ООО "Техэнком" Контрольно-измерительные приборы и оборудование

www.tehencom.com

Product Brochure

Anritsu envision : ensure

Site Master[™] S331P

Ultraportable Cable & Antenna Analyzer

Featuring Classic & Advanced Modes 150 kHz up to 4 or 6 GHz



"Site Master is the most trusted, reliable, and preferred cable and antenna analyzer by tower contractors, installation and maintenance contractors, and wireless service providers."

Introduction

The S331P is the lightest, smallest, and fastest Site Master ever. Addressing the market need for broad frequency coverage and high performance in an extremely compact and economical design, the S331P provides wireless operators and contractors, DAS installers, and public safety network installers and maintenance professionals with the first pocket-sized headless cable and antenna analyzer that can measure the new LTE-U frequencies.



S331P Site Master Cable and Antenna Analyzer and Windows Tablet

Optimized for field use

- Smallest, lightest, fastest Site Master
- Direct connection to DUTs eliminating the need for phase stable cables
- Powered through USB interface (no battery required)
- FlexCal[™] Calibration
- One calibration for all frequencies
- Rugged and reliable
- Impact, dust and splash resistant
- Compatible with Anritsu software tools including easyTest and SkyBridge Tools

Easy to use

- Same familiar user interface as the S331L
- Integrated Help function
- S331D-like Classic Mode
- S331E-like Advanced Mode
- Additional markers
- Customizable shortcuts
- Full-screen view

Efficient sweep management

- Store multiple file formats – Sweeps, setups, screenshots
- Fast preview of stored sweeps
- Line Sweep Tools (LST) Software
 - Edit sweeps, rename, archive
 - Generate PDF or HTML reports
- Standard *.dat sweep file format
- Compatible with HHST
 - Widely accepted by operators
- Compatible with easyTest Tools and SkyBridge Tools
 - Reliable and quick creation of test plans
 - Fast and accurate testing
- Fast and easy report creation

Cable & Antenna Analyzer



Rugged, dust and splash resistant, reliable, lightweight and portable

Site Master S331P is rugged, dust and splash resistant, reliable, field proven and always ready, even if the user is not. At under 0.4 kg (0.9 lbs), it's effortless to carry or store in a pocket whether the user is on level ground, climbing a large tower, or heading through a roof hatch, the Site Master is there.



S331P Site Master is ultraportable, rugged, and splash resistant

Direct commection to DUTs

Direct connection to DUT without the need for expensive phase stable cables

The S331P is designed to connect directly to test devices without the need for expensive phase stable cables that could introduce measurement errors and uncertainties.



Compatible with Anritsu software tools

Compatible with Anritsu's full suite of software tools including SkyBridge Tools

Anritsu's SkyBridge Tools brings simplified testing processes to the tower or DAS installation workflow. SkyBridge Tools enables reliable and quick creation of test plans, enables fast and accurate testing, and assists in report creation. This leads to less time testing, accurate tests, and reliable payment for work done.

3

Cable & Antenna Analyzer

Use any Windows device to power and control the S331P

The S331P is powered and controlled by a wide variety of Windows devices including tablets, laptops and desktop PCs. All that is required is Windows 7, 8 or 10 and one available USB 2.0 port.



S331P running on a Windows 10 tablet

One Button Help

An intelligent, useful help menu launches with the press of the Help key.



On screen Help Menu

Cable & Antenna Analyzer

Markers & Limits

Using a mouse or fingers on a touchscreen, users can drag or place markers and limits anywhere on the measurement screen. Values can also be entered with a real keyboard or soft keyboard. There are several easy and convenient ways to place markers and limits where you want them, or use the auto search max/min peak functions if you prefer.



Dragging markers and limits with fingers is really easy and convenient

Convenient Shortcuts

User defined shortcuts can be created for one-button access to commonly used functions. (Advanced Mode only)



User definable shortcuts for frequently used functions

Cable & Antenna Analyzer

EZ Name Quick Naming Matrix saves valuable time

Unique to Anritsu, the customizable EZ Name Quick Naming Matrix saves valuable time. Users can preset up to 36 commonly used names. The resulting time saved is immediately beneficial. You can save file names labeled with Site ID, Sector, Color Code, Measurement type, Termination and Frequency in less than 5 seconds. Now you can label the traces of the entire site in minutes instead of hours.



Most common site name requirements are preprogrammed into the EZ Name Matrix. Page 1 of 2 shown.

Save						X
Filename:	Site A-Alpha-Color	Code-DTF-RL-	Antenna-700		× 6	Save
Filetype:		s	creenShot			Save
Location:			Internal	_		
Press Enter	to Save this file or	ESC to cance	el.			
RL	VSWR	System	Short	700	900	Rename Keys
IL.	CL	Load	Antenna	850	1800	Separator On Off
DTF-RL	DTF-VSWR	Open	Quick Name	1900	2100	Separator
	abc 123@		Space		Z Name EZ Na Page 1 Pag	

18 additional customizable EZ Name buttons available on page 2.



Classic Mode

The Site Master S331P offers a convenient Classic Mode that's easy to use. If you have used the Site Master D series model, or even older Site Master models, you'll find this Classic Mode familiar and easy to use. Complex filenames are no longer limited to 16 characters, there's plenty of characters available to suit any filenames you might require.





Advanced mode contains several powerful new features not available in Classic mode.

Advanced Mode

The Site Master S331P also offers a mode with more capability called Advanced Mode. Advanced Mode has a much more modern look and feel to it, and many users will immediately appreciate the new Advanced Mode GUI and button layout/function. With Advanced Mode you also get some extra capabilities such as 8 markers instead of 6. There are 6 customizable touch screen icons for quick recalling of regularly used setups, making operation easier and more efficient.

Cable & Antenna Analyzer

Freq - SWR	Mode
Freq - Return Loss	Enter
Freq - Cable Loss (one port)	-
DTF - SWR	
DTF - Return Loss	

Classic mode selector screen. Same familiar layout as D models.

Classic Mode Measurement Selector Screen

The Site Master S331P classic mode was developed based on customer feedback. Many of our loyal customers have asked us to create an easy to use GUI like the one they have become accustomed to on the Site Master D models. The result of that valuable feedback is what we are proud to call Classic Mode.

D1 = 0 ft	DTF Info, based on current setup:	C DTF Info	
D2 = 4.49 ft		Edit	
F1 = 700 MHz	Distance Resolution = 0.43 ft Max Usable Distance = 55.81 ft Freq Span = 2000 MHz Freq Step = 7.752 MHz		
F2 = 2700 MHz		Units m ft	
Data Points = 259		_ <u></u>	
Windowing = Nominal Side Lobe	Hint: To increase Max Usable Distance: increase Number of Points or decrease Freq Span. To improve Distance Resolution: increase		
Cable Name = NONE			
Prop Velocity = 0.88			
Cable Loss = 0.1 dB/ft	Freq Span.		
Keep current values CONTINUE			

DTF Aid Parameter Screen. Same familiar layout as D models.

Classic Mode Distance-to-Fault Aid Menu Screen

DTF Aid screen contains the same options in a similar layout format as the Site Master D models. Former Site Master D model users should have no difficulty setting DTF parameters in Classic Mode. We've even added some useful hints to help optimize the settings.



Distance-to-Fault (DTF) measurement screen.

Classic Mode Distance-to-Fault Measurement

Here is an example of the Classic Mode Distance-to-Fault (DTF) measurement screen. Notice the Distance menu buttons labeled "D1" and "D2" just as they are in the D models.

These changes allow users experienced with older Site Master models to become immediately productive with the S331P, which saves training costs and downtime.

Cable & Antenna Analyzer



Easier access to desired measurement types in Advanced Mode

Advanced Mode Measurement Selector Screen

In Advanced Mode, users no longer need to press the Mode key before selecting desired measurement. Users are now able to select the desired measurement directly, simply by pressing the primary menu key "Measurement" then choose the desired measurement from the secondary menu keys on the right side.



8 Markers in Advanced Mode provides more flexibility

More Markers in Advanced Mode

In Advanced Mode you have 8 markers available to you. That's 2 additional markers which can be used as you wish, either as additional regular markers, additional delta markers, or additional bounded markers, providing more flexibility than Classic Mode.



With 1033 datapoints you can extend the maximum Distance-to-Fault range easily

2065 Datapoints

You have up to 2065 datapoints available for use. Increased datapoints can be used to provide better frequency resolution for your VSWR/RL measurements, or they can be used to extend the maximum distance range for your Distance-to-Fault (DTF) measurements without sacrificing distance resolution. A handy feature at your fingertips.

Y Cable & Antenna Analyzer

OSL Calibration just got a lot easier!

The S331P guides you through the entire OSL calibration process with not only text instructions, but with actual on-screen photos to aid the user during the entire process.



Step 1

Connect OPEN as shown. S331P will automatically guide you through the entire OSL calibration sequence step by step with pictures and instructions on screen.



Step 2 Connect SHORT as shown.



Step 3 Connect LOAD as shown.



Step 4 Complete!

Cable & Antenna Analyzer



Return Loss measurement screen (Advanced Mode)

Н Single Limit /inritsu 15:21 n Limit Line Cable Los Off PBSTP1)ata Pi Edit Value Clauter 59 Cable List Limit Alarm Cland Pass Prop Velocit 2E Im Pass/Fail Msg DTF Ald ligh Cable Loss Limit Preset 1 2.59 dB Avg erage Mo 780 MH 700 MHz Offset Value Measurement Freq/Dist Amplitude Calibration Marker Limit

Cable Loss measurement screen (Advanced Mode)



Distance-to-Fault measurement screen (Advanced Mode)

Return Loss/VSWR Measurement

Poor Return Loss/VSWR can damage transmitters, reduce the coverage area, increase dropped and blocked calls, and lower data rates.

Cable Loss Measurement

This is an important commissioning check. Excessive loss reduces the coverage area and can mask return loss issues, creating false good readings later.

Distance-to-Fault (DTF) Measurement

DTF can be used to identify and precisely locate faulty cables, components, or connector pairs with poor Return Loss/VSWR in meters or feet. Use 2065 points in Advanced mode to get more maximum distance without sacrificing resolution.

📒 Cable & Antenna Analyzer



Upper/lower limits and segmented limit lines screen (Advanced Mode Only)



Marker peak/valley tracking screen (Advanced Mode Only)



Upper/lower limits and segmented limit lines are now available. Up to 42 segments for both upper and lower limits may be created (84 segments total).

Marker peak/valley tracking. This allows users to have the marker automatically track either the peak or valley response of a measurement, which is very useful when tuning devices.



Smith Chart 50/75 Ω selectable screen (Advanced Mode Only)

Smith Chart (50/75 Ω selectable) has been added as an advanced measurement type. 75 Ω Smith Chart measurements are shown.

Cable & Antenna Analyzer



1-Port phase movement screen (Advanced Mode Only)

Feature additions/enhancements (Advanced Mode Only):

1-Port phase measurement has been added as an advanced measurement type.



Dual screen split horizontally screen (Advanced Mode Only)

Dual screen (split horizontally) has been added as an advanced measurement feature. Users may select any of the available measurement types when in dual screen mode.

Site Master[™] S331P Cable & Antenna Analyzer Information

Cable & Antenna Analyzer

Physical Information





Front



Back



Site Master[™] S331P SkyBridge[™] Tools

SkyBridge Tools™



Simplified Testing Process

Anritsu's SkyBridge Tools[™] brings simplified testing processes to the DAS installation workflow. SkyBridge Tools enables reliable and quick creation of test plans, enables fast and accurate testing, and assists in report creation. This leads to less time testing, accurate tests, and reliable payment for work done.

DAS Needs Are Different

The need for documentation of antenna systems is increasing. A typical tower based antenna system might require 50 to 150 measurements, traces, and photos to show that the installation meets quality standards. A Distributed Antenna System (DAS), also known as an In-building or Outside Antenna System, may require 1,000 to 15,000 traces, photos, and other deliverables to show that the installation meets performance standards. Each of these deliverables needs to be inspected, renamed, and perhaps have the markers and limit lines set and judged. The manual inspection system that worked well enough for tower work does not scale well for the much larger DAS systems.

Create Test Plan

Test Plans are the start of the test simplification process. SkyBridge takes input from iBwave designer, Excel, and from customer supplied test criteria. This input is processed with the assistance of a wizard to create detailed Test Plans. These Test Plans enable test sequencing, job progress tracking, trace judgement, and report generation. Thousands of tests can be created in a few minutes with the assistance of the Test Plan Import Wizard.

Test Sequencing

Once a test plan is created, one button press will create a set of instrument control scripts (easyTests) for that test plan. Necessary tests as well as accurate instrument setups, limit lines, and required file names for the resulting traces are included in the scripts. These scripts can then be ran on the instrument, greatly reducing technician workload. Test time reduction of 90% has been observed, with increased accuracy. In many cases, failures will be visible while the cable is still connected to the instrument. Missing or duplicated tests, mis-configured setups, and mis-named traces are now a thing of the past.

Reporting

There are several choices for reporting. Traditional PDF or zipped reports are available, of course. However, reporting is also available in a CSV format, with one row per test. Each row contains the test name, the criteria, a significant number for the measurement, a pass/fail indication (even for cable loss), and a link to the PDF of the trace. These reports automate what has been a tedious process in past.

Site Master™ S331P Line Sweep and easyTest Tools

Line Sweep Tools™ (for your PC)

- **Collect** Sweeps from Anritsu line sweep gear
- **Verify** That cables and antenna systems meet specifications and that the sweeps were done properly
- **Report** Findings quickly to the standards required by contract



The Anritsu Tool Box

The Anritsu Tool Box (included on disc or freely downloadable at www.anritsu.com) is a convenient central location where Anritsu supporting software programs and online support options can be found for most of our handheld product portfolio. Simply choose the desired application that suits your needs. The Anritsu Tool Box comes with LST and grows as more Anritsu tool box programs are added.

Marker and Limit Line Presets

Presets make applying markers and a limit line to similar traces quick and easy. They only need to be set once, and recorded. After this, applying them to a similar trace requires only one button push. This speeds up trace processing and makes providing consistent marker and limit line settings easy.

Naming Grid

A naming grid function makes changing file names, trace titles, and trace subtitles from field values to those required by contract simple and quick. Once the naming grid is populated with user defined file name segments, a few simple button presses will then fill out the file, title, and sub-title names. Quickly applied to multiple traces, the naming grid can save time, increase efficiency and accuracy.

Report Generator

The report generator will create a professional PDF or HTML based report. Reports includes GPS¹, power level¹, company logo², instrument and calibration status along with a display of all open traces. It also may contain additional information such as addresses and phone numbers.

HTML type reports may be post edited using programs such as Microsoft Word.

Line Sweep Tools (LST) is a free PC based program that increases productivity for people who deal with numerous Cable and Antenna traces every day. LST is the next generation of Anritsu's familiar Handheld Software Tools (HHST) and shares its user interface, giving a new face to the term "ease of use."



easyTest Tools[™] (for your PC)

Cable Editor³

Instrument Cable Lists may be retrieved from the instrument, modified as required, and uploaded back into instrument.

Signal Standard Editor³

Signal Standard Lists may be retrieved from the instrument, modified as required, and uploaded back into instrument.

Distance to Fault⁴ (DTF)

Easily convert Return Loss or VSWR traces to Distance to Fault traces with one button press.

Measurement Calculator

Provides quick conversion between commonly used measurement units such as VSWR, RL, and others.

Capture: Plots to Screen, Database, *.dat, *.jpg

Connect: To PC using USB, Ethernet, Serial

Download: Lists/measurements and live traces to PC for storage and analysis.

Upload³: Lists/measurements from PC to instrument.

Supported File Types

Input: *.dat, *.vna, *.mna, *.pim, *.tm Output: *.dat, *.vna, *.pim, *.tm, *.csv, *.bmp, *.jpg, *.png ¹Model dependent ²Optionally set by user ³Instrument type/model must match original ⁴Only *.dat and *.vna file types supported

easyTest Tools™

easyTest Tools allows users to create work instruction files on their PC, deliver these files by e-mail, and then display work instructions on the Site Master™ or Cell Master™ "E" series cable and antenna analyzers. These easyTest™ files provide step-by-step instructions for both the test setup and instrument operation.

easyTest works with the S331P, S331L, S331E, S332E, S361E, S362E, S820E, MT8212E, and MT8213E when operating in Cable and Antenna Analyzer mode.

Instrument Mode

Cable and Antenna Mode

PC Requirements

Anritsu's software tools runs on computers using Windows operating systems, specifically: Windows XP, Service Pack 2 or higher, Windows Vista, Windows 7, 8, or 10. PC must have at least 1 GB of RAM and 1 GB of available hard drive space.

Site Master[™] S331P Ordering Information

Ordering Information

Model Number	Description
S331P	Cable and Antenna Analyzer (required one frequency option)
Frequency Options	
S331P-0704	150 kHz to 4 GHz
S331P-0706	150 kHz to 6 GHz
Calibration and Extended Warranty Options	
Option	Description
S331P-ES510	Warranty Extension to 5 Years
S331P-ES513	Warranty Extension to 5 Years with Z540 Calibration
S331P-0098	Standard Calibration only (to ISO/IEC 17025:2005)
S331P-0099	Premium Calibration only with test data (to ISO/IEC 17025:2005)
Standard Accessories (included with instrument)	
Part Number	Description
2000-1864-R	Soft Carrying Case
2000-1606-R	USB-A to Micro-B with latch cable, 1.8 m (6 ft)
1000-1600-R 2000-1687-R 2300-578-R	Torque Multiplier N(m)
2300-578-R	USB memory device with the S331P Site Master application and user documentation
	Standard Three-Year Warranty
	Certificate of Calibration and Conformance
Reference Documents (Soft copies available at www.anritsu.com)	
Part Number	Description
11410-00964	Site Master™ S331P Technical Data Sheet
10580-00426	Site Master™ S331P User Guide
11410-00674	Cable and Antenna Analysis Troubleshooting Guide

Site Master[™] S331P Ordering Information

Optional Accessories

Calibration Components, 50 Ω

Calibration Components, 50 Ω		
	Part Number	Description
	OSLN50A-8	Precision Open/Short/Load, N(m), 42 dB, DC to 8.0 GHz, 50 Ω
SHORT	OSLNF50A-8	Precision Open/Short/Load, N(f), 42 dB, DC to 8.0 GHz, 50 Ω
S INFITSURE	2000-1618-R	Precision Open/Short/Load, 7/16 DIN(m), DC to 6.0 GHz 50 Ω
	2000-1619-R	Precision Open/Short/Load, 7/16 DIN(f), DC to 6.0 GHz 50 Ω
1992 -	22N50	Open/Short, N(m), DC to 18 GHz, 50 Ω
	22NF50	Open/Short, N(f), DC to 18 GHz, 50 Ω
	SM/PL-1	Precision Load, N(m), 42 dB, DC to 6.0 GHz
	SM/PLNF-1	Precision Load, N(f), 42 dB, DC to 6.0 GHz
Calibration Components, 75 Ω		
	Part Number	Description
-	12N50-75B	Matching Pad, DC to 3 GHz, 50 Ω to 75 Ω
and the second s	22N75	Open/Short, N(m), DC to 3 GHz, 75 Ω
6	22NF75	Open/Short, N(f), DC to 3 GHz, 75 Ω
	26N75A	Precision Termination, N(m), DC to 3 GHz, 75 Ω
	26NF75A	Precision Termination, N(f), DC to 3 GHz, 75 Ω
Adapters		
	Part Number	Description
	510-91-R	7/16 DIN(f) to N(f), DC to 7.5 GHz, 50 Ω
	510-96-R	7/16 DIN(m) to 7/16 DIN(m), DC to 7.5 GHz, 50 Ω
	510-97-R	7/16 DIN(f) to 7/16 DIN(f), DC to 7.5 GHz, 50 Ω
	1091-80-R	SMA(m) to N(f), DC to 18 GHz, 50 Ω
	1091-81-R	SMA(f) to N(f), DC to 18 GHz, 50 Ω
	1091-433-R	Low PIM Adapter, 4.1/9.5(f) to 7/16 DIN(f), DC to 3.0 GHz, 50 Ω
	1091-434-R	Low PIM Adapter, 4.1/9.5(m) to 7/16 DIN(f), DC to 3.0 GHz, 50 Ω
ITTO I	1091-435-R	Low PIM Adapter, 4.1/9.5(f) to N(m), DC to 3.0 GHz, 50 Ω
	1091-436-R	Low PIM Adapter, 4.1/9.5(m) to N(m), DC to 3.0 GHz, 50 Ω
	1091-440-R	Low PIM Adapter, 4.3/10(f) to 7/16 DIN(f), DC to 3.0 GHz, 50 Ω
	1091-441-R	Low PIM Adapter, 4.3/10(m) to 7/16 DIN(f), DC to 3.0 GHz, 50 Ω
	1091-442-R	Low PIM Adapter, 4.3/10(f) to N(m), DC to 3.0 GHz, 50 Ω
	1091-443-R	Low PIM Adapter, 4.3/10(m) to N(m), DC to 3.0 GHz, 50 Ω
	1051-445-10	
Precision Adapters	De la Nerra de la com	Presidentian
And a second sec	Part Number	Description
A COMPANY AND A COMPANY	34NN50A	Precision Adapter, N(m) to N(m), DC to 18 GHz, 50 Ω
	34NFNF50	Precision Adapter, N(f) to N(f), DC to 18 GHz, 50 Ω
Attenuators		
Attenuators	Part Number	Description
	3-1010-122	20 dB, 5 W, DC to 12.4 GHz, N(m) to N(f)
	42N50-20	20 dB, 5 W, DC to 18 GHz, N(m) to N(f)
	42N50A-30	30 dB, 50 W, DC to 18 GHz, N(m) to N(f)
	3-1010-123	30 dB, 50 W, DC to 8.5 GHz, N(m) to N(f)
	1010-127-R	30 dB, 150 W, DC to 3 GHz, N(m) to N(f)
	3-1010-124	40 dB, 100 W, DC to 8.5 GHz, N(f) to N(m), Unidirectional
	1010-121	40 dB, 100 W, DC to 18 GHz, N(f) to N(m),
	1010-128-R	40 dB, 150 W, DC to 3 GHz, N(m) to N(f)

Site Master[™] S331P Ordering Information

Optional Accessories (continued)

USB Extender Kit (for 2-port cable loss/transmission (external sensor) measurements)

	Model Number	Description
USE Incvertiago	2000-1717-R	USB Extender, Requires Cat 5e extension cable (sold separately)
	2100-28-R	Cat 5e extension cable for use with USB Extender (22.5 m)

Backpack and Transit Case



Part	Number
	67135

Description

67135 Anritsu Backpack (for instrument and PC)760-283 Transit Case, USB 1 Port VNA (for MS46121A and S331P models)

Notes

Anritsu envision : ensure

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Anritsu utilizes recycled paper and environmentally conscious inks and toner.



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www.tehencom.com

Anritsu envision : ensure

Site Master™

Ultraportable Cable & Antenna Analyzer Featuring Classic and Advanced Modes

S331P 150 kHz to 6.0 GHz





S331P

Specifications

Introduction

Anritsu introduces its ninth generation, compact handheld Cable & Antenna Analyzer for installation and maintenance of antenna systems. It is available in two frequency ranges starting from 150 kHz and up to 4 GHz or 6 GHz.

Optimized for Field Use

- FlexCal[™] Calibration
 - One Calibration for All Frequencies

Easy to Use

- S331D-like Classic Mode
- S331E-like Advanced Mode
 - Additional Markers
 - Customizable Shortcuts
 - Full-screen View
- S331L-like Graphical User Interface and Functionality

Efficient Sweep Management

- Internal File Storage (limited only by space on PC or Tablet)
 Sweeps, Setups, Screen Shots
- Line Sweep Tools (LST) Software
 Edit Sweeps, Rename, Archive
 - Generate PDF or HTML Reports

Smallest, Lightest, and Fastest Site Master[™]

• Impact, Dust, and Splash Resistant

- Integrated Help Function
- EZ Name Quick Matrix
- easyTest[™]
- Controlled and Powered by a Windows tablet or PC using standard USB 2.0 (not included)
- Fast Preview of Stored Sweeps
- Standard *.dat Sweep File Format
- Compatible with HHST
 - Widely Accepted by Operators



Site Master[™] S331P Cable & Antenna Analyzer Featuring USB Connectivity with a Windows PC or Tablet Size: 52 mm x 148 mm 36 mm (2 in x 5.8 in x 1.4 in), Lightweight: < 0.4 kg (< 0.9 lb)

Specifications	
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Definitions

	All specifications and characteristics apply to Revision 2 instruments under the following conditions, unless otherwise stated:
Warm-Up Time	After 5 minutes of warm-up time, where the instrument has completely stabilized to the ambient temperature.
Temperature Range	Over the 23 °C ±5 °C temperature range.
Frequency Reference	Internal frequency reference is used.
Calibration	Instrument is within the recommended calibration cycle of 12 months. Cable and Antenna Analyzer measurements applicable after standard OSL calibration is performed using Anritsu calibration components.
Typical Performance	Typical specifications in parenthesis () describe performance that will be met by a minimum of 80% of all products. They do not include guard bands and are not warranted.
	Typical specifications that are not in parenthesis are not tested and not warranted. They are generally representative of the nominal characteristic performance.
Uncertainty	A coverage factor of k = 2 is applied to the measurement uncertainties to facilitate comparison with other industry monitors.
	All specifications subject to change without notice. For the most current data sheet, please visit the Anritsu web site: www.anritsu.com

Specifications

🍸 🍸 Cable and Antenna Analyzer

Measurements

Measuremo	Return Loss Cable Loss (One Port) Distance-to-Fault (DTF) Return Loss		
	Cable Loss (One Port) Distance-to-Fault (DTF) Return Loss		
	Distance-to-Fault (DTF) Return Loss		
	Distance-to-Fault (DTF) VSWR		
	Smith Chart 50 Ω /75 Ω (Advanced Mode Only)		
	1-Port Phase (Advanced Mode Only)		
Setup Parameters–Classic Mo	de		
Measurement Dis			
Freque	ncy Start Frequency (F1), Stop Frequency (F2)		
	DTF Start Distance (D1), Stop Distance (D2), DTF Aid, Cable Loss, Propagation Velocity, Cable type		
Windov	ring Rectangular, Normal Side Lobe, Low Side Lobe, Minimum Side Lobe		
Amplit	ude Top, Bottom Auto Scale, Full Scale		
Sw	eep Data Points, Run/Hold, Single/Continuous, Trace		
Data Po	ints 130, 259, 517, 1033, 2065		
Marl	Kers Markers 1 to 6 (On/Off), Delta Markers 2 to 4 (Ref M1), Marker to Peak/Valley, Marker Table, Marker 5 (Peak/Valley between M1 & M2), Marker 6 (Peak/Valley between M3 & M4), Independent Markers for Frequency and Distance Measurements		
Tra	ces Copy Trace To Memory, Trace Display, Trace Math [Trace - Memory, Trace + Memory, (Trace + Memory)/.		
Limit			
Calibra			
Save/Re			
Setup Parameters-Advanced	Mode		
Measurement Dis			
Freque			
	DTF Start Distance (D1), Stop Distance (D2), Units m/ft, DTF Aid, Cable List, Cable Loss, Propagation Velocity		
Window			
Amplit	Top, Bottom, Auto Scale, Full Scale Data Points, Run/Hold, Single/Continuous 130, 259, 517, 1033, 2065		
Sw			
Data Po			
Marl			
Tr	Copy Trace to Memory, Trace Display, Trace Math [Trace - Memory, Trace + Memory, (Trace + Memory)/2		
Limit			
Calibra	-		
Save/Re	call Setups, Measurements, Screen Shots		
Frequency			
Frequency Rar	ges 500 kHz to 4 GHz (S331P-0704) 500 kHz to 6 GHz (S331P-0706) Either option can be set as low as 150 kHz		
Frequency Accur Frequency Resolu			
Power			
Output Po	wer –5 dBm, typical		
Interference Immunity	+17 dBm, typical		
Measurement Speed	500 μs/data point, typical ¹		
Return Loss			
Measurement Ra	nge 0 to 60 dB		
Resolu			
VSWR			
VSWR Measurement Ra	nge 1 to 65		

1. Timing dependent on external computer configuration

ecifications		22211
🍸 Cable and Antenna Anal	yzer (continued)	
Cable Loss		
Measurement Range	0 to 30 dB	
Resolution	0.01 dB	
Distance-to-Fault		
Vertical Range Return Loss	0 to 60 dB	
Vertical Range VSWR	1 to 65	
Fault Resolution (meters)	(1.5 x 10^8 x vp)/ Δ F (vp = propagation velocity, Δ F is F2 – F1 in Hz)	
Horizontal Range (meters)	0 to (Data Points – 1) x Fault Resolution, to maximum of 1500 meters (4921 ft)	
1-Port Phase (Advanced Mode Only)		
Measurement Display Range	–450 ° to +450 °	
Resolution	0.01 °	

Measurement Accuracy (at 23 °C \pm 3 °C)	
Corrected Directivity \geq 42 dB, OSL calibration (OSLN50A-8, OSLNF50A-8	A-8)

Smith Chart (Advanced Mode Only)

Return Loss Measurement Uncertainty (Standard OSL calibration. OSLNF50A-8 Precision Open/Short/Load calibration component.)



General Specifications

-

Setup Parameters	
- System Info	Status
System Setups	Language, Display/Audio
Language	English, French, German, Italian, Spanish, Russian, Portuguese, Japanese, Korean, Chinese
Display/Audio	Brightness, Color Schemes, Screen Shot Settings, Volume
Connectivity	USB
Diagnostics	Self Test
Preset	Preset, Reset
Reset	Factory Reset, Delete All User Files, Delete Custom Files, Master Reset
File	Save, Recall, File Management
Save	Measurement (*.dat), Setup (*.stp), Screen Shot (*.png)
Recall	Recall, Create Folder, Copy, Paste, Delete
File Management	Rename, Create Folder, Copy, Paste, Delete
Navigation	Top, Bottom, Page Up, Page Down
Help Menu	System Info, FAQ, User Guide
Internal Trace/Setup Memory	> 1000 files for traces, setups, screen shots, or any combination (limited by PC/Tablet storage)
External Trace/Setup Memory	Limited only by size of USB Flash drive
Connectors	
RF Port	Type N(m), 50 Ω, Maximum input +23 dBm maximum, ±50 VDC maximum

USB Port USB 2.0 port for connecting to an external PC controller

Electromagnetic Compatibility	
European Union	CE Mark
EMC Directive	2014/30/EU
Emissions	EN 55011:2009 +A1:2010 Group 1 Class A
Immunity	EN 61000-4-2/3/4/5/6/8/11
Australia and New Zealand	RSM
South Korea	КСС
Safety	
Low Voltage Directive	2014/35/EU
Product Safety	EN 61010-1:2010 Class 1, IEC 60950-1
Environmental	
Operating Temperature	–10 °C to +55 °C
Storage Temperature	-51 °C to +71 °C
Maximum Relative Humidity	95 %, non-condensing
Mechanical Shock	MIL-PRF-28800F Class 2
Explosive Atmosphere	MIL-PRF-28800F Section 4.5.6.3
Altitude	4600 m (15092 ft), operating and non-operating
Size and Weight	
Size	52 mm x 148 mm 36 mm (2 in x 5.8 in x 1.4 in)
Weight	< 0.4 kg (< 0.9 lb), typical

S331P

Recommended External PC Configuration One USB 2.0 (or higher) port S331P software is compatible with Windows® 7, 8, 8.1, or 10; 32 or 64 bit operating systems. Tested with tablets running Windows 10 and Intel Atom X5-Z8300 processor.

Specifications

Specifications

S331P

Anritsu Tool Box and Line Sweep Tools (for your PC) P

Line Sweep Tools (LST) is a free PC based program that increases productivity for people who deal with numerous Cable and Antenna traces every day. LST is the next generation of Anritsu's familiar Handheld Software Tools (HHST) and shares its uncomplicated user interface, giving a new face to the term "ease of use."

Cable Editor ¹	Instrument Cable Lists may be retrieved from the instrument, modified as required, and uploaded back into instrument.
Distance to Fault ² (DTF)	Easily convert Return Loss or VSWR traces to Distance to Fault traces with one button press.
Measurement Calculator	Provides quick conversion between commonly used measurement units such as VSWR, RL, and others.
Signal Standard Editor ¹	Signal Standard Lists may be retrieved from the instrument, modified as required, and uploaded back into instrument.
Naming Grid	A naming grid function makes changing file names, trace titles, and trace subtitles from field values to those required by contract simple and quick. Once the naming grid is populated with user defined file name segments, a few simple button presses will then fill out the file, title, and sub-title names. Quickly applied to multiple traces, the naming grid can save time, increase efficiency and accuracy.
Presets	Presets make applying markers and a limit line to similar traces quick and easy. They only need to be set once, and recorded. After this, applying them to a similar trace requires only one button push. This speeds up trace processing and makes providing consistent marker and limit line settings easy.
Report Generator	The report generator creates a professional PDF or HTML based report. Reports may include GPS ³ location, power level ³ , company logo ⁴ , instrument and calibration status along with a display of all open traces. It also may contain additional information such as addresses and phone numbers.
Connection	File transfer.
Supported File Types	Input: *.dat, *.vna, *.mna, *.pim, *.tm
	Output: *.dat, *.vna, *.pim, *.tm, *.csv, *.bmp, *.jpg, *.png

easyTest Tools (for your PC)

Instrument Mode

Cable & Antenna Analyzer Mode

Commands		
Disp	olay Image	Allows a custom on-screen image
Re	ecall Setup	Places the instrument into a known state
	Prompt	Displays instructional messages for the user
	Save	Allows automatic or manual saving of traces

Instrument type/model must match original
 Only *.dat and *.vna file types supported
 Model dependent
 Optionally set by user

S331P		Specification	
Ordering Information			
5	Model Number	Description	
YY	S331P	Cable and Antenna Analyzer (required one frequency option)	
	Frequency Options		
	S331P-0704	150 kHz to 4 GHz	
	S331P-0706	150 kHz to 6 GHz	
Calibration and Extended V	Varranty Options		
	Option	Description	
	S331P-ES510	Warranty Extension to 5 Years	
	S331P-ES513	Warranty Extension to 5 Years with Z540 Calibration	
	S331P-0098	Standard Calibration only (to ISO/IEC 17025:2005)	
	S331P-0099	Premium Calibration only with test data (to ISO/IEC 17025:2005)	
Standard Accessories (include	d with instrument)		
	Part Number	Description	
	2000-1864-R	Soft Carrying Case	
	2000-1606-R	-R USB-A to Micro-B with latch cable, 1.8 m (6 ft)	
	2000-1687-R	7-R Torque Multiplier N(m)	
	2300-578-R	USB memory device with the S331P Site Master application and user documentation	
		Standard Three-Year Warranty	
		Certificate of Calibration and Conformance	

Reference Documents (Soft copies available at www.anritsu.com)

Part NumberDescription11410-00964Site Master[™] S331P Technical Data Sheet10580-00426Site Master[™] S331P User Guide11410-00674Cable and Antenna Analysis Troubleshooting Guide

otional Accessories			
Calibration Components, 50 Ω			
	Part Number	Description	
0	OSLN50A-8	Precision Open/Short/Load, N(m), 42 dB, DC to 8.0 GHz, 50 Ω	
and and a	OSLNF50A-8	Precision Open/Short/Load, N(f), 42 dB, DC to 8.0 GHz, 50 Ω	
A Dartinger	2000-1618-R		
	2000-1619-R		
	22N50 22NF50	Open/Short, N(m), DC to 18 GHz, 50 Ω Open/Short, N(f), DC to 18 GHz, 50 Ω	
	SM/PL-1	• • • • • • • • • • • • • • • • • • • •	
	SM/PLNF-1		
Calibration Components, 75 Ω			
	Part Number	•	
	12N50-75B	Matching Pad, DC to 3 GHz, 50 Ω to 75 Ω	
C.	22N75		
	22NF75 26N75A	Open/Short, N(f), DC to 3 GHz, 75 Ω Precision Termination, N(m), DC to 3 GHz, 75 Ω	
	26NF75A	Precision Termination, N(f), DC to 3 GHz, 75 Ω Precision Termination, N(f), DC to 3 GHz, 75 Ω	
Adapters			
Adpters	Part Number	Description	
	510-91-R	7/16 DIN(f) to N(f), DC to 7.5 GHz, 50 Ω	
	510-96-R	7/16 DIN(m) to 7/16 DIN(m), DC to 7.5 GHz, 50 Ω	
	510-97-R	7/16 DIN(f) to 7/16 DIN(f), DC to 7.5 GHz, 50 Ω	
	1091-80-R	SMA(m) to N(f), DC to 18 GHz, 50 Ω	
	1091-81-R	SMA(f) to N(f), DC to 18 GHz, 50 Ω	
	1091-433-R		
E E	1091-434-R		
197	1091-435-R		
	1091-436-R	Low PIM Adapter, 4.1/9.5(m) to N(m), DC to 3.0 GHz, 50 Ω	
	1091-440-R		
	1091-441-R 1091-442-R	Low PIM Adapter, 4.3/10(m) to 7/16 DIN(f), DC to 3.0 GHz, 50 Ω Low PIM Adapter, 4.3/10(f) to N(m), DC to 3.0 GHz, 50 Ω	
	1091-442-R 1091-443-R	Low PIM Adapter, 4.3/10(1) to N(m), DC to 3.0 GHz, 50 Ω Low PIM Adapter, 4.3/10(m) to N(m), DC to 3.0 GHz, 50 Ω	
Precision Adapters			
	Part Number	•	
	34NN50A 34NFNF50	Precision Adapter, N(m) to N(m), DC to 18 GHz, 50 Ω Precision Adapter, N(f) to N(f), DC to 18 GHz, 50 Ω	
Attenuators	Davit Marcal	Description	
	Part Number 3-1010-122	Description 20 dB, 5 W, DC to 12.4 GHz, N(m) to N(f)	
	42N50-20		
	42N50A-30		
Canton Canton Canton		30 dB, 50 W, DC to 8.5 GHz, N(m) to N(f)	
		30 dB, 150 W, DC to 3 GHz, N(m) to N(f)	
	3-1010-124		
	1010-121	40 dB, 100 W, DC to 18 GHz, N(f) to N(m), Unidirectional	
	1010-128-R	40 dB, 150 W, DC to 3 GHz, N(m) to N(f)	

S331P	Specifications
Optional Accessories (continued)	

USB Extender Kit (for 2-port cable loss/transmission (external sensor) measurements)



Model Number Description

2000-1717-R USB Extender, Requires Cat 5e extension cable (sold separately) 2100-28-R Cat 5e extension cable for use with USB Extender (22.5 m)

Backpack and Transit Case

Part Number Description

67135 Anritsu Backpack (for instrument and PC)

760-283 Transit Case, USB 1 Port VNA (for MS46121A and S331P models)



Specifications	S331P
Notes	

Training at Anritsu

Anritsu has designed courses to help you stay up to date with technologies important to your job. For available training courses, visit: www.anritsu.com/training

INCITSU envision : ensure

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