

ANRITSU

37397C

The Anritsu 37397C is a high-performance Vector Network Analyzer (VNA) within the 37300C "Lightning" series, covering a broad frequency range of 40 MHz to 65 GHz. It integrates a synthesized microwave source, a complete S-parameter test set, and a tuned receiver into a single instrument. Optimized for active device characterization, the 37397C features built-in step attenuators, internal bias tees, and advanced measurement capabilities such as frequency offset and time domain analysis.

SPECIFICATIONS

General

Interfaces	Dual GPIB (System & Controller), Serial (RS-232), Parallel (Centronics), External VGA, PS/2 Keyboard
Display	8.4-inch active-matrix color LCD
Warm-up Time	60 minutes
Line Voltage	85 to 240 VAC
Line Frequency	48 to 63 Hz
Power Consumption	350 VA max
EMC Compliance	89/336/EEC
Safety Compliance	EN 61010-1
GPIB Command Sets	Native (37000), Anritsu 360 Compatibility Mode

Physical

Power Supply	85 to 240 VAC, 48 to 63 Hz, 350 VA maximum
Operating Temperature	0 °C to 50 °C °C
Dimensions (W×H×D)	432 mm × 267 mm × 584 mm mm

RF & Microwave Performance

Frequency Range	40 MHz to 65 GHz
Number of Ports	2
Test Port Connector Type	V (male) 1.85 mm compatible
Impedance	50 Ω
Source Frequency Resolution	1 Hz
System Dynamic Range (40 MHz to 2 GHz)	80 dB
System Dynamic Range (2 GHz to 20 GHz)	102 dB
System Dynamic Range (20 GHz to 40 GHz)	84 dB
System Dynamic Range (40 GHz to 50 GHz)	79 dB
Source Step Attenuator Range	0 to 70 dB in 10 dB steps
Receiver Step Attenuator Range	0 to 70 dB in 10 dB steps
Internal Bias Tees	Standard (inputs on rear panel, max 0.5 A, 40 V)

Receiver & Trace Characteristics

Number of Measurement Channels	4 independent channels
Display Formats	Log Magnitude, Phase, Group Delay, Linear Magnitude, Real, Imaginary, SWR, Smith Chart, Polar
Number of Markers	6 independent markers per channel
Measurement Parameters	S11, S21, S12, S22, and user-defined algebraic parameter combinations

Measurement Sweep & Triggering

Number of Measurement Points	2 to 1601 selectable
Sweep Types	Linear frequency, logarithmic frequency, power, and list sweep
Trigger Modes	Free run, single, external, and hold
IF Bandwidth Range	10 Hz to 10 kHz

System Calibration & Corrected Performance

Calibration Methods Supported	SOLT, LRL (Line-Reflect-Line), LRM (Line-Reflect-Match), 1-Port, 2-Port, Reflection Only, Transmission Only
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Software & Measurement Applications

Time Domain Analysis	Standard (includes lowpass and bandpass modes, gating)
Frequency Offset Mode	Standard (for mixer and frequency converter measurements)
Multiple Source Control	Standard (independently controls an external synthesizer)
Limit Line Testing	Standard (flat, sloping, and single point limits)

Rear Panel Interfaces & Connectivity

Dedicated System GPIB Port	24-pin female, IEEE-488.2 compatible
Controller GPIB Port	24-pin female, IEEE-488.2 compatible
Serial Interface	9-pin D-sub male, RS-232 compatible
Printer Port	25-pin D-sub female, Centronics compatible
External VGA Output	15-pin D-sub female
External Trigger Input	BNC female
External Analog Output	BNC female
10 MHz Reference Input	BNC female, -10 dBm to +20 dBm (50 Ω)
10 MHz Reference Output	BNC female, nominal 0 dBm (50 Ω)
Diagnostic Interface Port	37-pin D-sub female
External ALC Input	BNC female

Display & User Interface

Internal Storage	Internal Hard Disk Drive (HDD)
Floppy Disk Drive	3.5-inch 1.44 MB standard

Power & Environmental

Storage Temperature Range	-40 °C to +75 °C
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Source Performance

Maximum Rated Source Power (0.04 to 2 GHz)	+5 dBm
Maximum Rated Source Power (2 to 20 GHz)	+2 dBm
Maximum Rated Source Power (20 to 40 GHz)	-3 dBm
Maximum Rated Source Power (40 to 50 GHz)	-3 dBm
Maximum Rated Source Power (50 to 60 GHz)	-7 dBm
Maximum Rated Source Power (60 to 65 GHz)	-10 dBm
Source Power Resolution	0.01 dB

Receiver Performance

Internal Bias Tees Max Current	500 mA
Internal Bias Tees Max Voltage	40 V

Environmental

Operating Humidity	5% to 95% RH (non-condensing)
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Interfaces

LAN Interface	10BASE-T RJ-45
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Reference Frequency

Option 10 High Stability Aging Rate	$< 5 \times 10^{-10}$ / day
Option 10 High Stability Temperature Stability	$< 1 \times 10^{-9}$ over 0°C to 55°C

Performance

Source Phase Noise (at 10 kHz offset, 0.04 to 2 GHz)	< -80 dBc/Hz
Source Phase Noise (at 10 kHz offset, 2 to 20 GHz)	< -70 dBc/Hz
Source Phase Noise (at 10 kHz offset, 20 to 40 GHz)	< -65 dBc/Hz
Source Phase Noise (at 10 kHz offset, 40 to 65 GHz)	< -60 dBc/Hz
Source Harmonics (0.04 to 20 GHz)	< -30 dBc
Source Harmonics (20 to 40 GHz)	< -30 dBc
Source Harmonics (40 to 65 GHz)	< -20 dBc
Source Non-Harmonic Spurious	< -30 dBc
Receiver 10 dB Compression Level (0.04 to 20 GHz)	+10 dBm
Receiver 10 dB Compression Level (20 to 40 GHz)	+7 dBm
Receiver 10 dB Compression Level (40 to 65 GHz)	+7 dBm
Power Flatness (0.04 to 20 GHz)	±1.5 dB
Power Flatness (20 to 40 GHz)	±2.0 dB
Power Flatness (40 to 65 GHz)	±3.0 dB

Measurements

Averaging Factor	1 to 4096
Averaging Modes	Point-by-point, Sweep-by-sweep

Inputs & Outputs

Horizontal Sweep Output Range	0 V to 10 V
Horizontal Sweep Output Connector	BNC
External Trigger Input Connector	BNC
External Trigger Input Level	TTL compatible
Auxiliary I/O Connector	25-pin D-sub

TECHNOLOGY

Vector Network Analysis

APPLICATIONS

S-Parameter Characterization of Active and Passive Microwave/Millimeter-Wave Devices

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