ROHDE & SCHWARZ

FSV4

The Rohde & Schwarz FSV4 is a high-performance signal and spectrum analyzer designed for fast, accurate measurements in development, production, and service environments. Operating over a frequency range of 10 Hz to 4 GHz, it provides extensive analysis bandwidth, high sensitivity, and an intuitive touchscreen interface for diverse RF measurement applications.

SPECIFICATIONS

General

Interfaces	LAN (10/100/1000Base-T), USB 2.0 (4 × Host, 1 × Device), DVI-D, GPIB (optional R&S FSV-B9)
Display	8.4" color TFT touchscreen, SVGA (800 × 600 pixels)
Operating System	Windows Embedded Standard 7

Physical

Power Supply	100 V to 240 V AC (±10%), 50 Hz to 60 Hz / 400 Hz (±5%), max. 180 W
Operating Temperature	5 °C to 40 °C °C
Dimensions (W×H×D)	412 mm × 197 mm × 417 mm mm
Weight	10.3 kg

Frequency and Time Specifications

Frequency Range	10 Hz to 4 GHz
Frequency Reference Accuracy	±(aging × time + temperature stability)
Aging per Year	1 × 10^-6 (standard), 1 × 10^-7 (with R&S FSV-B4 OCXO)
Temperature Stability	1 × 10^-6 (standard, 0 °C to 50 °C), 1 × 10^-8 (with R&S FSV-B4 OCXO)
Frequency Span Range	0 Hz (zero span), 10 Hz to 4 GHz
Span Accuracy	±0.1%

Amplitude Specifications

Maximum Input Level (RF Power)	+30 dBm (1 W) continuous
Maximum Input Level (DC Voltage)	50 V
1 dB Gain Compression Point	+13 dBm (at 1 GHz, 0 dB RF attenuation)
TOI (Third-Order Intercept)	+16 dBm (typ. +19 dBm at 1 GHz)
DANL (1 GHz, No Preamp)	-152 dBm (1 Hz RBW, typ. -155 dBm)
DANL (1 GHz, with Preamp)	-162 dBm (1 Hz RBW, typ. -167 dBm, with R&S FSV-B22 option)
Attenuator Range	0 dB to 75 dB
Attenuator Step Size	5 dB (standard), 1 dB (with electronic attenuator option R&S FSV-B25)
Absolute Amplitude Accuracy	0.3 dB (at 128 MHz)
Total Measurement Uncertainty	< 0.4 dB (up to 3.6 GHz)

Bandwidth and Sweep

Resolution Bandwidth (RBW) Range (-3 dB)	1 Hz to 10 MHz (1/2/3/5 sequence)
Resolution Bandwidth (RBW) Shape Factor	< 5 (60 dB:3 dB, Gaussian filter)
Video Bandwidth (VBW) Range	1 Hz to 10 MHz
Sweep Time Range (Swept)	1 ms to 16000 s (span >= 10 Hz), 1 us to 16000 s (zero span)
Sweep Points Range	101 to 32001
Sweep Triggers	Free run, Video, External, IF Power

Phase Noise and Spurious

Phase Noise (10 kHz Offset)	-110 dBc/Hz (at 1 GHz carrier, typ. -114 dBc/Hz)
Phase Noise (100 kHz Offset)	-115 dBc/Hz (at 1 GHz carrier, typ. -120 dBc/Hz)
Phase Noise (1 MHz Offset)	-135 dBc/Hz (at 1 GHz carrier, typ. -138 dBc/Hz)
Residual Responses	<-90 dBm

Analysis Capabilities

Standard Analysis Bandwidth	28 MHz
Maximum Analysis Bandwidth (with Options)	40 MHz (with R&S FSV-B40 option)

Inputs, Outputs, and Connectivity

RF Input Connector Type	N female
RF Input Impedance	50 ohms
Voltage Standing Wave Ratio (VSWR)	< 1.5 (10 MHz to 4 GHz, RF attenuation >= 10 dB)
10 MHz Reference Input	BNC female, 50 ohms
10 MHz Reference Output	BNC female, 50 ohms
Trigger Input	BNC female
Trigger Output	BNC female

Control and Software

Trace Detectors	Max Peak, Min Peak, Auto Peak, Sample, RMS, Average, Quasi-Peak
Number of Traces	6
Standard Measurements	Channel Power, ACPR, OBW, CCDF, Spectrum Emission Mask (SEM), Spurious Emissions

Physical, Environmental, and Power

Storage Temperature Range	-40 °C to +70 °C
Recommended Calibration Cycle	1 year

Frequency

Frequency Resolution	0.01 Hz

Resolution Bandwidths

FFT Filter Bandwidth Range	1 Hz - 300 kHz
CISPR Bandwidths (-6 dB)	200 Hz, 9 kHz, 120 kHz, 1 MHz

Sweep

Zero Span Sweep Time Range	1 µs - 16000 s

RF Input

LO Emission at RF Input	< -90 dBm (typ. < -100 dBm) with 0 dB attenuation

Spurious Responses

Image Rejection	> 90 dB (typ. 110 dB)
IF Rejection	> 90 dB (typ. 110 dB)

Interfaces

USB Interfaces	5 × USB 2.0 (2 front, 3 rear)
External Display Output	DVI-D
LAN Interface	10/100/1000Base-T (RJ-45)
GPIB Interface Option	IEEE 488.2 (via FSV-B5 option)
Noise Source Control	BNC female, rear panel
Probe Power Connector	3-pin connector (+15 V, -12.6 V, max. 150 mA)

Reference Frequency

10 MHz Reference Output Level	0 dBm to +10 dBm (typ. +5 dBm)
Reference Frequency Temperature Stability with OCXO	1 × 10^-9 (with R&S FSV-B4 option)
Reference Frequency Aging per Year with OCXO	3 × 10^-8 (with R&S FSV-B4 option)

Options

Tracking Generator Option	100 kHz - 4 GHz (with R&S FSV-B9 option)
RF Preamplifier Option	20 dB gain, 100 kHz - 4 GHz (with R&S FSV-B22 option)

Performance

I/Q Memory Depth	Up to 200 Msample (with R&S FSV-B100 option)

RF Performance

DANL at 3 GHz (No Preamp)	<-150 dBm/Hz (typ. -153 dBm/Hz)
DANL at 3 GHz (with Preamp)	<-162 dBm/Hz (typ. -165 dBm/Hz)

Demodulation & Analysis

ADC Resolution	16 bit

Power and Environmental

Power Consumption	Typ. 130 W, max. 200 W (with options)
AC Input Voltage Range	100 V to 240 V AC
AC Input Frequency Range	50 Hz to 400 Hz
Warm-Up Time	20 min

Display and User Interface

Display Resolution	800 x 600 pixels (SVGA)
Display Size	21 cm (8.4 in) touchscreen

TECHNOLOGY

Signal and Spectrum Analyzer

APPLICATIONS

RF and Microwave Testing