

KEYSIGHT TECHNOLOGIES (AGILENT HP)

E5052A

The Keysight Agilent E5052A is a high-performance Signal Source Analyzer offering comprehensive phase noise, AM noise, transient, and spectrum measurement capabilities from 10 MHz to 7 GHz. It is widely recognized for its high measurement speed, cross-correlation sensitivity enhancement, and integrated DC bias sources.

SPECIFICATIONS

General

Interfaces	GPIB, LAN (10/100 Base-T), USB 2.0, VGA, Parallel, Serial, PS/2
Display	10.4-inch color TFT LCD with touch screen, XGA (1024 x 768)

Physical

Power Supply	90 V to 132 V / 198 V to 264 V AC, 47 Hz to 63 Hz, 300 VA max
Operating Temperature	10 to 40 °C
Dimensions (W×H×D)	426 mm x 222 mm x 373 mm mm
Weight	19 kg

RF Input Specifications

RF Input Frequency Range	10 MHz to 7 GHz
RF Input Power Level Range	-15 dBm to +20 dBm
Maximum Input RF Power	+30 dBm (1 W)
Input VSWR	< 1.6 (10 MHz to 3 GHz, typical)
RF Input Impedance	50 ohms (nominal)
RF Input Connector Type	Type-N (female)

Phase Noise Measurement

Offset Frequency Range	1 Hz to 100 MHz
Measurement Carrier Frequency Range	10 MHz to 7 GHz
Phase Noise Measurement Relative Accuracy	±1.5 dB
Cross-Correlation Technique	Yes
Maximum Number of Cross-Correlations	10,000

AM Noise Measurement

AM Noise Offset Frequency Range	10 Hz to 10 MHz
AM Noise Carrier Frequency Range	10 MHz to 7 GHz

Baseband Noise Measurement

Baseband Noise Measurement Range	1 Hz to 100 MHz
Baseband Input Impedance	50 ohms (nominal)
Baseband Input Connector	BNC (female)

Transient Measurements

Wide Band Measurement Span	50 MHz to 3 GHz
Narrow Band Measurement Span	100 Hz to 25 MHz
Transient Time Resolution	10 ns (maximum resolution in wideband mode)
Transient Trigger Sources	RF Level, Frequency, External, Video, GPIB/Manual

Frequency & Power Measurements

Frequency Measurement Range	10 MHz to 7 GHz
RF Power Measurement Range	-15 dBm to +20 dBm
RF Power Measurement Resolution	0.01 dB

Internal DC Bias Sources

DC Tuning Voltage Output Range	-15 V to +35 V
DC Tuning Voltage Current Capacity	Max 20 mA
DC Tuning Voltage Resolution	1 mV
DC Supply Voltage Output Range	0 V to +16 V
DC Supply Voltage Current Capacity	Max 80 mA
DC Supply Voltage Resolution	1 mV
DC Current Measurement Range	0 to 80 mA
DC Current Measurement Accuracy	$\pm(0.2\% \text{ of reading} + 50 \mu\text{A})$

Internal Reference Oscillator

Reference Frequency	10 MHz
External Reference Input Frequency	10 MHz $\pm$ 10 Hz
External Reference Input Level	-3 dBm to +10 dBm
Internal Reference Output Level	0 dBm $\pm$ 3 dB

Spectrum Monitor Mode

Frequency Span Range	15 Hz to 15 MHz
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System Interfaces & Connectivity

GPIO Interface Port	24-pin IEEE-488
LAN Interface Port	RJ-45, 10/100 Base-T
USB Interface Ports	USB 2.0 (front and rear panels)
External Monitor Output	15-pin D-Sub (VGA)
Reference Input Connector Type	BNC (female), 50 ohms nominal
Reference Output Connector Type	BNC (female), 50 ohms nominal
Trigger Input Connector Type	BNC (female)
DC Control Output Terminals	BNC (female) on front panel (Tuning & Supply)
Keyboard and Mouse Interface	PS/2 or USB

Display & User Interface

Display Size and Type	10.4-inch color TFT LCD
Display Resolution	1024 x 768 (XGA)

Physical & Power Specifications

AC Supply Line Voltage Range	90 V to 132 V / 198 V to 264 V (autoswitching)
AC Supply Line Frequency	47 Hz to 63 Hz
Maximum Power Consumption	300 VA
Operating Temperature Range	10 °C to 40 °C
Storage Temperature Range	-20 °C to +60 °C
Operating Humidity Range	20% to 80% RH (non-condensing)
Dimensions (W x H x D)	426 mm x 222 mm x 373 mm

Ordering & Configurable Options

Frequency Range Expansion	Up to 26.5 GHz with E5053A Microwave Downconverter
Millimeter-wave Support	Up to 110 GHz with E5053A and external mixers
Rackmount Kit Option	Option 1CP compatible

RF Input

RF Input Attenuator Range	0 to 35 dB
RF Input Attenuator Step Size	5 dB

Measurement Capabilities

Measurement Modes	Phase Noise, Spectrum Monitor, Frequency/Power/DC Current Transients, Baseband Noise, Frequency/Power/DC Current Sweep
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Reference Frequency

High Stability Reference Aging Rate (Option 1D5)	$\pm 5 \times 10^{-10}$ per day, $\pm 1 \times 10^{-7}$ per year
High Stability Reference Temperature Stability (Option 1D5)	$\pm 1 \times 10^{-8}$ (0 °C to 40 °C, referenced to 23 °C)

Compliance

Safety Compliance	IEC 61010-1:2001 / EN 61010-1:2001, CAN/CSA C22.2 No. 61010-1-04
EMC Compliance	CISPR 11:1997 / EN 55011:1998 Group 1 Class A, EN 61326:1997 + A1:1998 + A2:2001

Rear Panel Connectivity

Keyboard Connector	PS/2 (6-pin mini-DIN)
Mouse Connector	PS/2 (6-pin mini-DIN)
Audio Output Connector Type	3.5 mm monaural phone jack
VGA Monitor Connector Type	15-pin mini D-sub (female)
LAN Interface Connector Type	RJ-45
GPIO Interface Connector Type	24-pin IEEE-488
Rear Panel Reference Input Impedance	50 ohms (nominal)
Rear Panel Reference Output Impedance	50 ohms (nominal)

System Features

Measurement Receiver Architecture	Dual-channel cross-correlation with independent internal local oscillators
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General Features

Instrument Warm-up Time	30 minutes
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TECHNOLOGY

Signal Source Analysis / Phase Noise Measurement

APPLICATIONS

Phase noise measurement, VCO characterization, transient analysis, clock jitter evaluation

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