

KEYSIGHT TECHNOLOGIES (AGILENT HP)

8720ES-1D5

The Keysight Agilent 8720ES-1D5 is a high-performance vector network analyzer (VNA) covering a frequency range from 50 MHz to 20 GHz. This model features a fully integrated S-parameter test set and includes Option 1D5, which adds a high-stability ovenized crystal oscillator (OCXO) timebase. Designed for comprehensive characterization of RF and microwave components, it offers excellent dynamic range, accuracy, and measurement speed.

SPECIFICATIONS

General

Interfaces	GPIB (HP-IB), Parallel (Centronics), RS-232 (Serial)
Display	7.5-inch integrated color LCD

Physical

Power Supply	90 to 132 V AC (47 to 66 Hz) or 198 to 264 V AC (47 to 66 Hz), 280 W maximum
Operating Temperature	0 °C to 55 °C °C
Dimensions (W×H×D)	425 mm × 222 mm × 457 mm mm
Weight	34 kg kg

Frequency & Port Characteristics

Frequency Range	50 MHz to 20 GHz
Number of Built-in Ports	2
Test Port Connector Type	3.5 mm (male)
Impedance	50 Ω
Frequency Resolution	1 Hz
Frequency Reference Type	Oven-controlled crystal oscillator (OCXO) (Option 1D5)
Frequency Stability over Temperature	< ±0.05 ppm (0 °C to 55 °C)
Frequency Aging Rate	< ±0.1 ppm/year

Source / Stimulus Specifications

Output Power Range	-85 to +10 dBm (frequency dependent)
Power Resolution	0.05 dB

Receiver & Dynamic Range Performance

System Dynamic Range	100 dB (at 20 GHz, 10 Hz IFBW)
IF Bandwidth Range (IFBW)	10 Hz to 6 kHz
Maximum Receiver Input Level	-5 dBm

Measurement Speed & Calibration

Number of Measurement Points per Sweep	3 to 1601
Sweep Types	Linear frequency, log frequency, list frequency, power sweep
Calibration Types Supported	SOLT, TRL*, LRL*

Measurement Parameters & Software Options

Measured Parameters	S11, S21, S12, S22
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Hardware Interfaces & Connectivity

External Reference Input	10 MHz
External Reference Output	10 MHz

Physical Dimensions & Weight

Rack Unit (RU) Height	5U
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Display & Traces

Display Channels	2 channels
Traces per Channel	Up to 2 traces per channel (4 traces total)
Display Formats	Log magnitude, phase, group delay, Smith chart, polar, linear magnitude, SWR, real, imaginary

Storage

Internal Storage	3.5-inch floppy disk drive (1.44 MB, MS-DOS format)
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Environmental

Storage Temperature Range	-40 °C to +75 °C
Operating Humidity Range	5% to 95% relative humidity (non-condensing) at +40 °C
Maximum Operating Altitude	4,600 m (15,000 ft)

Receiver Specifications

Phase Resolution	0.01°
Magnitude Resolution	0.001 dB

Source Specifications

Power Flatness	±2.0 dB
Harmonic Spurious	<-15 dBc (at maximum output power)
Mixer-related Non-harmonic Spurious	<-30 dBc (at maximum output power)

Measurement Control

Sweep Trigger Modes	Continuous, single, hold, external, GPIB
IF Averaging Range	1 to 999

Frequency Reference (Option 1D5)

Option 1D5 Reference Frequency	10 MHz
Option 1D5 Oven Temperature Stability	±0.05 ppm (0 to 55 °C)
Option 1D5 Daily Aging Rate	< 5 × 10 ⁻¹⁰ (after 24 hours warm-up)
Option 1D5 Yearly Aging Rate	< 1 × 10 ⁻⁷

Performance

Trace Noise (Magnitude)	< 0.006 dB RMS (typical at -5 dBm, 3 kHz IFBW)
Trace Noise (Phase)	< 0.038° RMS (typical at -5 dBm, 3 kHz IFBW)

Inputs & Outputs

External Video Output	VGA (15-pin D-sub)
Test Port Bias Inputs	BNC rear panel, up to 500 mA, 40 VDC maximum
Auxiliary Analog Input	BNC rear panel, ±10 V range
External Trigger Input	BNC rear panel, TTL compatible

Interfaces & Software

Printer Port	Centronics parallel (25-pin D-sub)
Programming Language Support	HP-IB (HP 8720/8753 compatible)

TECHNOLOGY

Vector Network Analyzer

APPLICATIONS

RF and Microwave Component Characterization

Generated by SpecAtlasHub (specatlashub.com). Specifications are compiled from available sources and are subject to change — verify critical values against the manufacturer before purchase.