ROHDE & SCHWARZ

SFU

The Rohde & Schwarz SFU is an all-in-one broadcast and mobile TV test platform designed for research, development, and standard signal generation. Combining a multistandard generator, channel simulator, and baseband player into a single compact four-rack-unit housing, it delivers exceptional RF performance, digital baseband processing, and extensive simulation capabilities.

SPECIFICATIONS

General

Interfaces	GPIB, LAN, USB (for keyboard, mouse, and USB storage)
Display	8.4 inch color display with 1024 x 768 pixels (XGA format)

Physical

Power Supply	100 V to 240 V AC, 50 Hz to 60 Hz / 400 Hz, max. 300 W
Operating Temperature	5 °C to 45 °C °C
Dimensions (W×H×D)	435 mm × 192 mm × 460 mm mm
Weight	18 kg kg

RF Specifications

RF Frequency Range	100 kHz to 3 GHz
I/Q Modulator RF Bandwidth	180 MHz
SSB Phase Noise	typ. -135 dBc at 1 GHz (20 kHz carrier offset, 1 Hz measurement bandwidth)
Optional Output Power (PEP)	up to +19 dBm (overrange to +26 dBm)
Attenuator Type	Wear-free electronic attenuator
Reference Oscillator Stability	TCXO (standard), High-stability OCXO (optional)

Baseband Specifications

Arbitrary Waveform Generator Capacity	128 Msample
ARB Software Support	R&S WinIQSIM
Baseband Signal Processing	Fully digital
Realtime Signal Sources	TS baseband generator and recorder with universal coder, TRP baseband player, Video generator

Simulation Capabilities

Transmission Channel Simulations	Noise, Fading, and Interference

System & Control

Operating System	Windows XP Embedded
Remote Access Support	Virtual Network Computing (VNC) or Remote Desktop
Storage	Internal hard disk (standard)

Physical Characteristics

Form Factor	4 HU (height units)

RF Output

RF Frequency Resolution	0.1 Hz
Standard Level Range	-120 dBm to +13 dBm
Level Resolution	0.01 dB

Spectral Purity

Harmonics	<-30 dBc
Nonharmonics	<-60 dBc (carrier offset > 10 kHz)

Baseband Generator

ARB DAC Resolution	14 bit

AWGN Noise Generator

C/N Ratio Range	-30 dB to +60 dB
C/N Resolution	0.1 dB

Reference Frequency

Reference Input Frequency	10 MHz
Reference Output Frequency	10 MHz

Modulation & Standards

Supported Digital Standards	DVB-T/H, DVB-T2, DVB-S/S2, DVB-C/C2, ISDB-T/TB, ATSC/8VSB, ATSC-M/H, DTMB, CMMB, T-DMB, DAB/DAB+, DRM/DRM+ (option-dependent)
Supported Analog Standards	B/G, D/K, I, K1, L, M, N (PAL, SECAM, NTSC) (option-dependent)

Arbitrary Waveform Generator

ARB Sample Rate Range	400 Hz to 100 MHz

Fading Simulator

Fading Channels	Up to 40 paths (with options R&S SFU-B30 and SFU-B31)
Fading Bandwidth	Up to 80 MHz
Fading Profiles	Pure Doppler, Rayleigh, Rice, Lognormal, Suzuki, Gauss, Constant Phase
Fading Delay Resolution	0.1 ns
Fading Path Loss Range	0 dB to 50 dB

Noise Generator

Noise Types	AWGN, Impulsive Noise, Phase Noise (option-dependent)
AWGN System Bandwidth	100 kHz to 80 MHz

RF Performance

Level Uncertainty	< 0.5 dB (for levels > -120 dBm, f <= 3 GHz)
Wideband Noise	Typ. <-145 dBc (1 Hz) at > 10 MHz offset (f = 1 GHz, level = +4 dBm)
RF Output Impedance	50 Ohm

TS Player & Recorder

Maximum TS Data Rate	Up to 214 Mbit/s (ASI)

Physical Interfaces

RF Output Connector	N female, 50 Ohm
ASI Input/Output Connectors	BNC, 75 Ohm
External I/Q Inputs/Outputs	BNC female, 50 Ohm

TECHNOLOGY

Digital baseband processing and RF modulation

APPLICATIONS

Multistandard broadcast and mobile TV testing, research and development