

Site Master™ S820A

Microwave Transmission Line
and Antenna Analyzer

3.3 GHz to 20.0 GHz



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

FEATURES

- **Broadband Frequency Coverage (3.3 GHz to 20 GHz)**
- **Accurately Tests Coax/Waveguide and Antennas**
- **Fast Sweep Tune Mode for Waveguide Component Alignment/Testing**
- **Extended Range in Distance-To-Fault**
- **K Connector®**
- **Immunity to Live Site RF Interference**
- **Synthesizer Accurate to 75 ppm**
- **Internal Memory Saves Up to 70 Traces**
- **Six Instrument Configurations with Calibration**
- **Wattmeter Optional**
- **Database Management Software Tools**

The Anritsu S820A is a portable, one-port microwave transmission line and antenna analyzer. Site Master S820A targets microwave site installers, point-to-point operators, radio manufacturers, PCS/Cellular operators, and utility companies that support microwave links. The S820A provides a convenient way to measure, trouble shoot, and verify transmission line and antenna systems compared to laboratory sized scalar analyzer or microwave test set. Site Master S820A extends the frequency range of the Microwave Site Master family to 20.0 GHz. The main application is to test and measure the full 18 GHz radio frequency band (17.7 to 19.7 GHz) microwave waveguide and antenna system.

The Site Master Software Tools supplied with each S820A operates with Windows 95®, Windows 98® and Windows NT®.

Specifications¹

Frequency Range	3.3 to 20.0 GHz
Frequency Accuracy (CW mode)	75 ppm
Frequency Resolution	1 MHz
Immunity to Interfering RF Signals up to²	-10 dBm
Return Loss (SWR)	Range: 0 to 54 dB (1 to 65) Resolution: 0.01 dB (0.01)
Distance-to-Fault	Vertical range Return loss: 0 to 54 dB SWR: 1 to 65 Horizontal range (meter): 0 to 129X (resolution) Horizontal resolution, (meter): coax: $(1.5 \times 10^6) (v_p) / \Delta \text{ frequency}^3$ (Rectangular windowing) waveguide: $(1.5 \times 10^6) \sqrt{1 - (f_c/f_1)^2} / \Delta \text{ frequency}^3$
Wattmeter (RF power monitor, Option 5)	Display range: -80 to +80 dBm, 10 pW to 100 kW Detector range: -50 to +20 dBm, 32 nW to 100 mW Offset range: 0 to +60 dB Resolution: 0.1 dB, 0.1 x W
Coax/Waveguide Insertion Loss	Range: 0 to 54 dB Resolution : 0.01 dB
Test port connector	Precision K female, 50 Ω
Maximum input without damage	K(f) test port: +22 dBm RF power detector: +20 dBm, 50 Ω
Trace memory	70
Instrument configuration/calibration	6
Temperature	Operating: 0 to 50°C Storage: -20° to 75°C
Weight	1.14 kg nom
Size	203.2 mm x 177.8 mm x 57.2 mm
General	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: Immunity performance represents a typical worst-case condition. Measurements were made in CW mode by injecting a signal into the Site Master through a coupler with the same signal injected through the coupled arm. In field applications, signals are modulated and varying in frequency rather than CW. Immunity is typically better when swept frequencies are used.

3: Where v_p is the cable's relative propagation velocity. Δ frequency is the stop frequency minus the start frequency (in Hz). F_c is the waveguide cutoff frequency in GHz. F_1 is the start frequency in GHz. Wider frequency sweeps improve resolution but reduce maximum display range.

UNIVERSAL WAVEGUIDE COMPONENT ACCESSORIES

Precision Waveguide Calibration Components					
Part Number	Description	Freq Range	Waveguide Type	Compatible Flanges	
xxUM40	1/8, 3/8 λ Offset Short and Load, Metric	3.30 to 4.90 GHz	WR229, WG11A	PDR40	
xxUM48	1/8, 3/8 λ Offset Short and Load, Metric	3.95 to 5.85 GHz	WR187, WG12	CAR48, PAR48, UAR48, PDR48	
xxUM58	1/8, 3/8 λ Offset Short and Load, Metric	4.90 to 7.05 GHz	WR159, WG13	CAR58, PAR58, UAR58, PDR58	
xxUM70	1/8, 3/8 λ Offset Short and Load, Metric	5.85 to 8.20 GHz	WR137, WG14	CAR70, PAR70, UAR 70, PDR70	
xxUM84	1/8, 3/8 λ Offset Short and Load, Metric	7.05 to 10.00 GHz	WR112, WG15	CBR84, UBR84, PBR84, PDR84	
xxUM100	1/8, 3/8 λ Offset Short and Load, Metric	8.20 to 12.40 GHz	WR90, WG16	CBR100, UBR100, PBR100, PDR100	
xxUM120	1/8, 3/8 λ Offset Short and Load, Metric	10.00 to 15.00 GHz	WR75, WG17	CBR120, UBR120, PBR120, PDR120	
xxUM140	1/8, 3/8 λ Offset Short and Load, Metric	12.40 to 18.00 GHz	WR62, WG18	CBR140, UBR140, PBR140, PDR140	
xxUM220	1/8, 3/8 λ Offset Short and Load, Metric	17.00 to 26.50 GHz	WR42, WG20	CBR220, UBR220, PBR220, PDR220	
xxUA229	1/8, 3/8 λ Offset Short and Load, US	3.30 to 4.90 GHz	WR229, WG11A	CPR229F, CPR229G, UG-1350/U, UG-1351/U, UG-1726/U, UG-1727/U	
xxUA187	1/8, 3/8 λ Offset Short and Load, US	3.95 to 5.85 GHz	WR187, WG12	CPR187F, CPR187G, UG-1352/U, UG-1353/U, UG-1728/U, UG-1729/U, UG-148/U, UG-149A/U	
xxUA159	1/8, 3/8 λ Offset Short and Load, US	4.90 to 7.05 GHz	WR159, WG13	CPR159F, CPR159G, UG-1354/U, UG-1355/U, UG-1730/U, UG-1731/U	
xxUA137	1/8, 3/8 λ Offset Short and Load, US	5.85 to 8.20 GHz	WR137, WG14	CPR137F, CPR137G, UG-1356/U, UG-1357/U, UG-1732/U, UG-1733/U, UG-343B/U, UG-344/U, UG-440B/U, UG-441/U	
xxUA112	1/8, 3/8 λ Offset Short and Load, US	7.05 to 10.00 GHz	WR112, WG15	CPR112F, CPR112G, UG-1358/U, UG-1359/U, UG-1734/U, UG-1735/U, UG-52B/U, UG-51/U, UG-137B/U, UG-138/U	
xxUA90	1/8, 3/8 λ Offset Short and Load, US"	8.20 to 12.40 GHz	WR90, WG16	CPR90F, CPR90G, UG-1360/U, UG-1361/U, UG-1736/U, UG-1737/U, UG-40B/U, UG-39/U, UG-135/U, UG-136B/U	
xxUA75	1/8, 3/8 λ Offset Short and Load, US	10.00 to 15.00 GHz	WR75, WG17	WR75	
xxUA62	1/8, 3/8 λ Offset Short and Load, US	12.40 to 18.00 GHz	WR62, WG18	UG-541A/U, UG-419/U, UG-1665/U, UG1666/U	
xxUA42	1/8, 3/8 λ Offset Short and Load, US	17.00 to 26.50 GHz	WR42, WG20	UG-596A/U, UG-595/U, UG-597/U, UG-598A/U	
xxCMR229	1/8, 3/8 λ Offset Short and Load, CMR	3.30 to 4.90 GHz	WR229, WG11A	CMR229	
xxCMR187	1/8, 3/8 λ Offset Short and Load, CMR	3.95 to 5.85 GHz	WR187, WG12	CMR187, UG1475/U, UG1480/U	
xxCMR159	1/8, 3/8 λ Offset Short and Load, CMR	4.90 to 7.05 GHz	WR159, WG13	CMR159	
xxCMR137	1/8, 3/8 λ Offset Short and Load, CMR	5.85 to 8.20 GHz	WR137, WG14	CMR137, UG1476/U, UG1481/U	
xxCMR112	1/8, 3/8 λ Offset Short and Load, CMR	7.05 to 10.00 GHz	WR112, WG15	CMR112, UG1477/U, UG1482/U	
xxCMR90	1/8, 3/8 λ Offset Short and Load, CMR	8.2 to 12.4 GHz	WR90, WG16	CMR90, UG1478/U, UG1483/U	
xxUER40	1/8, 3/8 λ Short and Load, UER	3.30 to 4.90 GHz	WR229, WG11A	UER40	
xxUER48	1/8, 3/8 λ Short and Load, UER	3.95 to 5.85 GHz	WR187, WG12	UER48	
xxUER58	1/8, 3/8 λ Short and Load, UER	4.90 to 7.05 GHz	WR159, WG13	UER58	
xxUER70	1/8, 3/8 λ Short and Load, UER	5.85 to 8.20 GHz	WR137, WG14	UER70	
xxUER84	1/8, 3/8 λ Short and Load, UER	7.05 to 10.00 GHz	WR112, WG15	UER84	
xxUER100	1/8, 3/8 λ Short and Load, UER	8.2 to 12.4 GHz	WR90, WG16	UER100	
Note: Part Number Ordering Information Prefix (xx) - 23 for 1/8 λ Offset Short - 24 for 3/8 λ Offset Short - 26 for Precision Waveguide Load					
Precision Waveguide-to-Coaxial Adapters					
35UM40N	Coaxial Adapter, N(m), Metric	3.30 to 4.90 GHz	WR229, WG11A	PDR40	
35UM48N	Coaxial Adapter, N(m), Metric	3.95 to 5.85 GHz	WR187, WG12	CAR48, PAR48, UAR48, PDR48	
35UM58N	Coaxial Adapter, N(m), Metric	4.90 to 7.05 GHz	WR159, WG13	CAR58, PAR58, UAR58, PDR58	
35UM70N	Coaxial Adapter, N(m), Metric	5.85 to 8.20 GHz	WR137, WG14	CAR70, PAR70, UAR 70, PDR70	
35UM84N	Coaxial Adapter, N(m), Metric	7.05 to 10.00 GHz	WR112, WG15	CBR84, UBR84, PBR84, PDR84	
35UM100N	Coaxial Adapter, N(m), Metric	8.20 to 12.40 GHz	WR90, WG16	CBR100, UBR100, PBR100, PDR100	
35UM120N	Coaxial Adapter, N(m), Metric	10.00 to 15.00 GHz	WR75, WG17	CBR120, UBR120, PBR120, PDR120	
35UM140N	Coaxial Adapter, N(m), Metric	12.40 to 18.00 GHz	WR62, WG18	CBR140, UBR140, PBR140, PDR140	
35UM220K	Coaxial Adapter, K(m), Metric	17.00 to 26.50 GHz	WR42, WG20	CBR220, UBR220, PBR220, PDR220	
35UA229N	Coaxial Adapter, N(m), US	3.30 to 4.90 GHz	WR229, WG11A	CPR229F, CPR229G, UG-1350/U, UG-1351/U, UG-1726/U, UG-1727/U	
35UA187N	Coaxial Adapter, N(m), US	3.95 to 5.85 GHz	WR187, WG12	CPR187F, CPR187G, UG-1352/U, UG-1353/U, UG-1728/U, UG-1729/U, UG-148/U, UG-149A/U	
35UA159N	Coaxial Adapter, N(m), US	4.90 to 7.05 GHz	WR159, WG13	CPR159F, CPR159G, UG-1354/U, UG-1355/U, UG-1730/U, UG-1731/U	
35UA137N	Coaxial Adapter, N(m), US	5.85 to 8.20 GHz	WR137, WG14	CPR137F, CPR137G, UG-1356/U, UG-1357/U, UG-1732/U, UG-1733/U, UG-343B/U, UG-344/U, UG-440B/U, UG-441/U	
35UA112N	Coaxial Adapter, N(m), US	7.05 to 10.00 GHz	WR112, WG15	CPR112F, CPR112G, UG-1358/U, UG-1359/U, UG-1734/U, UG-1735/U, UG-52B/U, UG-51/U, UG-137B/U, UG-138/U	
35UA90N	Coaxial Adapter, N(m), US	8.20 to 12.40 GHz	WR90, WG16	CPR90F, CPR90G, UG-1360/U, UG-1361/U, UG-1736/U, UG-1737/U, UG-40B/U, UG-39/U, UG-135/U, UG-136B/U	
35UA75N	Coaxial Adapter, N(m), US	10.00 to 15.00 GHz	WR75, WG17	WR75	
35UA62N	Coaxial Adapter, N(m), US	12.40 to 18.00 GHz	WR62, WG18	UG-541A/U, UG-419/U, UG-1665/U, UG1666/U	
35UA42K	Coaxial Adapter, K(m), US	17.00 to 26.50 GHz	WR42, WG20	UG-596A/U, UG-595/U, UG-597/U, UG-598A/U	
35CMR229N	Coaxial Adapter, N(m), CMR	3.30 to 4.90 GHz	WR229, WG11A	CMR229	
35CMR187N	Coaxial Adapter, N(m), CMR	3.95 to 5.85 GHz	WR187, WG12	CMR187, UG1475/U, UG1480/U	
35CMR159N	Coaxial Adapter, N(m), CMR	4.90 to 7.05 GHz	WR159, WG13	CMR159	
35CMR137N	Coaxial Adapter, N(m), CMR	5.85 to 8.20 GHz	WR137, WG14	CMR137, UG1476/U, UG1481/U	
35CMR112N	Coaxial Adapter, N(m), CMR	7.05 to 10.00 GHz	WR112, WG15	CMR112, UG1477/U, UG1482/U	
35CMR90N	Coaxial Adapter, N(m), CMR	8.2 to 12.4 GHz	WR90, WG16	CMR90, UG1478/U, UG1483/U	
35UER40N	Coaxial Adapter, N(m), UER	3.30 to 4.90 GHz	WR229, WG11A	UER40	
35UER48N	Coaxial Adapter, N(m), UER	3.95 to 5.85 GHz	WR187, WG12	UER48	
35UER58N	Coaxial Adapter, N(m), UER	4.90 to 7.05 GHz	WR159, WG13	UER58	
35UER70N	Coaxial Adapter, N(m), UER	5.85 to 8.20 GHz	WR137, WG14	UER70	
35UER84N	Coaxial Adapter, N(m), UER	7.05 to 10.00 GHz	WR112, WG15	UER84	
35UER100N	Coaxial Adapter, N(m) UER	8.2 to 12.4 GHz	WR90, WG16	UER100	

ORDERING INFORMATION

Model S820A (3.3 GHz to 20.0 GHz), Built-in DTF

Standard Accessories:

User's Guide
Soft Carrying Case
AC-DC Adapter
Precision Adapter, Ruggedized K(m) to N(f)
Automotive Cigarette Lighter/12 Volt DC Adapter
CD ROM containing Fault Location (DTF)
Smith Chart and Software Management Tools
Serial Interface Cable
One Year Warranty

Optional Accessories:

Option 5	RF Watt Meter Power Monitor (RF Detector not included)
560-7N50B	RF Detector, N(m), 50 Ohm, 10 MHz to 20 GHz
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
22K50	Precision K(m) Short/Open, 40 GHz
22KF50	Precision K(f) Short/Open, 40 GHz
28K50	Precision Termination, DC to 40 GHz, 50 Ohm, K(m)
28KF50	Precision Termination, DC to 40 GHz, 50 Ohm, K(f)
28N50-2	Precision Termination, DC to 18 GHz, 50 Ohm N(m)
28NF50-2	Precision Termination, DC to 18 GHz, 50 Ohm, N(f)
15NNF50-1.5A	Test Port Cable Armored, 1.5 meter N(m) to N(f) 18 GHz
15KKF50-1.5B	Test Port Cable Armored, 1.5 meter K(m) to K(f) 20 GHz
800-109	Detector Extender Cable, 7.6 m
800-110	Detector Extender Cable, 15.2 m
800-111	Detector Extender Cable, 30.5 m
800-112	Detector Extender Cable, 61 m
34NN50A	Precision N(m) to N(m) Adapter, 18 GHz
34NFN50	Precision N(f) to N(f) Adapter, 18 GHz
34RKNF50	Precision Adapter, Ruggedized K(m) to N(f), 20 GHz
34RSN50	Precision Adapter, Ruggedized WSMA(m) to N(m), 20 GHz
K220B	Precision Adapter, K(m) to K(m), 40 GHz
K222B	Precision Adapter, K(f) to K(f), 40 GHz

1091-26	Adapter N(m)-to SMA(m), 18 GHz
1091-27	Adapter N(m)-to SMA(f), 18 GHz
1091-80	Adapter N(f)-to SMA(m), 18 GHz
1091-81	Adapter N(f)-to SMA(f), 18 GHz
42N50-20	5W Attenuator, N(m)-N(f), 18 GHz
D41955	Soft Carrying Case
40-115	AC/DC Adapter
806-62	Automotive Cigarette Lighter/12 Volt DC Adapter
800-441	Serial Interface Cable
760-213	Transit Cases for Microwave Site Master
2300-347	Site Master Software Tools
10580-00030	Site Master S820A User's Guide
10580-00031	Site Master S820A Maintenance Manual

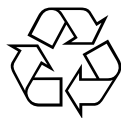
Printers:

2000-766	HP DeskJet Printer Includes: Interface Cable, Black Print Cartridge, and U.S. Power Cable
2000-753	Spare Serial-to-Parallel Converter Cable
2000-661	Black Print Cartridge
2000-662	Rechargeable Battery for DeskJet Printer
2000-663	Power Cable (Europe) for DeskJet Printer
2000-664	Power Cable (Australia) for DeskJet Printer
2000-665	Power Cable (U.K.) for DeskJet Printer
2000-667	Power Cable (So. Africa) for DeskJet Printer
2000-754	Seiko DPU-414-30B Thermal Printer (120VAC) Includes: Internal Battery, Thermal Printer Paper, Serial Cable, U.S. Adapter
2000-761	Seiko DPU-414-30B Thermal Printer (220VAC) Includes: Internal Battery, Thermal Printer Paper, Serial Cable, Europe Adapter
2000-1002	U.S. 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 rolls of Thermal Paper

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Certificate No. 6492



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