Anritsu Site Master S332D Specs
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Site Master™ S331D/S332D

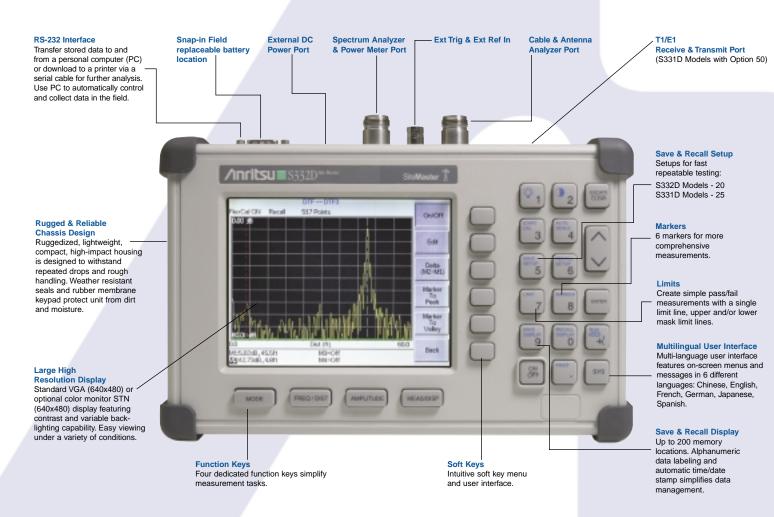
Cable and Antenna Analyzer 25 MHz to 4000 MHz



Site**Master**

The World's Leading Cable and Antenna System Analyzer

Site Master is the preferred cable and ant



Cost Savings and Quality Improvement

Wireless market competition requires operators to reduce per site maintenance expense. Site Master's Frequency Domain Reflectometry (FDR) techniques break away from the traditional fix-after-failure maintenance process by finding small, hard to identify problems before major failures occur.

Sixty to eighty percent of a typical cell site's problems are caused by problematic cables, connectors and antennas. When cables/antennas are contaminated with moisture or are damaged/mis-positioned during storms, Site Master identifies the problem quickly. Antenna degradation reduces the cell coverage pattern and can cause dropped calls. Site Master can pinpoint the antenna problem from ground level in a few seconds so climbing to the antenna tower becomes unnecessary.

A poorly installed weather seal will corrode connectors and, if undetected, will eventually damage an expensive coaxial cable. Site Master has the sensitivity to identify the connector problem before the cable is damaged. Distance-To-Fault provides the clearest indication of troubled areas.

Site Master revolutionizes
Cable and Antenna
Sweeping in the Wireless Industry.

tenna analyzer of wireless providers, contractor

Cable and Antenna Analyzer

The cable and antenna analyzer tool provides for return loss/SWR, cable loss, and distance-to-fault measurements. This enables quick evaluations of the health and status of transmission lines and antenna systems, and speeds the benchmarking of new cell site installations at the time of commissioning.

Test / Capability	Benefits		
25 MHz to 4000 MHz	Covers all cell site frequency ranges without additional plug-ins or instruments		
Built-in worldwide signal standards	Common language for cell technicians that eliminate the need to remember and manually input start and stop frequencies		
Built-in calibration intelligence	Ensures accurate and proper calibration		
FlexCal™	Allows troubleshooting cable and antenna systems without multiple calibrations and calibration setups		
Superior immunity to interference	Accurate and repeatable measurements in RF-noisy environments		
130, 259, and 517 data points	Optimizes distance measurement resolution and fault locations		
< 500 msec per sweep	Enables easier identification of intermittent, real-time problems		
Built-in average cable loss value computation	No more guess work or need to calculate a measured cable loss value		

Power Meter (Option 29)

The power meter tool performs accurate power measurements, reducing coverage holes and interference.

Test / Capability	Benefits
Requires no additional power sensors	No additional parts to carry to the field

T1 and E1 Analyzer (Option 50 on S331D Models only)

The Site Master performs full T1/E1 functional tests, simplifying the task of determining if the source of problems is on the wireline or the wireless side.

Test / Capability	Benefits
Full function T1 and E1 tests	No need to purchase or carry separate wireline testers
Histogram display	Provide continuous monitoring or overnight monitoring of wireline health

ors and installers.

Spectrum Analyzer (S332D Models)

The spectrum analyzer enables field technicians to analyze and identify over-the-air interference and transmitter characteristics easily, without having to lug a separate instrument.

Test / Capability	Benefits		
100 kHz to 3000 MHz	Covers all mobile system frequencies without requiring additional plug-ins or instruments		
Built-in worldwide signal standards and frequency channels	Common language to cell technicians and eliminates the need to perform channel-to-frequency translation		
≤–135 dBm amplitude sensitivity	Ability to detect low level signals		
One-button measurements: Field Strength, Occupied Bandwidth Channel Power, Adjacent Channel Power Ratio, Interference Analysis and Carrier-to-Interference Ratio	Quicker, convenient measurements		
Interference Analysis measurement	Analyzes a received signal and displays signal standard and bandwidth to understand interference problems		
Carrier-to-Interference Ratio (C/I) measurement	Ensures received signal quality in the presence of interference		

Powerful PC based Data Management and Analysis Software

A comprehensive data management and analysis software suite comes with every Site Master unit, providing users with a simple and easy method of managing, archiving, and analyzing system performance, trends, and the general health of monitored base stations. The Handheld Software Tools also provide a professional report generator, for those times when recorded data must be communicated.

- The Handheld Software Tools are Windows 95/98/NT4/2000/ME/XP compatible, and supports long alpha-numeric file names for descriptive data labeling
- Stores an unlimited number of data traces for comparison of historical performance measurements, easing the task of trend analysis
- Transfer data traces between the Site Master and the PC with a single menu selection
- Has the ability to convert Return Loss measurements to Distance-To-Fault measurements
- Handheld Software Tools has DTF and Smith Chart analysis capabilities

Color LCD Display (Option 3)

640x480 color STN display for crisp display/trace representation in indoor lighting conditions.

Specifications

All specifications apply when the unit is calibrated at ambient temperature after a five minute warm up. Typical values are given for reference, and are not guaranteed.

Cable and Antenna Analyzer

Frequency Range: 25 MHz to 4.0 GHz Frequency Accuracy: ≤ ± 75 ppm @ +25°C

Frequency Resolution: 100 kHz

Output Power: < 0 dBm (-10 dBm nominal)

Immunity to Interfering Signals: on-channel +17 dBm on-frequency -5 dBm

Measurement speed: ≤3.5 msec / data point (CW ON)

Number of data points: 130, 259, 517 Return Loss: Range: 0.00 to 60.00 dB

Resolution: 0.01 dB VSWR: Range: 1.00 to 65.00 Resolution: 0.01

Cable Loss: Range: 0.00 to 30.00 dB

Resolution: 0.01 dB

Measurement Accuracy: >42 dB corrected directivity

after calibration Distance-To-Fault

Vertical Range: Return Loss: 0.00 to 60.00 dB

VSWR: 1.00 to 65.00

Horizontal Range: Range: 0 to (# of data pts −1) x Resolution to a maximum of 1197 m (3929 ft),

of data pts = 130, 259, 517

Horizontal Resolution (Rectangular windowing):

Resolution (meter) = $(1.5 \times 10^8) \times (Vp)/DF$ Where Vp is the cable's relative propagation velocity and where DF is the stop frequency minus the start frequency (in Hz)

Spectrum Analyzer (S332D Models)

Frequency:

Frequency Range: 100 kHz to 3.0 GHz Measurement Range: +20 dBm to −135 dBm Frequency Reference (Internal Timebase):

Aging: ±1 ppm/yr Accuracy: ±2 ppm

Frequency Span: 10 Hz to 2.99 GHz in 1, 2, 5 step selections in auto mode, plus zero span

Sweep Time: ≤1.1 sec full span;

≤ 50 µsec to 20 sec selectable in zero span

Resolution Bandwidth (-3 dB):

100 Hz to 1 MHz in 1-3 sequence ± 5% Accuracy

Video Bandwidth (-3 dB):

3 Hz to 1 MHz in 1-3 sequence ± 5% Accuracy SSB Phase Noise (1 GHz) @ 30 kHz Offset:

≤-75 dBc/Hz

Spurious Responses: ≤-45 dBc

Spurious Residual Responses: ≤-90dBm, >10 MHz

≤-80 dBm, ≤10 MHz (10 kHz RBW, pre-amp on) Amplitude:

Total Level Accuracy:

±1 dB typical (±1.5 dBm max), >2 GHz to 3 GHz ± 0.5 dB typical (± 1 dB max), ≥ 10 MHz to 2 GHz ± 2 dB, ≥ 500 kHz to <10 MHz

±3 dB typical, <500 kHz

for input signal levels \geq -60 dBm, excludes input VSWR mismatch

Measurement Range: +20 dBm to -135 dBm Input Attenuator Range: 0 to 51 dB,

selected manually or automatically coupled to the reference level. Resolution in 1 dB steps.

Displayed Average Noise Level:

≤-135 dBm typical, ≥10 MHz (preamp on) ≤-115 dBm typical, <10 MHz (preamp on) for input terminated, 0 dB attenuation, RMS detection, 100 Hz RBW

Dynamic Range: >65 dB

Display Range: 1 to 15 dB/division, in 1 dB

steps, 10 divisions displayed

Scale Units: dBm, dBV, dBmV, dBuV, V, W RF Input VSWR: 1.5:1 typical, (≥20 dB atten.,

(10 MHz to 2.4 GHz)

Power Meter (Option 29)

Frequency Range: 3 MHz to 3.0 GHz Measurement Range: -80 dBm to +20 dBm Display Range: -80 dBm to +80 dBm

Offset Range: 0 to +60 dB

Accuracy: ±1 dB typical (±1.5 dBm max), >2 GHz to 3 GHz ± 0.5 dB typical (± 1 dB max), ≥ 10 MHz to 2 GHz

 ± 2 dB, 3 MHz to <10 MHz

VSWR: 1.5:1 typical (Pin> -30 dBm, 10 MHz to 2.4 GHz) Maximum Power: +20 dBm (0.1W) without external

attenuator

T1 Analyzer (Option 50 on S331D Models only)

Line Coding: AMI, B8ZS

Framing Modes: D4 (Superframe), ESF

(Extended Superframe)

Connection Configurations:

Terminate (100 Ω) Bridge ($\geq 1000\Omega$)

Monitor (Connect via 20 dB pad in DSX)

Receiver Sensitivity: 0 to -36 dBdsx Transmit Level: 0 dB, -7.5 dB, and -15 dB

Clock Sources: External Internal: 1.544 MHz ± 30 ppm Pulse Shapes: Conform to ANSI T1.403

Pattern Generation and Detection: PRBS: 2-9, 2-11, 2-15, 2-20, 2-23 Inverted and non-inverted, QRSS, 1-in-8 (1-in-7), 2-in-8, 3-in-24, All ones,

All zeros, T1-Daly, User defined (≤ 32 bits) Circuit Status Reports: Carrier present, Frame ID

and Sync., Pattern ID and Sync.

Alarm Detection: AIS (Blue Alarm), RAI

(Yellow Alarm)

Error Detection: Frame Bits, Bit, BER, BPV, CRC, Error Sec

Error Insertion: Bit, BPV, Framing Bits, RAI, AIS Loopback Modes: Self loop, CSU, NIU, User

defined, In-band or Data Link Level Measurements: Vp-p (± 5%) Data Log: Continuous, up to 48 hrs

E1 Analyzer (Option 50 on S331D Models only)

Line Coding: AMI, HDB3 Framing Modes: PCM30, PCM30CRC, PCM31, PCM31CRC

Connection Configurations:

Terminate (75, 120Ω) Bridge ($\geq 1000\Omega$)

Monitor (Connect via 20 dB pad in DSX)

Receiver Sensitivity: 0 to -43 dB

Clock Sources: External Internal 2.048 MHz ± 30 ppm Pulse Shapes: Conform to ITU G.703 Pattern Generation and Detection:

PRBS: 2-9, 2-11, 2-15, 2-20, 2-23 Inverted and non-inverted, QRSS, 1-in-8 (1-in-7), 2-in-8, 3-in-24, All ones, All zeros, T1-Daly, User defined (≤32 bits)

Circuit Status Reports: Carrier present, Frame ID

and Sync., Pattern ID and Sync. Alarm Detection: AIS, RAI, MMF

Error Detection: Frame Bits, Bit, BER, BPV, CRC, E-Bits,

Frror Sec.

Error Insertion: Bit, BPV, Framing Bits, RAI, AIS

Loopback Modes: Self loopback Level Measurements: Vp-p (±5%) Data Log: Continuous, up to 48 hrs

General

Language Support: Chinese, English, French, German,

Japanese, Spanish,

Internal Trace Memory: 200 traces

Setup Configuration: S332D - 20, S331D - 25

Display: VGA monochrome or VGA color LCD (Option 3)

with adjustable backlight Inputs and Outputs Ports:

RF Out: Type N, female, 50Ω

Maximum Input without Damage: +23 dBm, ± 50 VDC

RF In: Type N, female, 50Ω

Maximum Input without Damage: +43 dBm (Peak), ±50 VDC Ext. Trig In: BNC, female (5 V TTL) (S332D Models only)

Ext. Freq Ref In (2 to 20 MHz): Shared BNC, female, 50Ω , (-15 dBm to +10 dBm) (S332D Models only)

T1/E1 (Receive & Transmit): Bantam Jack (S331D Models with Option 50 only)

Serial Interface: RS-232 9 pin D-sub, three wire serial

Electromagnetic Compatibility: Meets European Community requirements for CE marking Safety: Conforms to EN 61010-1 for Class 1 portable equipment

Temperature:

Operating: -10°C to 55°C, humidity 85% or less Non-operating: -51°C to +71°C (recommended battery to store separately between 0°C to +40°C

for any prolonged non-operating storage period)

Environmental: MIL-PRF-28800F Class 2

Power Supply:

External DC Input: +12.5 to +15 volt dc, 1350 mA max Internal: NiMH battery: 10.8 volts, 1800 mAH Dimensions:

Size (w x h x d): 25.4 cm x 17.8 cm x 6.1 cm (10.0 in x 7.0 in x 2.4 in)

Weight: <2.28 kg (<5 lbs) includes battery

Ordering Information

	Basic Models		510-90	Adapter, 7/16 DIN(f)-N(m), DC to 7.5 GHz, 50Ω
S331D Cable and Antenna Analyzer (25 MHz to 4.0 GHz)		510-91	Adapter, 7/16 DIN(f)-N(f), DC to 7.5 GHz, 50Ω	
	with built-in D		510-92	Adapter, 7/16 DIN(m)-N(m), DC to 7.5 GHz, 50Ω
		nd Antenna Analyzer (25 MHz to 4.0 GHz),	510-93	Adapter, 7/16 DIN(m)-N(f), DC to 7.5 GHz, 50Ω
	with built-in D	TF, Spectrum Analyzer (100 kHz to 3.0 GHz)	510-96	Adapter, 7/16 DIN(m)-7/16 DIN(m), DC to 7.5 GHz, 50Ω
			510-97	Adapter, 7/16 DIN(f)-7/16 DIN(f), DC to 7.5 GHz, 50Ω
	Standard Acces	sories Include	2000-1030	Portable Antenna, SMA (m), 1.71 to 1.88 GHz, 50Ω
	User's Guide		2000-1031	Portable Antenna, SMA (m), 1.85 to 1.99 GHz, 50Ω
	Soft Carrying C		2000-1032	Portable Antenna, SMA (m), 2.4 to 2.5 GHz, 50Ω
		with Power Cord	2000-1200	Portable Antenna, SMA (m), 806-869 MHz, 50Ω
		arette Lighter/12 Volt DC Adapter	2000-1035	Portable Antenna, SMA (m), 896-941 MHz, 50Ω
	One Year Warra	rare Tools CDROM containing Fault Location (DTF)		
	and Smith Cha		1030-86	Band Pass Filter, 806-869 MHz, 1.7 dB loss, N(m) to SMA(f), 50Ω
	Serial Interface		1030-87	Band Pass Filter, 902-960 MHz, 1.7 dB loss, N(m) to SMA(f), 50Ω
	Rechargeable B		1030-88	Band Pass Filter, 1.85-1.99 GHz, 1.8 dB loss, N(m) to SMA(f), 50Ω
	rtoonal godbio b	4.0. J. 1	1030-89	Band Pass Filter, 2.4-2.5 GHz, 1.4 dB loss, N(m) to SMA(f), 50Ω
	Options		806-16	Bantam Plug to Bantam Plug
	Option 3 Color	LCD Display	806-116	Bantam Plug to BNC
		er Meter (does not require external detector)	806-117	Bantam "Y" Plug to RJ48
	Option 50 T1/E	1 Analyzer (S331D only)		
	Outland Assess		551-1691	USB to RS232 adapter cable
	Optional Access			
	1N50C 42N50-20	Limiter, N(m) to N(f), 50Ω , 10 MHz to 18 GHz Attenuator, 20 dB, 5 watt, DC to 18 GHz, N(m)-N(f)	48258	Soft Carrying Case
	42N50A-30	Attenuator, 30 dB, 50 watt, DC to 18 GHz, N(m)-N(f)	760-229	Transit Case
	42110071 30	Attendator, 30 db, 30 watt, 50 to 10 drz, Willy Will	633-27	Rechargeable Battery, NiMH
	ICN50	InstaCal [™] Calibration Module, 2 MHz to 4.0 GHz, N(m), 50Ω	2000-1029	Battery Charger, NiMH, w/ Universal Power Supply
	22N50	Open/Short, DC to 18 GHz, N(m), 50Ω	40-163 806-62	AC/DC Adapter Automotive Cigarette Lighter/12 Volts DC Adapter
	22NF50	Open/Short, DC to 18 GHz, N(f), 50Ω	800-441	Serial Interface Cable
	SM/PL	Precision Load, DC to 4 GHz, 42 dB, N(m), 50Ω	2300-347	Software Tools
	SM/PLNF	Precision Load, DC to 4 GHz, 42 dB, N(f), 50Ω	2000 0	
	OSLN50LF	Precision Open/Short/Load, DC to 4 GHz, 42 dB, 50Ω, N(m)	10580-00079	Site Master S331D/S332D User's Guide
	OSLNF50LF	Precision Open/Short/Load, DC to 4 GHz, 42 dB, 50Ω, N(f)	10580-00100	Site Master S331D/S332D Programming Manual
	2000-767	Precision Open/Short/Load, DC to 4 GHz, 7/16 DIN(m), 50Ω	10580-00101	Site Master S331D Maintenance Manual
	2000-768	Precision Open/Short/Load, DC to 4 GHz, 7/16 DIN(f), 50Ω	10580-00102	Site Master S332D Maintenance Manual
	15NN50-1.5C	Test Port Cable Armored, 1.5 meters, N(m)-N(m), 6 GHz, 50Ω		
	15NN50-3.0C	Test Port Cable Armored, 3.0 meters, N(m)-N(m), 6 GHz, 50Ω		
		Test Port Cable Armored, 5.0 meters, N(m)-N(m), 6 GHz, 50Ω	Drintoro	
		Test Port Cable Armored, 1.5 meters, N(m)-N(f), 6 GHz, 50Ω	Printers 2000-1214	HP DeskJet Printer, Model 450: Includes printer cable, 2000-1216
	15NNF50-3.0C	Test Port Cable Armored, 3.0 meters, N(m)-N(f), 6 GHz, 50Ω	2000-1214	black print cartridge and U.S. power cord. Also includes 2000-753
		Test Port Cable Armored, 5.0 meters, N(m)-N(f), 6 GHz, 50Ω		serial-to-parallel Centronics converter cable and 1091-310
	15ND50-1.5C	Test Port Cable Armored, 1.5 meters, N(m)-7/16 DIN(m),		Centronics-to DB25 adapter. Rechargeable battery is optional and
	45110550 4 50	6 GHz, 50Ω		is not included.
	15NDF50-1.5C	Test Port Cable Armored, 1.5 meters, N(m)-7/16 DIN(f),	2000-753	Null Modem Serial-to-Parallel Centronics Converter Cable
		6 GHz, 50Ω	1091-310	Adapter 36-pin Centronics female-to-DB25 female
	34NN50A	Precision Adapter, N(m)-N(m), DC to 18 GHz, 50Ω	2000-1216	Black Print Cartridge
	34NFNF50	Precision Adapter, N(f)-N(f), DC to 18 GHz, 50Ω	2000-663	Power Cable (Europe) for DeskJet Printer
	J 1141 141 00		2000-664	Power Cable (Australia) for DeskJet Printer
	1091-26	Adapter, N(m)-SMA(m), DC to 18 GHz, 50Ω	2000-667 2000-1217	Power Cable (S. Africa) for Desk let Printer Pochargophia Pattery for Desk let Printer Model 450
	1091-27	Adapter, N(m)-SMA(f), DC to 18 GHz, 50Ω	2000-1217	Rechargeable Battery for DeskJet Printer, Model 450 Power Cable (U.K.) for DeskJet Printer
	1091-80	Adapter, N(f)-SMA(m), DC to 18 GHz, 50Ω	2000-1210	1 OWER CUDIC (O.N.) TO DESIGNET I THREE
	1091-81	Adapter, N(f)-SMA(f), DC to 18 GHz, 50Ω		
	1001-172	Adapter N(m)-RNC(f) DC to 1.3 GHz 500		

SALES CENTERS:

1091-172

United States (800) ANRITSU Canada (800) ANRITSU South America 55 (21) 2527-6922

Europe 44 (0) 1582-433433 Japan 81 (46) 223-1111 Asia-Pacific (65) 6282-2400

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Adapter, N(m)-BNC(f), DC to 1.3 GHz, 50Ω