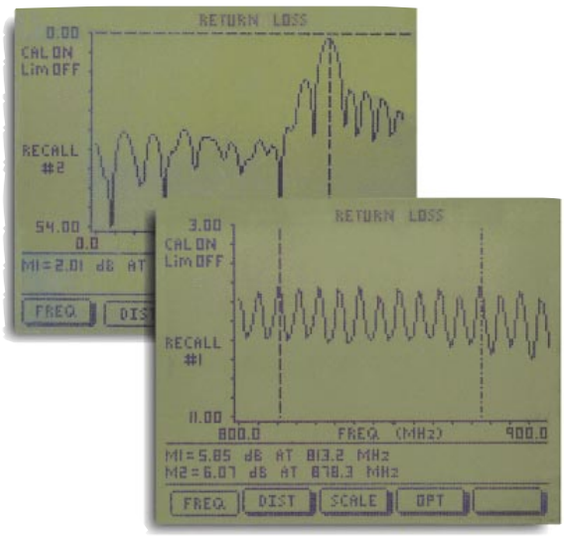
Site Master™

- ***Distance-To-Fault Measurements***
- ***Accurately Tests RF Transmission Lines and Antennas***
- ***Precision SWR and Return Loss***
- ***Immunity to Live Site RF Interference***
- ***Synthesizer Accurate to 75 ppm***
- ***Internal Memory Saves Up to 40 Traces and 9 Setups***

Software Tools

- ***Smith Chart and Distance-To-Fault***
- ***Compare Measurements to Historical Data***



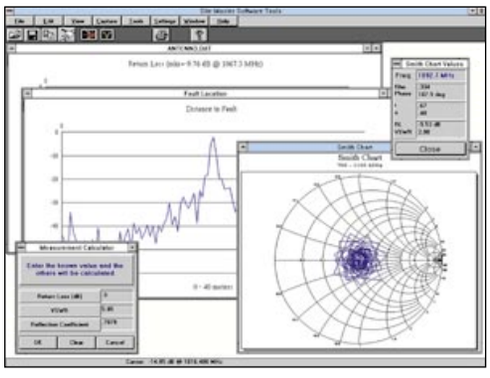
Site Master is a precision analysis tool which measures SWR, Return Loss and Distance-To-Fault (DTF) on both analog and digital transmission lines. Site Master's DTF and Return Loss (SWR) measurements are accurate and repeatable, even in the presence of RF interference. Thus, small degradations to RF performance can be spotted before more serious damage occurs. For example, loose connectors and moisture intrusion can be detected before corrosion destroys the cable – saving thousands of dollars in material and re-installation costs. Since sixty to eighty percent of a typical cell site's problems are caused by problematic cables, connectors and antennas, Site Master pays for itself quickly.

Site Master isolates transmission faults using Frequency Domain Reflectometry (FDR). FDR technology is different from traditional TDR (Time Domain Reflectometry) techniques. The FDR technique uses RF frequencies instead of TDR type DC pulses. Thus, FDR can locate RF faults, not just DC open or short circuit conditions. FDR also accounts for cable attenuation versus distance, the display accurately indicates the return loss of the antennas – allowing technicians to perform fault isolation from ground level.

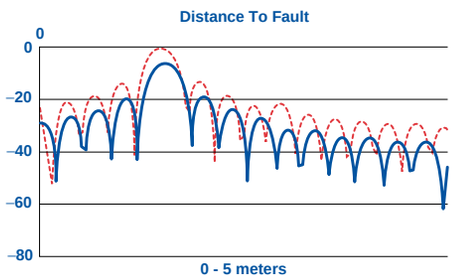
Internal memory provides an efficient means of storing measurement data for future analysis. Site Master includes advanced software tools for archiving data. Limit lines provide a quick visual and audible pass/fail indication. Site Master's rugged construction and wide temperature range provide trouble-free operation in the field.

Powerful Software Tools Return Loss or SWR data is down loaded to PC via RS-232. Site Master Software Tools calculate Distance-To-Fault (Return Loss versus Distance) and Smith Chart.

During the Site Commissioning process, the antenna system's Return Loss (SWR) and Distance-To-Fault "Signature" characteristics are down-loaded to a PC database. Maintenance technicians recall the "Signature" characteristics for comparison to subsequent monthly/quarterly maintenance verification. The Windows based "drag-and-drop" capability speeds fault identification.

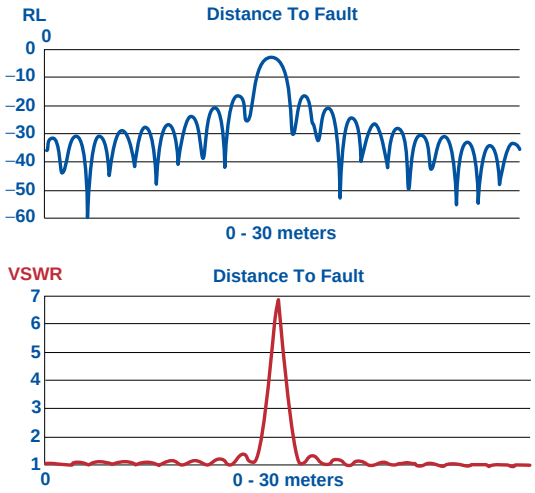


Use the Smith Chart for impedance matching of antennas and trans-mission line quality checks.



Historical performance changes can be eval-uated by overlaying stored data traces on a personal computer.

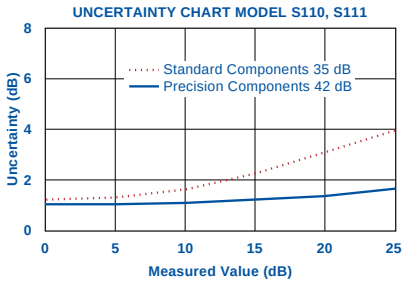
Immunity to RF Interference Site Master's design is highly resistant to interference from incoming and ambient signals. RF suppression capabilities are realized with frequency-selective, narrowband receiver technology and a proprietary phase tracking synthesizer technique. RF modulation is transparent to the Site Master making it useful in any cellular modulation environment.

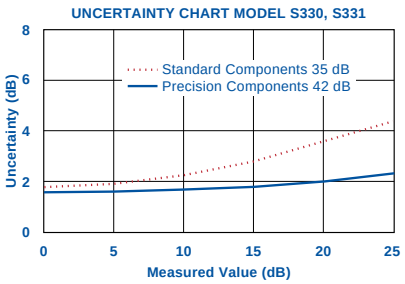


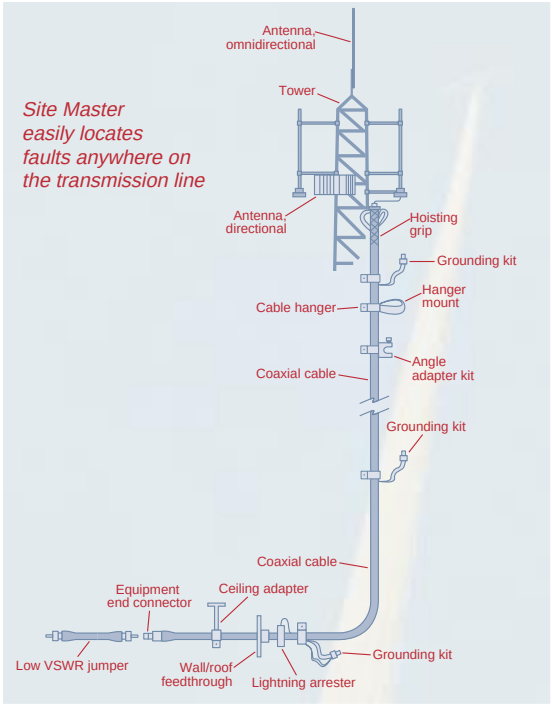
Distance-To-Fault displays represent Return Loss or VSWR information.

Measurement Accuracy

Measurement accuracy depends on the quality of the coaxial calibration components. The charts below show the Measured Value (dB) vs. Uncertainty for standard and precision calibration components.







Ordering Information

Model S331 (25-3300 MHz), Built-in DTF
Model S111 (300-1200 MHz), Built-in DTF
Model S330 (700-3300 MHz)
Model S110 (600-1200 MHz)

Standard Accessories Included:

- Operating Manual
- Soft Carrying Case
- Standard Calibration Components
- AC-DC Adapter
- Automotive Cigarette Lighter/12 Volt DC Adapter
- One Year Warranty (includes battery, Firmware and Software)
- 3.5 inch Floppy Disk containing Fault Location (DTF), Smith Chart and Software Management Tools
- Serial Interface Cable

Optional Accessories/Spares:

Precision N Type Short-Open:	PN 22N50
Precision N Type Load, 42 dB:	PN SM/PL
Test Port Cable, Armored, 1.5 meter:	PN TP/EC 1.5
Test Port Cable, Armored, 3.0 meter:	PN TP/EC 3.0
Test Port Cable, Armored, 5.0 meter:	PN TP/EC 5.0
Test Port Cable, Non-Armored, 1.5 meters	PN TP/ECN 1.5
Test Port Cable, Non-Armored, 3.0 meters	PN TP/ECN 3.0
Test Port Cable, Non-Armored, 5.0 meters	PN TP/ECN 5.0
Spare Standard N Type Short:	PN SM/STS
Spare Standard N Type Load, 35 dB:	PN SM/STL
Spare Soft Carrying Case:	PN D41955
Spare AC-DC Adapter:	PN 40-74
Spare Automotive 12 Volt Adapter:	PN 806-62
Spare Serial Interface Cable:	PN 800-441
Transit Case for Site Master:	PN 760-194
N male to 7/16 female Adapter	PN 510-90
N female to 7/16 female Adapter	PN 510-91
N male to 7/16 male Adapter	PN 510-92
N female to 7/16 male Adapter	PN 510-93

	Model S111	Model S331	Model S110	Model S330
Sweep Frequency Range:	300-1200 MHz	25-3300 MHz	600-1200 MHz	700-3300 MHz
Frequency Accuracy (CW Mode):	75 ppm	75 ppm	75 ppm	75 ppm
Frequency Resolution:	100 kHz	100 kHz	100 kHz	100 kHz
Measurement Range VSWR:	1.00 to 65.00	1.00 to 65.00	1.00 to 65.00	1.00 to 65.00
Return Loss Resolution:	0.1 dB	0.1 dB	0.1 dB	0.1 dB
Internal Distance-To-Fault	Yes	Yes	No	No
Software Management Tool including Distance-To-Fault and Smith Chart	Yes	Yes	Yes	Yes
**** Fault Location Resolution, Nominal:**	0.8 % of Max. Range	0.8 % of Max. Range	0.8 % of Max. Range	0.8 % of Max. Range
Dynamic Range:	54 dB	54 dB	54 dB	54 dB
Directivity (Corrected) Standard Calibration:	35 dB	35 dB	35 dB	35 dB
Directivity (Corrected) Precision Calibration:	42 dB	42 dB	42 dB	42 dB
Test Port, Type N:	50 Ω, 75 Ω with Adapter	50 Ω, 75 Ω with Adapter	50 Ω, 75 Ω with Adapter	50 Ω, 75 Ω with Adapter
Power Output, Nominal:	9 dBm, 600-1200 MHz >+2 dBm, 300-600 MHz	-7.0 dBm, 25-800 MHz, -3 dBm, 800-1600 MHz, -14 dBm, 1600-3300 MHz	9 dBm	-7.0 dBm, 700-800 MHz, -3 dBm, 800-1600 MHz, -14 dBm, 1600-3300 MHz
***** Typical Immunity to Interfering Signals up to the level of:**	+10 dBm	-15 dBm	+10 dBm	-15 dBm
Maximum Input (Damage Level):	+22 dBm	+22 dBm	+22 dBm	+22 dBm
Weight:	2.2 lbs.	2.2 lbs.	2.2 lbs.	2.2 lbs.
Size:	8″ x 7″ x 2-1/4″)	8″ x 7″ x 2-1/4″	8″ x 7″ x 2-1/4″	8″ x 7″ x 2-1/4″
Temperature: **Storage** **Operation**	 -20° C to 75° C 0° C to 50° C	 -20° C to 75° C 0° C to 50° C	 -20° C to 75° C 0° C to 50° C	 -20° C to 75° C 0° C to 50° C

Factory Upgrades

Site Master	S110 to S111	ND42502
Site Master	S330 to S331	ND42504
Site Master	S110 to S330	ND42505
Site Master	S111 to S331	ND42506

Specifications

Site Master Technical Specifications*:

* Specifications apply when calibrated at ambient temperature.

** Fault location is done by Inverse Fourier Transformation of data taken with the Site Master. Resolution and Max Range depend on the number of frequency data points, frequency sweep range and dielectric constant of the cable being tested:

Resolution (meters) = $1.5 \times 10^8/(\Delta \text{ Frequency } \sqrt{\varepsilon_r})$

Maximum Range = Resolution x 128

*** The Immunity Uncertainty Curves represent a typical application of a worst-case scenario: 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 real life applications, signals are not CW but modulated and varying in frequency. Immunity is typically better when swept frequencies are used.

For more information or a demonstration

call the Site Master Technical Hot Line at (201) 227-8999.

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