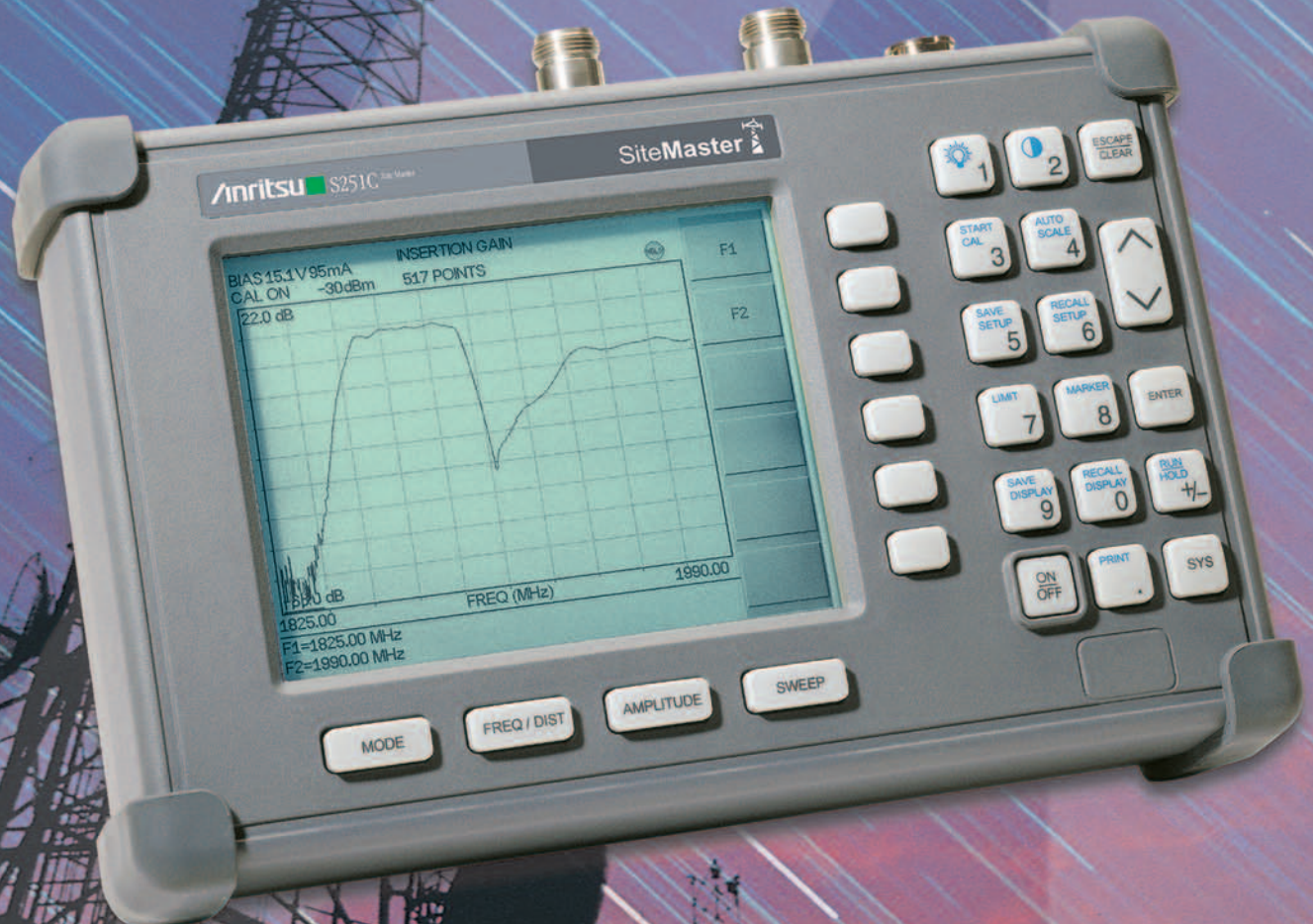


# Site Master™ S251C

Broadband Two-Port Transmission Line and Antenna Analyzer  
625 MHz to 2500 MHz



# The Leading Cable and Antenna An

- Gain/Insertion, Fault Location, Return Loss/SWR and Cable Loss Measurements
- High Immunity to Live Site RF Interference
- Built-in-Bias Tee
- RF Source 625 to 2500 MHz at 10 kHz steps
- Trace Storage with Date/Time Stamp, Alphanumeric Labeling (Up to 200 Memory Locations)
- Cable List Pop-up Menu Contains Over Ninety Cable Types and Three Frequency Band Presets

## Easy-to-Use

Site Master's S251C menu driven interface requires little training and simplifies the field engineers and technicians task of deployment, site-to-site maintenance and troubleshooting by identifying, recording and solving problems without sacrificing measurement accuracy.

- Store ten test setups for fast repeatable testing.
- Store up to 200 measurement traces in nonvolatile memory.
- Multilingual user interface features on screen menus and messages in 6 different languages.

## Powerful Data Analysis Software

Powerful data analysis software comes with every Site Master unit, providing users with an easy method of analyzing system performance, trends and problems in addition to professional report generation.

- Site Master PC software is Windows 95/98/2000/ME and NT workstation compatible and supports long alpha-numeric file names for descriptive data labeling.
- Store an unlimited number of data traces for comparison to historical performance.
- Quickly and easily download data traces from the Site Master to a PC database with a single menu selection.

## Accurate, Repeatable Measurements

Utilizing vector error correction, Site Master delivers accurate, reliable and repeatable Return Loss/SWR and Fault Location measurements. Site Master's high immunity to interference allows users to conduct measurements of an active site without the loss of accuracy.

- Locate long range problems with 517 data points.
- Superior immunity to on-channel interference for testing at co-located antenna sites.
- Large, high-resolution display allows for easy viewing and trace interpretation under a variety of conditions.
- Full range of marker and limit functions facilitate quick, comprehensive measurements.

## Specifications \*1

<b>Frequency Range</b>		625 to 2500 MHz
<b>Frequency Accuracy (CW mode)</b>		75 ppm
<b>Frequency Resolution</b>		10 kHz
<b>Display Resolution</b>		130, 259, 517 data points
<b>Interference Immunity (dBm)</b>	On-Channel *2	+17 dBm
	On-Frequency*3	+10 dBm, RF out, +30 dBc, RF in
<b>Return Loss</b>	Range	0 to 54 dB
	Resolution	0.01 dB
<b>SWR</b>	Range	1 to 65
	Resolution	0.01
<b>RF Source</b>	Frequency	625 to 2500 MHz at 10 kHz step
	Power output (nominal)	Selectable, -30 dBm or +6 dBm
<b>Insertion Loss/Gain</b>	Measurement range	-90 to +50 dB
	Resolution	0.1 dB
<b>Distance-to-Fault</b>	Vertical range	Return loss: 0 to 54 dB SWR: 1 to 65
	Horizontal range (meter)	0 to (data points -1) x resolution to a maximum of 1000 m (3281 ft.) where data points = 130, 259, 517
	Horizontal resolution, (rectangular windowing) (meter)	$(1.5 \times 10^6) (v_p) / \Delta \text{ frequency}^{*4}$
<b>RF power monitor, (Option 5)</b>	Display range	-80 to +80 dBm, 10pW to 100kW
	Detector range	-45 to +20 dBm, 32 nW to 100 mW
	Offset range	0 to +60 dB
	Resolution	0.1 dB, 0.1 x W
<b>Bias Tee (Option 10B)</b>		Voltage-Switchable 15V or 12V, Current-Switchable 1A surge/650 mA steady state or 460 mA surge/244 mA steady state
<b>Cable Loss</b>	Range	0 to 54 dB
	Resolution	0.01 dB
<b>Test port connector</b>		Precision N(f)
<b>Maximum input without damage</b>	N(f) test port	+22 dBm
	RF power detector	+20 dBm, 50Ω
<b>Trace memory</b>		up to 200
<b>Instrument configuration with calibration</b>		10
<b>Custom cable configuration</b>		50
<b>Temperature</b>	Operating	0 to 50°C
	Storage	-20°C to 75°C*5
<b>Weight</b>		1.81 kgs (4.0 lbs.)
<b>Size</b>		25.4 x 17.8 x 6.10 cm (10 x 7 x 2.4 in.)
<b>General</b>	Electromagnetic compatibility	Meets European community CE
	RS232	9 pin D-sub, three wire serial

\*1: All Specifications apply when calibrated at ambient temperature after a five minute warm up.

\*2: On-Channel Interference Immunity is specified at >1.0 MHz of the carrier frequency.

\*3: On-Frequency Interference Immunity is specified to within ±10 kHz of the carrier frequency.

\*4: Where  $v_p$  is the cable's relative propagation velocity,  $\Delta$  frequency is the stop frequency minus the start frequency (in Hz). Wide frequency sweeps improve resolution but reduce maximum display range.

\*5: Recommended battery to store separately between 0°C to +45°C for any prolonged non-operating storage period.



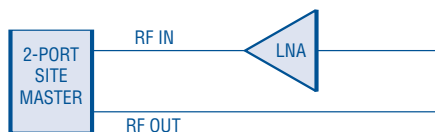
# Analyzer for Wireless Professionals

## Site Master S251C for 2-Port/Tower Top Applications

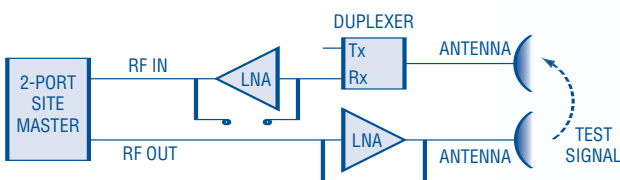
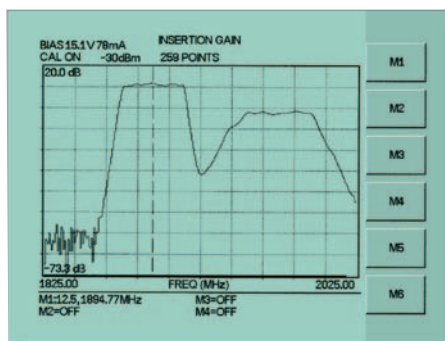
Performance enhancing design trends such as high sector-to-sector isolation, tower-mounted amplifiers and duplexed antennas add new complexities to site installation, deployment, maintenance and troubleshooting. To help simplify performance verification for these systems, a second test port for isolation, gain and insertion loss measurements is required. Addressing this need, the Site Master S251C features a second test-port for testing sector-to-sector isolation, tower-mounted amplifiers and duplexed antennas.

### Gain

The Site Master S251C, features a selectable output power at +6 dBm or -30 dBm and an optional, built-in Bias Tee, to enable two-port insertion gain measurement of Tower Mounted Amplifiers (TMA) without the need of an external supply through the PDU (Power Distribution Unit) and an external attenuator. This greatly simplifies the technician's task of verifying amplifier and system performance during installation or periodic maintenance and troubleshooting intervals. Site Master's industry leading high RF interference immunity allows test signal injection between antennas with a minimum of interference induced distortion and is designed to perform both installation and maintenance tests from ground level.



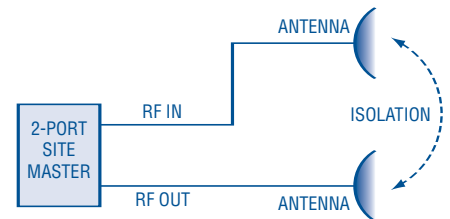
Amplifier Gain Test Measurement



Site Master's high dynamic range enables LNA measurements at ground level.

### Isolation

Improving isolation between antenna sectors can reduce cell-to-cell RF Interference and improve system coverage and capacity. To address this measurement requirement, the Site Master S251C features high dynamic range, which ensures that antenna isolation is accurately measured during deployment and during periodic maintenance intervals – including the extremely high >90 dB isolation ranges required at RF-RF repeater sites.



Accurately measure antenna isolation with Site Master's high dynamic range.

Measuring antenna isolation during periodic maintenance intervals conveniently verifies antenna position after harsh weather. If the antenna has been moved from the installed mounting angle, the change in side lobe and back lobe coupling magnitudes between the antennas causes a clear performance change. Tx-Rx isolation of duplexers and filters is easily tested with Site Master's >90 dB dynamic range. Filters are easily aligned and verified to manufacturer's specifications.



# Ordering Information

Model S251C (625 MHz to 2500 MHz), Built in DTF

## Standard Accessories Include

User's Guide  
Soft Carrying Case  
AC-DC Adapter with Power Cord  
Automotive Cigarette Lighter/12 Volt DC Adapter  
One Year Warranty  
CD ROM containing Fault Location (DTF), Smith Chart and Software Management Tools  
Serial Interface Cable  
Rechargeable Battery, NiMH



## Optional Accessories

Option 5 RF Power Monitor (RF Detector not included)  
Option 10B Bias Tee, Voltage-Switchable 15V or 12V, Current-Switchable 1A surge/650 mA steady state or 460 mA surge/244 mA steady state

5400-71N50 RF Detector, N(m), 50 Ohm, 1 to 3000 MHz  
560-7N50B RF Detector, N(m), 50 Ohm, 10 MHz to 20 GHz

1N50C Limiter, N(m) to N(f), 50 Ohm, 10 MHz to 50 GHz  
22N50 Precision N(m) Short/Open, 18 GHz  
22NF50 Precision N(f) Short/Open, 18 GHz  
SM/PL Precision N(m) Load, 42 dB, 4.0 GHz  
SM/PLNF Precision N(f) Load, 42 dB, 4.0 GHz  
OSLN50LF Precision Open/Short/Load, DC to 4.0 GHz, 50 Ohm, N(m)  
OSLNF50LF Precision Open/Short/Load, DC to 4.0 GHz, 50 Ohm, N(f)  
2000-767 Precision Open/Short/Load, 7/16 (m), 4.0 GHz  
2000-768 Precision Open/Short/Load, 7/16 (f), 4.0 GHz

15NN50-1.5C Test Port Cable Armored, 1.5 meter, N(m) to N(m), 6.0 GHz  
15NN50-3.0C Test Port Cable Armored, 3.0 meter, N(m) to N(m), 6.0 GHz  
15NN50-5.0C Test Port Cable Armored, 5.0 meter, N(m) to N(m), 6.0 GHz  
15NNF50-1.5C Test Port Cable Armored, 1.5 meter, N(m) to N(f), 6.0 GHz  
15NNF50-3.0C Test Port Cable Armored, 3.0 meter, N(m) to N(f), 6.0 GHz  
15NNF50-5.0C Test Port Cable Armored, 5.0 meter, N(m) to N(f), 6.0 GHz  
15ND50-1.5C Test Port Cable Armored, 1.5 meter, N(m) to 7/16 DIN(m), 6.0 GHz  
15NDF50-1.5C Test Port Cable Armored, 1.5 meter, N(m) to 7/16 DIN(f), 6.0 GHz

34NN50A Precision N(m) to N(m) Adapter, 18 GHz  
34NNF50 Precision N(f) to N(f) Adapter, 18 GHz

42N50A-30 Attenuator, 30 dB, 50 Watt, DC to 18 GHz, N(m) to N(f)

510-90 Adapter 7/16(f) to N(m), 7.5 GHz  
510-91 Adapter 7/16(f) to N(f), 7.5 GHz  
510-92 Adapter 7/16(m) to N(m), 7.5 GHz  
510-93 Adapter 7/16(m) to N(f), 7.5 GHz  
510-96 Adapter 7/16 DIN(m) to 7/16 DIN(m), 7.5 GHz  
510-97 Adapter 7/16 DIN(f) to 7/16 DIN(f), 7.5 GHz

800-109 Detector Extender Cable, 7.6 m (25 ft.)  
800-110 Detector Extender Cable, 15.2 m (50 ft.)  
800-111 Detector Extender Cable, 30.5 m (100 ft.)  
800-112 Detector Extender Cable, 61.0 m (200 ft.)

48258 Spare Soft Carrying Case  
40-115 Spare AC/DC Adapter  
806-141 Spare Automotive Cigarette Lighter/12 Volts DC adapter  
800-441 Spare Serial Interface Cable  
760-235 Transit Cases for Anritsu Site Master  
2300-347 Anritsu Handheld Software Tools

10580-00065 Anritsu Site Master S251C User's Guide

633-27 Rechargeable Battery, NiMH (C Series only)  
2000-1029 Battery Charger, NiMH with Universal Power Supply  
551-1691 USB to RS232 Adapter Cable

## Printers

2000-1214 HP DeskJet Printer, Model 450: Includes printer cable, 2000-1216 black print cartridge and U.S. power cord. Also includes 2000-753 serial-to-parallel Centronics converter cable and 1091-310 Centronics-to-DB25 adapter. Rechargeable battery is optional and is not included.

2000-753 Null Modem Serial-to-Parallel Centronics Converter Cable  
1091-310 Adapter 36-pin Centronics female-to-DB25 female  
2000-1216 Black Print Cartridge  
2000-663 Power Cable (Europe) for DeskJet Printer  
2000-664 Power Cable (Australia) for DeskJet Printer  
2000-666 Power Cable (Japan) for DeskJet Printer  
2000-667 Power Cable (S. Africa) for DeskJet Printer  
2000-1217 Rechargeable Battery for DeskJet Printer, Model 450  
2000-1218 Power Cable (U.K.) for DeskJet Printer



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