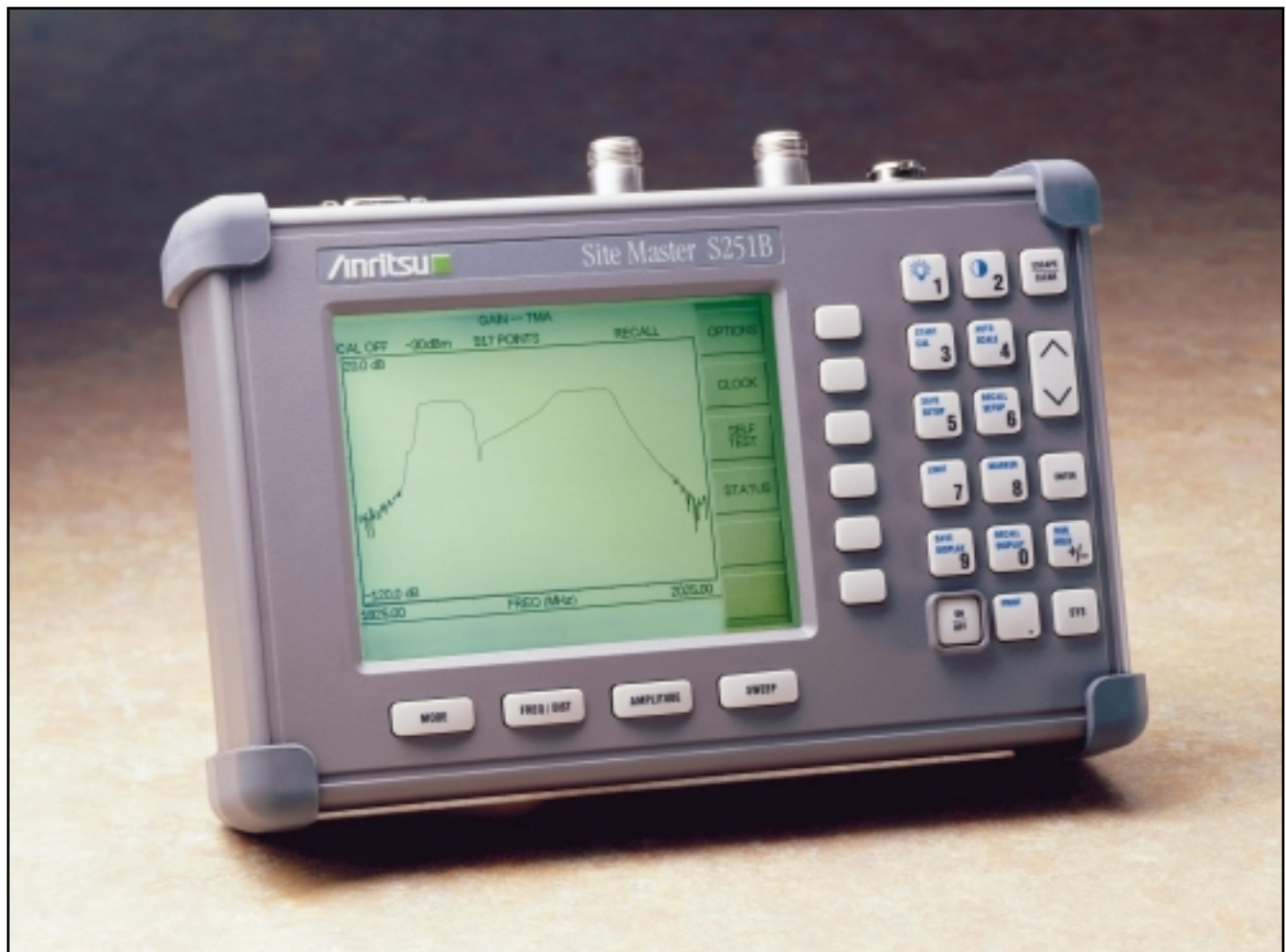


# Site Master™ S251B

Broadband Two-Port Transmission Line and  
Antenna Analyzer

625 MHz to 2500 MHz



*Improve Quality and Reduce Maintenance Expense  
With Frequency Domain Reflectometry*

# FEATURES

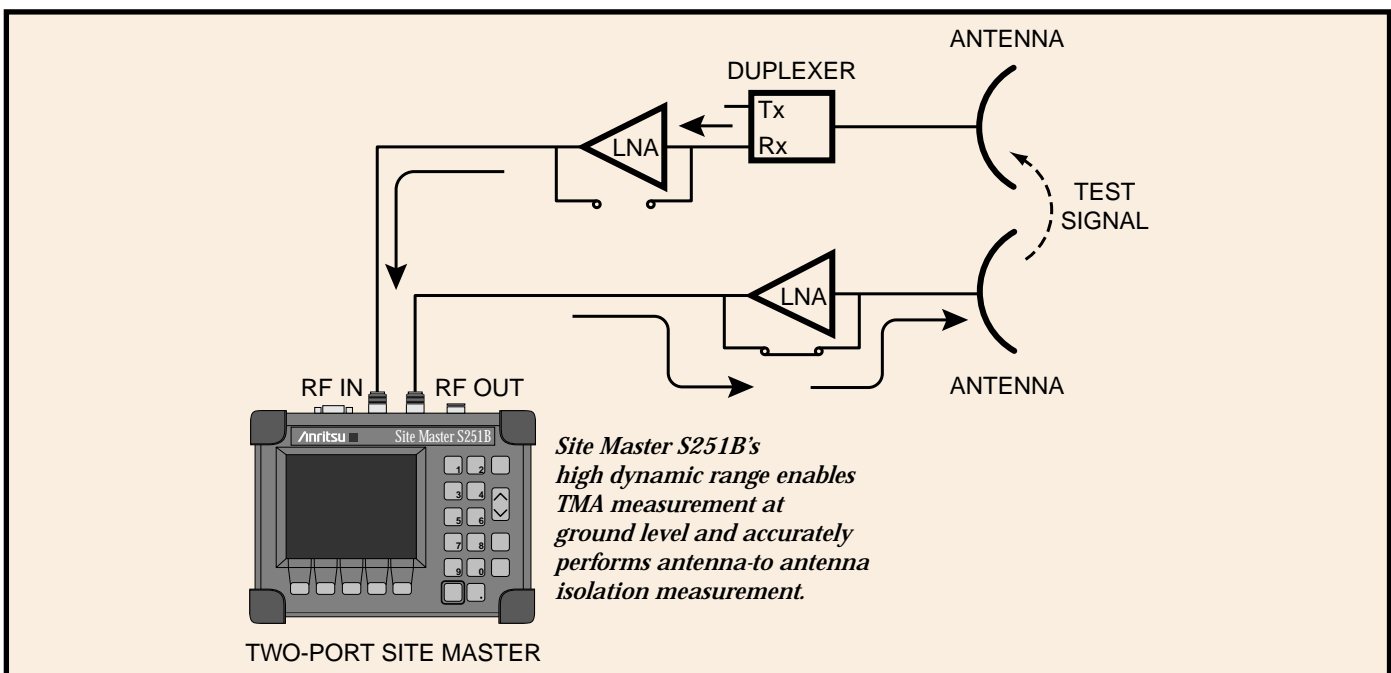
- *Accurately Tests Return Loss/SWR in Transmission Line and Antenna Systems*
- *High Immunity to Live Site RF Interference*
- *Extended Distance-to-Fault Range*
- *10 User Configurations include Calibrations*
- *Increase Current Capability (to 240 mA) with Built-in-Bias Tee*
- *Gain/Insertion Measurement*
- *RF Source 625 to 2500 MHz at 10 kHz steps*
- *Trace Storage with Date/Time Stamp, Alphanumeric labeling (up to 200 memory locations)*
- *Trace and Cable Parameters Downloadable to Site Master*
- *Trace Overlay, Trace Math*
- *Large VGA Display (640 x 480)*
- *Display Resolution Settings: 130, 259, 517 data points*
- *5-Segment Limit Line*
- *Printer Driver Compatibility with Epson, Canon, Citizen, and HP*
- *Field Replaceable Battery-NiMH*

The Site Master S251B is a broadband two-port transmission line and antenna analyzer that performs return loss (SWR), cable loss and distance-to-fault measurement for cellular, PCS/GSM and ISM market applications.

Site Master's patented high RF interference rejection enables the S251B to accurately measure cable and antenna systems in the presence of high RF activity. In addition, the high dynamic range (>80 dB) enables the S251B to perform antenna-to-antenna isolation measurements.

Selectable output levels of +6 dBm or -30 dBm and optional built-in Bias Tee provide the S251B with a convenient means of verifying Tower Mounted Amplifier (TMA) gain before and after installation. Status of applied voltage and current load indicate the operation and function of the TMA.

The Site Master Software Tools supplied with each S251B operates with Windows 95, Windows 98, and Windows NT. Software Tools can download traces and cable parameters to S251B via the RS-232 serial port.



# 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>Sweep Rate</b> Typical values w/calibration	25 ms/data points
<b>Immunity to Interfering RF Signals up to*2</b>	+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 Power Output (nominal)	625 to 2500 MHz at 10 kHz step Selectable, -30 dBm or +6 dBm
<b>Insertion Loss/Gain</b>	Range: -120 to 100 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 x resolution), (where data points= 128, 256, 512) Horizontal resolution, (rectangular windowing) (meter): $(1.5 \times 10^9) (V_p) / \Delta \text{ frequency}^3$
<b>Wattmeter</b> (RF power monitor, Option 5)	Display range: -80 to +80 dBm, 10 pW to 100 kW 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 10A)</b>	+15 VDC, 270 mA peak 25m sec, 240 mA steady state
<b>Cable Loss</b>	Range: 0 to 54 dB Resolution: 0.01 dB
<b>Test port connector</b>	Precision N female
<b>Maximum input without damage</b>	N(f) test port: +22 dBm RF power detector: +20 dBm, 50 $\Omega$
<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
<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 requirements for CE marking. RS232: 9 pin D-sub, three wire serial

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

\*2: In most field applications, Immunity is typically better because interfering signals are modulated and varying in frequency rather than CW. Measurements were made in CW mode by injecting a signal into the Site Master through a coupler.

\*3: 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.

# ORDERING INFORMATION

Models S251B (625 MHz to 2500 MHz), Built in DTF

## Standard Accessories Includes

User's Guide  
Soft Carrying Case  
Rechargeable Battery, NiMH  
AC-DC Adapter  
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

## Optional Accessories

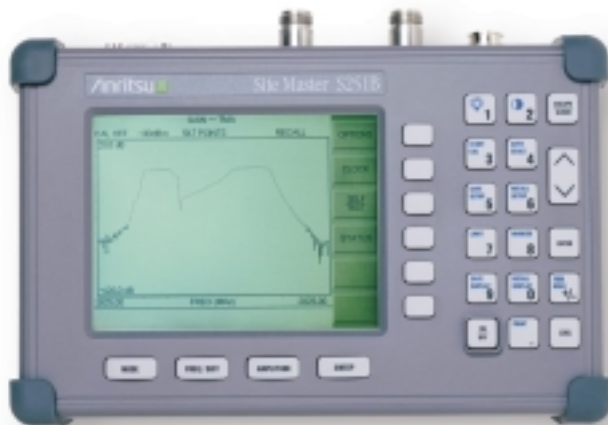
Option 5	RF Watt Meter Power Monitor (RF Detector not included)
Option 10A	Bias Tee
5400-71N50	RF Detector, N(m), 50 Ohm, 1 to 3000 MHz
IN50C	5W Limiter, N(m)-N(f), 18 GHz
22N50	Precision N(m) Short/Open, 18 GHz
22NF50	Precision N(f) Short/Open, 18 GHz
SM/PL	Precision N(m) Load, 42 dB, 4.0 GHz
SM/PLNF	Precision N(f) Load, 42 dB, 4.0 GHz
OSLN50LF	Precision N(m) Open/Short/Load, 42 dB, 4.0 GHz
OSLNF50LF	Precision N(f) Open/Short/Load, 42 dB, 4.0 GHz
2000-767	Precision Open/Short/Load, 7-16 (m), 3.5 GHz
2000-768	Precision Open/Short/Load, 7-16 (f), 3.5 GHz
15NN50-1.5A	Test Port Cable Armored, 1.5 meter, N(m) to N(m), 3.5 GHz
15NN50-3.0A	Test Port Cable Armored, 3.0 meter, N(m) to N(m), 3.5 GHz
15NN50-5.0A	Test Port Cable Armored, 5.0 meter, N(m) to N(m), 3.5 GHz
15NNF50-1.5A	Test Port Cable Armored, 1.5 meter, N(m) to N(f), 3.5 GHz
15NNF50-3.0A	Test Port Cable Armored, 3.0 meter, N(m) to N(f), 3.5 GHz
15NNF50-5.0A	Test Port Cable Armored, 5.0 meter, N(m) to N(f), 3.5 GHz
15ND50-1.5A	Test Port Cable Armored, 1.5 meter, N(m) to 7/16 DIN(m), 3.5 GHz
15NDF50-1.5A	Test Port Cable Armored, 1.5 meter, N(m) to 7/16 DIN(f), 3.5 GHz
800-109	Detector Extender Cable, 7.6 m (25 ft.)

800-110  
800-111  
800-112  
34NN50A  
34NFN50  
510-90  
510-91  
510-92  
510-93  
510-96  
510-97  
48258  
40-115  
806-62  
800-441  
760-215A  
2300-347  
10580-00032  
10580-00033  
633-27  
2000-1029

Detector Extender Cable, 15.2 m (50 ft.)  
Detector Extender Cable, 30.5 m (100 ft.)  
Detector Extender Cable, 61 m (200 ft.)  
Precision N(m) to N(m) Adapter, 18 GHz  
Precision N(f) to N(f) Adapter, 18 GHz  
Adapter 7-16(f) to N(m), 3.5 GHz  
Adapter 7-16(f) to N(f), 3.5 GHz  
Adapter 7-16(m) to N(m), 3.5 GHz  
Adapter 7-16(m) to N(f), 3.5 GHz  
Adapter 7/16 DIN(m) to 7/16 DIN (m), 3.5 GHz  
Adapter 7/16 DIN(f) to 7/16 DIN (f), 3.5 GHz  
Soft Carrying Case  
AC/DC Adapter  
Automotive Cigarette Lighter/12 Volts DC adapter  
Serial Interface Cable  
Transit Case  
Site Master Software Tools  
Site Master S251B User's Guide  
Site Master V Maintenance Manual  
Rechargeable Battery, NiMH  
Battery Charger, NiMH

## Printers

2000-766	HP DeskJet Printer Includes: Interface Cable, Black Print Cartridge, and US Power Cable Spare Serial-to-Parallel Converter Cable Black Print Cartridge
2000-1046	Rechargeable Battery for DeskJet Printer
2000-661	Power Cable (Europe) for DeskJet Printer
2000-662	Power Cable (Australia) for DeskJet Printer
2000-663	Power Cable (U.K.) for DeskJet Printer
2000-664	Power Cable (So. Africa) for DeskJet Printer
2000-665	Seiko DPU-414-30B Thermal Printer (120VAC)
2000-667	Includes: Internal Battery, Thermal Printer Paper, Serial Cable, U.S. Adapter
2000-754	Seiko DPU-414-30B Thermal Printer (220VAC)
2000-761	Includes: Internal Battery, Thermal Printer Paper, Serial Cable, Europe Adapter
2000-1002	US Adapter (for Seiko DPU-414-30B Printer)
2000-1003	Europe Adapter (for Seiko DPU-414-30B Printer)
2000-1004	Battery Pack (for Seiko DPU-414-30B Printer)
2000-1012	Spare Serial 9-pin (male) to 9-pin (female) Cable
2000-755	Five (5) rolls of Thermal Paper



All trademarks are registered trademarks of their respective companies.

### Sales Centers:

US (800) ANRITSU  
Canada (800) ANRITSU  
South America 55 (21) 286-9141

# Anritsu

Microwave Measurements Division • 490 Jarvis Drive • Morgan Hill, CA 95037-2809  
<http://www.global.anritsu.com> • FAX (408) 778-0239



Certificate No. 6485

### Sales Centers:

Europe 44 (01582) 433200  
Japan 81 (03) 3446-1111  
Asia-Pacific 65-2822400