

R&S® EVSG1000

VHF/UHF AIRNAV/COM

ANALYZER

Specifications



Data Sheet
Version 06.00

ROHDE & SCHWARZ

Make ideas real



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Definitions

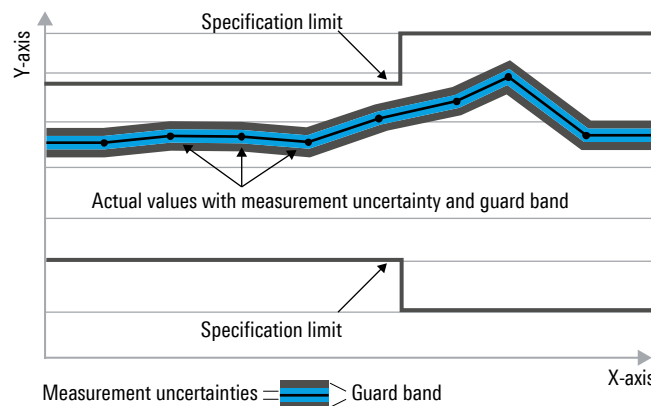
General

Product data applies under the following conditions:

- Three hours storage at ambient temperature followed by 30 minutes warm-up operation
- Specified environmental conditions met
- Recommended calibration interval adhered to
- All internal automatic adjustments performed, if applicable

Specifications with limits

Represent warranted product performance by means of a range of values for the specified parameter. These specifications are marked with limiting symbols such as $<$, $\leq$, $>$, $\geq$, $\pm$, or descriptions such as maximum, limit of, minimum. Compliance is ensured by testing or is derived from the design. Test limits are narrowed by guard bands to take into account measurement uncertainties, drift and aging, if applicable.



Non-traceable specifications with limits (n. trc.)

Represent product performance that is specified and tested as described under “Specifications with limits” above. However, product performance in this case cannot be warranted due to the lack of measuring equipment traceable to national metrology standards. In this case, measurements are referenced to standards used in the Rohde & Schwarz laboratories.

Specifications without limits

Represent warranted product performance for the specified parameter. These specifications are not specially marked and represent values with no or negligible deviations from the given value (e.g. dimensions or resolution of a setting parameter). Compliance is ensured by design.

Typical data (typ.)

Characterizes product performance by means of representative information for the given parameter. When marked with $<$, $>$ or as a range, it represents the performance met by approximately 80 % of the instruments at production time. Otherwise, it represents the mean value.

Nominal values (nom.)

Characterize product performance by means of a representative value for the given parameter (e.g. nominal impedance). In contrast to typical data, a statistical evaluation does not take place and the parameter is not tested during production.

Measured values (meas.)

Characterize expected product performance by means of measurement results gained from individual samples.

Uncertainties

Represent limits of measurement uncertainty for a given measurand. Uncertainty is defined with a coverage factor of 2 and has been calculated in line with the rules of the Guide to the Expression of Uncertainty in Measurement (GUM), taking into account environmental conditions, aging, wear and tear.

Device settings and GUI parameters are designated with the format “parameter: value”.

Non-traceable specifications with limits, typical data as well as nominal and measured values are not warranted by Rohde & Schwarz.

In line with the 3GPP standard, chip rates are specified in million chips per second (Mcps), whereas bit rates and symbol rates are specified in billion bit per second (Gbps), million bit per second (Mbps), thousand bit per second (kbps), million symbols per second (MSPS) or thousand symbols per second (kSPS), and sample rates are specified in million samples per second (Msample/s). Gbps, Mcps, Mbps, MSPS, kbps, kSPS and Msample/s are not SI units.

Specifications

Frequency

Frequency range		70 MHz to 410 MHz
Frequency setting resolution	ILS, VOR	100 Hz
	COM, GBAS	10 Hz
Frequency measurement resolution		1 Hz
Preselection filter ranges	standard	70 MHz to 410 MHz
	with R&S®EVSG-K23 option	
	marker beacon	74.7 MHz to 75.3 MHz
	ILS LLZ, VOR	108 MHz to 118 MHz
	COM 1	118 MHz to 145 MHz
	ILS GS, COM 2	220 MHz to 410 MHz
Reference frequency, internal		
Accuracy	(time since last adjustment × aging rate) + temperature drift + calibration accuracy	
Aging per year		1×10^{-7} (nom.)
Temperature drift (–10 °C to +50 °C)		1×10^{-7} (nom.)
Achievable initial calibration accuracy		5×10^{-8} (nom.)
Spectral purity		
SSB phase noise	frequency = 110 MHz, carrier offset	
	10 kHz	–105 dBc (1 Hz) (typ.)
	25 kHz	–115 dBc (1 Hz) (typ.)
	100 kHz	–125 dBc (1 Hz) (typ.)
	1 MHz	–145 dBc (1 Hz) (typ.)

Level

Display ranges	low noise mode (15 dB RF gain, 15 dB IF gain)	noise floor up to –30 dBm
	normal mode (0 dB RF att.)	noise floor up to 0 dBm
	low distortion mode (15 dB RF att.)	noise floor up to 15 dBm
	autorange mode	noise floor up to 15 dBm
Maximum input level		
DC voltage		50 V
CW RF power		30 dBm
Level resolution		0.01 dB
Residual spurious response	low noise mode	< –100 dBm
Intermodulation		
1 dB compression of input mixer (two-tone)	normal mode	+8 dBm (nom.)
Third-order intercept point (TOI)	2×-10 dBm, $\Delta f > 200$ kHz, normal mode	> 20 dBm
	with R&S®EVSG-K23 option, 2×-10 dBm, $f_{in} = 108.1$ MHz, $f_{1/2} = 100.1$ MHz/104.1 MHz, normal mode	> 40 dBm (nom.)
Level measurement uncertainty		
Absolute level uncertainty at 113 MHz	without R&S®EVSG-K23 option, IF bandwidth = 10 kHz, level –10 dBm, normal RF mode	
	+20 °C to +30 °C	< 0.4 dB
	–10 °C to +50 °C	< 0.6 dB (nom.)
	with R&S®EVSG-K23 option, IF bandwidth = 10 kHz, level –10 dBm, normal RF mode	
	+20 °C to +30 °C	< 0.5 dB
	–10 °C to +50 °C	< 0.8 dB (nom.)
Frequency response 70 MHz to 410 MHz, referenced to 113 MHz	normal RF mode	
	+20 °C to +30 °C	< 0.5 dB
	–10 °C to +50 °C	< 0.8 dB (nom.)
RF mode switching uncertainty	RF mode low noise or low distortion referenced to normal mode	< 0.3 dB
Bandwidth switching uncertainty	referenced to IF bandwidth = 10 kHz	< 0.2 dB (nom.)
Nonlinearity of displayed level	SNR > 16 dB, 0 dB to –70 dB	< 0.2 dB
Total measurement uncertainty	70 MHz to 410 MHz, signal level 0 dB to –80 dBm, S/N > 20 dB, RF mode auto, IF bandwidth 10 kHz, 95 % confidence level, +20 °C to +30 °C	
	without R&S®EVSG-K23 option	0.6 dB
	with R&S®EVSG-K23 option	1.0 dB
	with R&S®EVSG-K23 option, dual frequency ILS or COM system	1.2 dB

ILS signal analysis

ILS measurement mode		
Without R&S®EVSG-K1 option	1F (single frequency system), WIDE	main (modulation parameters), distortion, ID, data recording
	2F (dual frequency system)	main (sum of CRS and CLR), ID, distortion, data recording
With R&S®EVSG-K1 option	2F (dual frequency system)	main (sum), course/clearance, ID, distortion, data recording
IF bandwidths	modulation analysis 1F, 2F	1/3/6/10 kHz (nom.) (3 kHz default)
	modulation analysis WIDE	1/3/6/10/18/25/36/50 kHz (nom.) (25 kHz default)
	ID analysis, distortion analysis	1/3/6/10 kHz (nom.) (3 kHz default)
ILS carrier offset search	1F, 2F	
	IF bandwidth range	1 kHz to 10 kHz
	search modes	manual, find carriers, autotune
Modulation depth uncertainty	RF mode auto, IF bandwidth: 1/3/6/10/18/32/50 kHz, input level: –75 dBm to +10 dBm, measurement time ≥ 10 ms, 95 % confidence level	
	0 % to 50 %, 90 Hz/150 Hz ± 2.5 %	≤ 0.3 %
	voice/identifier	≤ 1.0 % (nom.)
	RF mode auto, IF bandwidth: 1/3/6 kHz, input level: –105 dBm to –75 dBm, measurement time ≥ 500 ms, 95 % confidence level	
	0 % to 50 %, 90 Hz/150 Hz ± 2.5 %	≤ 0.5 %
	voice/identifier	≤ 2.0 % (nom.)
AF measurement uncertainty	RF mode auto, IF bandwidth: 1/3/6/10/18/32/50 kHz, input level: –75 dBm to +10 dBm, measurement time ≥ 10 ms, 95 % confidence level	
Frequency	90 Hz/150 Hz ± 5 Hz	≤ 0.05 Hz (nom.)
	1020 Hz ± 50 Hz	≤ 1.0 Hz (nom.)
Phase angle 90 Hz/150 Hz		≤ 0.2° (nom.)
Phase angle 90 Hz/90 Hz, 150 Hz/150 Hz	with R&S®EVSG-K1 option	≤ 0.2° (nom.)
AF measurement uncertainty	RF mode auto, IF bandwidth: 1/3/6 kHz, input level: –105 dBm to –75 dBm, measurement time ≥ 500 ms, 95 % confidence level	
Frequency	90 Hz/150 Hz ± 5 Hz	≤ 0.1 Hz (nom.)
	1020 Hz ± 50 Hz	≤ 5.0 Hz (nom.)
Phase angle 90/150 Hz		≤ 1.0° (nom.)
Phase angle 90/90 Hz, 150/150 Hz	with R&S®EVSG-K1 option	≤ 1.0° (nom.)
DDM measurement uncertainty	RF mode auto, IF bandwidth: 1/3/6/10/18/32/50 kHz, input level: –75 dBm to +10 dBm, SDM: 10 % to 90 %, measurement time ≥ 10 ms, 95 % confidence level	
Localizer	≤ ±10 % DDM	≤ 0.04 % DDM ± 0.1 % of reading
	> ±10 % DDM	≤ 0.04 % DDM ± 0.2 % of reading
Glidepath	≤ ±20 % DDM	≤ 0.08 % DDM ± 0.1 % of reading
	> ±20 % DDM	≤ 0.08 % DDM ± 0.2 % of reading
DDM measurement uncertainty	RF mode auto, IF bandwidth: 1/3/6 kHz, input level: –105 dBm to –75 dBm, SDM: 10 % to 90 %, measurement time ≥ 500 ms, 95 % confidence level	
Localizer	≤ ±10 % DDM	≤ 0.25 % DDM ± 0.1 % of reading
	> ±10 % DDM	≤ 0.25 % DDM ± 0.2 % of reading
Glidepath	≤ ±20 % DDM	≤ 0.5 % DDM ± 0.1 % of reading
	> ±20 % DDM	≤ 0.5 % DDM ± 0.2 % of reading

VOR signal analysis (R&S®EVSG-K2 option)

VOR measurement mode		main, ID, distortion, data recording
IF bandwidths		nom. 1/3/6/10/18/25/36/50 kHz (25 kHz default)
Modulation parameters	RF mode auto, IF bandwidth 25/36/50 kHz, input level –80 dBm to +10 dBm, measurement time ≥ 100 ms, 95 % confidence level	
Azimuth measurement uncertainty		≤ ±0.05°
AM modulation depth measurement uncertainty	0 % to 50 %, 30 Hz/9960 Hz ± 2 %	≤ 0.5 %
	voice/identifier	≤ 1.0 % (nom.)
AF frequency measurement uncertainty	30 Hz ± 3 Hz	≤ 0.03 Hz (nom.)
	1020 Hz ± 50 Hz	≤ 1.0 Hz (nom.)
	9960 Hz ± 100 Hz	≤ 0.5 Hz (nom.)
FM subcarrier measurement	RF mode auto, IF bandwidth: 25/36/50 kHz, input level: –80 dBm to +10 dBm, measurement time ≥ 100 ms, 95 % confidence level	
FM subcarrier deviation measurement uncertainty		≤ 0.1 Hz ± 0.5 % of reading (nom.)
Modulation parameters	RF mode auto, IF bandwidth: 25 kHz, input level: –100 dBm to –80 dBm, measurement time ≥ 500 ms, 95 % confidence level	
Azimuth measurement uncertainty		≤ ±0.25°
AM modulation depth measurement uncertainty	0 % to 50 %, 30 Hz/9960 Hz ± 2 %	≤ 1.0 %
	voice/identifier	≤ 2.0 % (nom.)
AF frequency measurement uncertainty	30 Hz ± 3 Hz	≤ 0.5 Hz (nom.)
	1020 Hz ± 50 Hz	≤ 5.0 Hz (nom.)
	9960 Hz ± 100 Hz	≤ 1.0 Hz (nom.)
FM subcarrier measurement	RF mode auto, IF bandwidth: 25 kHz, input level: –100 dBm to –80 dBm, measurement time ≥ 500 ms, 95 % confidence level	
FM subcarrier deviation measurement uncertainty		≤ 0.5 Hz ± 1 % of reading (nom.)

Marker beacon signal analysis (R&S®EVSG-K3 option)

Marker beacon measurement mode		main, ID, data recording
IF bandwidths		1/3/6/10/18/25/36/50 kHz (nom.) (10 kHz default)
Modulation parameters	RF mode auto, IF bandwidth: 1/3/6/10 kHz, input level: –80 dBm to +10 dBm, measurement time ≥ 100 ms, 95 % confidence level	
AM modulation depth measurement uncertainty	80 % to 100 %, 400/1300/3000 Hz ± 2 %	≤ 0.5 %
AF frequency measurement uncertainty	400/1300/3000 Hz ± 50 Hz	≤ 0.5 Hz (nom.)

GBAS mode (R&S®EVSG-K4 option)

Standards		ICAO Annex 10, RTCA DO-246
GBAS measurement modes		sequence, frame, burst, I/Q constellation, message content, data recording
IF bandwidths		16.8 kHz/25 kHz (nom.) (16.8 kHz default)
VDB capture range		±1 kHz
Measurement and data decoding range	message failure rate < 1.0×10^{-3}	
	RF mode low noise	–100 dBm to –35 dBm (nom.)
	RF mode normal	–83 dBm to –5 dBm (nom.)
	RF mode low distortion	–67 dBm to 10 dBm (nom.)
Modulation		D8PSK
Symbol rate		10500 symbols/s (nom.)
Modulation parameters		
Burst level average		measured over the 48-bit synchronization and ambiguity resolution sequence
Slot peak level		maximum level within the slot from valid or invalid signals
Carrier frequency offset accuracy		see reference frequency in section Frequency
Error vector magnitude (EVM), RMS error	RMS normalization mode: mean constellation power	< 1 % (nom.)

TDMA timing parameters		
Resolution		2.38 μ s (nom.)
Range	start of the burst referred to the trigger signal	–400 μ s to 1.4 ms (nom.)
Synchronization sequence position		start of the synchronization and ambiguity resolution sequence
Message parameters		• training sequence FEC • application data • application FEC • slot occupancy • bit error rate (BER) before FEC • burst valid count • burst failed count
Message types supported by default	message types are described in XML and can be modified or extended	• message type 1 • message type 2 • message type 4 • message type 11
Trigger		pulse per second (PPS) (required for measurement)
Required pulse width	trigger on rising edge	> 1 μ s
Required accuracy		$\pm$ 95.2 μ s

SCAT I mode (R&S®EVSG-K5 option)

Standards		ICAO Annex 10, RTCA DO-217
Measurement modes, modulation parameters, message parameters		see section GBAS mode
Supported message types		• message type 1 • message type 4

COM analysis (R&S®EVSG-K6 option)

COM measurement mode	1F (single frequency system)	main (modulation parameters), data recording
	2F (dual frequency system)	main (sum of TX1 and TX2), data recording
IF bandwidths		1/3/6/10 kHz (nom.) (3 kHz default)
Carrier offset	2F (8.33 kHz channel separation systems)	$\pm$ 2.5 kHz
Modulation parameters	RF mode auto, IF bandwidth: 1/3/6/10 kHz, input level: –100 dBm to +10 dBm, measurement time $\geq$ 500 ms, 95 % confidence level	
AM modulation depth measurement uncertainty	10 % to 95 %, 1 kHz $\pm$ 2.5 %	$\leq$ 0.5 %

LF analysis (R&S®EVSG1-K7 option)

Input		LF In (rear), BNC female
ILS signal analysis		
Level display		RMS input voltage peak modulation voltage (V_p)
Spectrum preview	frequency axis	0 Hz to 24 kHz
	level axis	0 V to 1 V/0 V to 5 V (linear)
	measurement display	LF input spectrum
ILS measurement view	user-selectable	main (modulation parameters), distortion, ID, data recording
LF input mode	user-selectable	AF or low IF
Coupling		AC/DC
AF input bandwidth	AF mode	0.5/1.5/3/5/9/12.5/18/25 kHz (1.5 kHz default)
	low IF mode	1/3/6/10 kHz (3 kHz default)
Low IF frequency	low IF mode	2.5 to 22.5 kHz, selectable in 100 Hz steps
I/Q data recording (requires R&S®EVSG1-K25 option)	AF mode	I only
	low IF mode	I and Q

VOR signal analysis (requires R&S®EVSG1-K2 option)		
Level display		RMS input voltage
		peak modulation voltage (V_p)
Spectrum preview	frequency axis	0 kHz to 24 kHz
	level axis	0 V to 1 V/0 V to 5 V (linear)
	measurement display	LF input spectrum
VOR measurement view	user-selectable	main (modulation parameters), distortion, ID, data recording
LF input mode		AF
Coupling		AC/DC
AF input bandwidth		0.5/1.5/3/5/9/12.5/18/25 kHz (12.5 kHz default)
I/Q data recording (requires R&S®EVSG1-K25 option)	AF mode	I only
NDB signal analysis		
Input frequency range		190 kHz to 1750 kHz
Frequency resolution		1 Hz
Tuning step size		0.1/1/10 kHz (1 kHz default)
Carrier frequency offset accuracy		see reference frequency in section Frequency
Level display		RMS signal level
Unit	input impedance 50 Ω	dB μ V or dBm (dB μ V default)
	input impedance 20 k Ω	dB μ V(EMF)
Measurement range	S+N/N > 20 dB, bandwidth: 1 kHz	
	RF attenuation auto	20 dB μ V to 110 dB μ V (nom.) ¹
	RF mode low noise	20 dB μ V to 80 dB μ V (nom.)
	RF mode norm	40 dB μ V to 100 dB μ V (nom.)
	RF mode low distortion	60 dB μ V to 110 dB μ V (nom.) ¹
Residual spurious response	low noise mode	< 20 dB μ V (nom.)
Level measurement uncertainty	190 kHz to 1750 kHz, signal level: 40 dB μ V to 100 dB μ V, S/N > 20 dB, RF mode auto, IF bandwidth: 3 kHz, 95 % confidence level, +20 °C to +30 °C	
	instrument serial number < 100880	< 1 dB (nom.)
	instrument serial number $\geq$ 100880	< 1 dB
Modulation parameters	RF mode auto, IF bandwidth: 1/3/6/10 kHz, input level: 40 dB μ V to 100 dB μ V ² , measurement time $\geq$ 100 ms, 95 % confidence level	
AM modulation depth measurement uncertainty	80 % to 100 %, 400 Hz/1020 Hz $\pm$ 2 %	$\leq$ 1 % (nom.)
AF frequency measurement uncertainty	400 Hz/1020 Hz $\pm$ 50 Hz	$\leq$ 0.5 Hz (nom.)
Spectrum preview	frequency axis	f_{center} = receiver frequency, span 50 kHz
	level axis	-30 dB μ V to 120 dB μ V
	measurement display	IF spectrum
NDB measurement view	ID (default)	ID code, period, dot/dash timing, mod. depth, mod. freq.
	distortion	K2, K3, K4, THD, unwanted AM 30 Hz to 120 Hz
	data recording	measurement parameters, I/Q data (with R&S®EVSG1-K25 option)
IF bandwidths		1/3/6/10 kHz (3 kHz default)
ID frequency	selectable	400 Hz $\pm$ 10 % or 1020 Hz $\pm$ 10 % (nom.) (400 Hz default)
I/Q data recording (requires R&S®EVSG1-K25 option)		I and Q

¹ Upper limit 100 dB μ V for instruments with serial number < 100880.² Upper limit 90 dB μ V for instruments with serial number < 100880.

RF and IF spectrum analysis (R&S®EVSG-K10 option)

RF frequency range		70 MHz to 410 MHz
Display range	selectable	noise floor up to 15 dBm
RF spectrum analysis mode		
Start/stop or center/span	user-selectable	70 MHz to 410 MHz
Resolution bandwidths		0.8/1.6/3.1/6.2/12.5/25/50/100 kHz
IF spectrum analysis mode		
Span (or start/stop)	user-selectable	1 kHz to 100 kHz
Resolution bandwidths	modes: auto/manual	2.3 Hz to 15 kHz (depending on span)

AF spectrum analysis (R&S®EVSG-K11 option)

Input signal frequency range	RF input	70 MHz to 410 MHz
	LF input (with R&S®EVSG1-K7 option)	0 Hz to 50 kHz
Span (or start/stop)	user-selectable	100 Hz to 50 kHz
Resolution bandwidths	modes: auto/manual	2.3 Hz to 25 kHz
Measurement result displays	ILS 1F/wide	AM spectrum
	ILS 2F (with R&S®EVSG1-K1 option)	course frequency AM spectrum
		clearance frequency AM spectrum
	VOR (with R&S®EVSG1-K2 option)	main carrier AM spectrum
		FM subcarrier spectrum
		FM subcarrier AM spectrum (AM distortion)
	NDB (with R&S®EVSG1-K7 option)	AM spectrum
Trace detector		auto peak (default), RMS
Trace functions		clear/write, maximum peak, average

AF time domain analysis (R&S®EVSG-K12 option)

Input signal frequency range	RF input	70 MHz to 410 MHz
	LF input (with R&S®EVSG1-K7 option)	0 Hz to 50 kHz
Input amplitude range	baseband (ranges 1 V, 5 V)	–100 % to +100 %
	RF input, modulation depth	–100 % to +100 %
IF bandwidths		1/3/6/10/18/25/36/50 kHz (nom.) (6 kHz default)
Time range		0.1/0.2/0.5/1/2/5/10/20 ms (2 ms default)
Measurement result displays	ILS 1F/wide	AM time domain
	ILS 2F (with R&S®EVSG1-K1 option)	course frequency AM time domain
		clearance frequency AM time domain
	VOR (with R&S®EVSG1-K2 option)	main carrier AM time domain
		FM subcarrier time domain
		FM subcarrier AM time domain
	NDB (with R&S®EVSG1-K7 option)	AM time domain

Data recording (R&S®EVSG-K21 option)

Data rate	standard	up to 10 record sets/s
	with R&S®EVSG-K22 option	up to 100 record sets/s
Number of record sets per data list		1 000 000
Number of data lists per mode	LLZ, GP, MB, VOR, COM	9999
Storage capacity (internal)		8 Gbyte
Export format		CSV
Parameter selection	all (def.), medium, short	R&S®EVSG native
	full	R&S®EVS300 compatible

Support for Rohde & Schwarz power sensors (R&S®EVSG-K24 option)

Supported sensors	USB connector	R&S®NRP-Z series R&S®NRP8/18/33/40/50/67/110 (LAN connection not supported)
Displayed value		average power
Input range	depending on power sensor	see data sheet of respective power sensor
Units	power	dBm
Resolution	power (R&S®NRP-Zxx power sensor)	0.01 dB
Accuracy	depending on power sensor	see data sheet of respective power sensor

I/Q data recording and streaming (R&S®EVSG1-K25 option)

Word length of I/Q samples		32 bit for I and 32 bit for Q
Sample rate		125 ksample/s
Signal analysis bandwidth		max. 100 kHz
Record data rate		8 Mbit/s
Data format		32 bit signed integer for I and Q, compatible to R&S®ARB toolbox plus for Rohde & Schwarz vector signal generators
Record time, nominal	without R&S®EVSG-B1 option, internal memory	30 min (2 Gbyte), 2 h (8 Gbyte)
	with R&S®EVSG-B1 option, I/Q data recording on two RX channels, internal memory	30 min (2 × 2 Gbyte), 1 h (2 × 4 Gbyte)
	TCP/IP stream over Ethernet	unlimited

Inputs and outputs

Front

RF input	RX1	N connector, 50 Ω
	RX2, R&S®EVSG-B1 option	N connector, 50 Ω
AF output		3.5 mm female connector
Antenna supply		output for feeding active antennas
USB	double connector	USB flash drive for data storage and software updates

Rear

DC input		10 V to 28 V
LAN interface		RJ-45, 100BASE-T
USB	single connector	USB flash drive for data storage and software updates
GPS interface	for R&S®EVSG-K20 option	RS-232, 9-pin D-Sub connector
PPS input		SMA connector
	impedance	1 M Ω (nom.)
Trigger input		BNC connector
	impedance	1 M Ω (nom.)
	trigger level	3.3 V to 12 V (nom.)
LF/BB input		BNC connector
Baseband/low IF	input ranges	–5 V to +5 V (10 V (V_{pp}))
		–1 V to +1 V (2 V (V_{pp}))
	impedance	20 k Ω (nom.)
	coupling	AC/DC
	frequency range, AC coupling	10 Hz to 50 kHz
NDB	frequency range, DC coupling	DC to 50 kHz
	input range	20 dB μ V to 110 dB μ V (nom.) ¹
	impedance	50 Ω /20 k Ω selectable (nom.)
	coupling	AC
	frequency range	190 kHz to 1750 kHz
Demodulation output		BNC connector
	impedance	50 Ω (nom.)

General data

Display		16.4 cm/6.4" TFT color display
Resolution		640 × 480 pixel
Pixel failure rate		$< 1 \times 10^{-5}$
Antireflection		interference optical coated glass
Temperature range	without built-in R&S®EVSG-B3 battery	
	operating temperature range	−10 °C to +50 °C
	permissible temperature range	−10 °C to +55 °C
	storage temperature range	−30 °C to +70 °C
	with built-in R&S®EVSG-B3 battery	
	operating temperature range, discharge	−10 °C to +45 °C
	operating temperature range, charge	0 °C to +40 °C
Climatic loading	storage temperature range	−20 °C to +60 °C
	without condensation	+55 °C at 85 % rel. humidity, in line with EN 60068-2-30
Power supply		
AC supply		100 V to 240 V AC, 1.4 A, 50 Hz to 60 Hz
DC supply		10 V to 28 V, max. 3 A
Internal battery	R&S®EVSG-B3 battery	lithium-ion battery
Battery operating time	new, fully charged battery between +10 °C and +45 °C	6 h to 8 h
Charge time	R&S®EVSG1000 in standby mode	< 4 h (nom.)
Product conformity		
Electromagnetic compatibility	in line with EMC directive 2014/30/EU	applied standards: IEC EN 61326-1, EN 55011
Electrical safety	in line with EMC directive 2014/30/EU	in line with IEC 61010-1, EN 61010-1, UL 61010-1, CAN/CSA-C22.2 No. 61010-1
Test mark		cCSA _{US} , KC
Mechanical resistance		
Vibration	sinusoidal	5 Hz to 55 Hz displacement: 0.30 mm constant amplitude (1.8 g at 55 Hz); 55 Hz to 150 Hz acceleration: 0.5 g constant, in line with EN 60068-2-6
	random	8 Hz to 500 Hz, acceleration 1.2 g (RMS), in line with EN 60068-2-64
Shock		40 g shock spectrum, in line with MIL-STD-810 method no. 516.4, procedure I
Calibration interval	recommended for highest accuracy	12 months
	for general test and measurement applications	24 months
Material	R&S®EVSG-Z1	polyamide (nylon)
	R&S®EVSG-Z2	synthetic material
Dimensions (W × H × D)	R&S®EVSG1000	342 mm × 157 mm × 200 mm (13.46 in × 6.18 in × 7.87 in)
	R&S®EVSG-Z1	400 mm × 250 mm × 250 mm (15.75 in × 9.84 in × 9.84 in)
	R&S®EVSG-Z2	560 mm × 430 mm × 215 mm (22.04 in × 16.93 in × 8.46 in)
	R&S®EVS-Z3 (L × H)	3.05 m × 1.05 m (120.08 in × 41.34 in) (stand dimensions, extended/retracted)
	R&S®EVS-Z4	1200 mm × 300 mm × 80 mm (47.24 in × 11.81 in × 3.15 in)
	R&S®EVSG-Z6	350 mm × 165 mm × 51 mm (13.78 in × 6.50 in × 2.01 in)
	R&S®EVSG-Z7 (mounted on R&S®EVSG1000)	480 mm × 133 mm × 298 mm (18.90 in × 5.24 in × 11.73 in)

Weight	R&S®EVSG1000 with internal battery (R&S®EVSG-B2 and R&S®EVSG-B3)	5.1 kg (11.25 lb)
	R&S®EVSG-Z1	1.4 kg (3.09 lb)
	R&S®EVSG-Z2	7.2 kg (15.87 lb)
	R&S®EVS-Z3	2.5 kg (5.51 lb)
	R&S®EVS-Z4	2.5 kg (5.51 lb)
	R&S®EVSG-Z6	0.24 kg (0.53 lb)
	R&S®EVSG-Z7	1.2 kg (2.69 lb)

Ordering information

Designation	Type	Order No.
VHF/UHF airnav/com analyzer	R&S®EVSG1000	1329.8009.02
Accessories supplied		
External power supply (100 V to 240 V), getting started guide (English)		
Hardware options		
Second signal processing unit	R&S®EVSG-B1	1329.8809.02
Battery management	R&S®EVSG-B2	1329.8815.02
Battery pack (requires R&S®EVSG-B2)	R&S®EVSG-B3	1329.8821.02
Housing and monopod/antenna, factory fitted (retrofit not possible)	R&S®EVSG1-B4	1330.2000.02
Software options		
ILS CRS/CLR analysis	R&S®EVSG-K1	1329.9005.02
VOR analysis	R&S®EVSG-K2	1329.9011.02
MB analysis	R&S®EVSG-K3	1329.9028.02
GBAS mode	R&S®EVSG-K4	1329.9034.02
SCAT I mode	R&S®EVSG-K5	1329.9040.02
COM analysis	R&S®EVSG-K6	1329.9057.02
LF analysis	R&S®EVSG1-K7	1329.9163.02
RF spectrum analysis	R&S®EVSG-K10	1329.9063.02
AF spectrum analysis	R&S®EVSG-K11	1329.9070.02
AF time domain analysis	R&S®EVSG-K12	1329.9086.02
GPS support	R&S®EVSG-K20	1329.9092.02
Data recording	R&S®EVSG-K21	1329.9105.02
High measurement rate	R&S®EVSG-K22	1329.9111.02
Preselector	R&S®EVSG-K23	1329.9128.02
Power sensor support	R&S®EVSG-K24	1329.9134.02
I/Q data streaming (requires R&S®EVSG-K21)	R&S®EVSG1-K25	1329.9157.02
Recommended extras		
Soft bag	R&S®EVSG-Z1	1329.8909.02
Carrying vest holster	R&S®FPL1-Z3	1323.1683.02
Transport case	R&S®EVSG-Z2	1329.8915.02
Test antenna	R&S®EVS-Z3	5200.6577.02
Carrying bag for test antenna	R&S®EVS-Z4	5200.9999.00
Protective hard cover	R&S®EVS-Z6	5201.7760.00
19" adapter	R&S®EVSG-Z7	1329.8967.02
Spare external power supply (100 V to 240 V)	R&S®EVSG1-Z8	1330.0289.02
Verification test software	R&S®EVSG1-Z11	1329.8921.02
Documentation of calibration values	R&S®DCV-2	0240.2193.10

Warranty		
Base unit		3 years
All other items ³		1 year
Service options		
Extended warranty, one year	R&S®WE1	Contact your local Rohde & Schwarz sales office for more information.
Extended warranty, two years	R&S®WE2	
Extended warranty with calibration coverage, one year	R&S®CW1	
Extended warranty with calibration coverage, two years	R&S®CW2	

Extended warranty with a term of one and two years (WE1 and WE2)

Repairs carried out during the contract term are free of charge ⁴. Necessary calibration and adjustments carried out during repairs are also covered.

Extended warranty with calibration coverage (CW1 and CW2)

Enhance your extended warranty by adding calibration coverage at a package price. This package ensures that your Rohde & Schwarz product is regularly calibrated, inspected and maintained during the term of the contract. It includes all repairs ⁴ and calibration at the recommended intervals as well as any calibration carried out during repairs or option upgrades.

³ For options installed, the remaining base unit warranty applies if longer than 1 year. Exception: all batteries have a 1 year warranty.

⁴ Excluding defects caused by incorrect operation or handling and force majeure. Wear-and-tear parts are not included.

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