

R&S® EVSG1000 VHF/UHF AIRNAV/COM ANALYZER

Specifications

3
year
warranty



Data Sheet
Version 05.00

ROHDE & SCHWARZ

Make ideas real



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Definitions

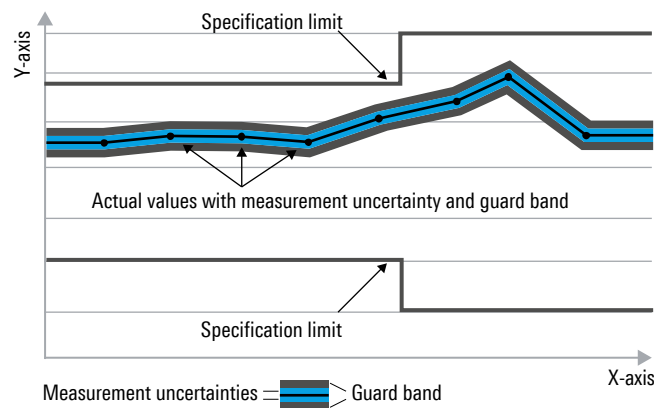
General

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/3GPP2 standard, chip rates are specified in million chips per second (Mcps), whereas bit rates and symbol rates are specified in billion bits per second (Gbps), million bits per second (Mbps), thousand bits 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, $f_{1/2} = 100.1/104.1$ 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 %, 90/150 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 %, 90/150 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 | 90/150 Hz ± 5 Hz | ≤ 0.05 Hz (nom.) |
| | 1020 Hz ± 50 Hz | ≤ 1.0 Hz (nom.) |
| Phase angle 90/150 Hz | | ≤ 0.2° (nom.) |
| Phase angle 90/90 Hz, 150/150 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 | 90/150 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 %, 30/9960 Hz ± 2 % voice/identifier | ≤ 0.5 % ≤ 1.0 % (nom.) |
| AF frequency measurement uncertainty | 30 Hz ± 3 Hz 1020 Hz ± 50 Hz 9960 Hz ± 100 Hz | ≤ 0.03 Hz (nom.) ≤ 1.0 Hz (nom.) ≤ 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 %, 30/9960 Hz ± 2 % voice/identifier | ≤ 1.0 % ≤ 2.0 % (nom.) |
| AF frequency measurement uncertainty | 30 Hz ± 3 Hz 1020 Hz ± 50 Hz 9960 Hz ± 100 Hz | ≤ 0.5 Hz (nom.) ≤ 5.0 Hz (nom.) ≤ 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 | | 16.8/25 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 | | <ul style="list-style-type: none"> 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 | <ul style="list-style-type: none"> 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 | | <ul style="list-style-type: none"> 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 |
| IQ data recording (requires R&S®EVSG1-K25) | AF mode | I only |
| | low IF mode | I and Q |

| VOR signal analysis (R&S®EVSG1-K2 required) | | |
|---|---|--|
| Level display | | RMS input voltage peak modulation voltage (V_p) |
| Spectrum preview | frequency axis | 0 kHz to 24 kHz |
| | level axis | 0 to 1 V/0 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) |
| IQ data recording (requires R&S®EVSG1-K25) | 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 %, 400/1020 Hz \pm 2 % | \leq 1 % (nom.) |
| AF frequency measurement uncertainty | 400/1020 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, IQ 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) |
| IQ data recording (requires R&S®EVSG1-K25) | | 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 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 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 |
| | frequency range, DC coupling | DC to 50 kHz |
| NDB | 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 |
| | storage temperature range | -20 °C to +60 °C |
| Climatic loading | 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 | EU: in line with RED Directive 2014/53/EU | applied standards: IEC EN 61326-1, EN 55011 |
| Electrical safety | EU: in line with RED Directive 2014/53/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 | 10 Hz to 300 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 |
| 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 | Please contact your local Rohde & Schwarz sales office. |
| 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 accredited calibration coverage, one year | R&S®AW1 | |
| Extended warranty with accredited calibration coverage, two years | R&S®AW2 | |

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.

Extended warranty with accredited calibration (AW1 and AW2)

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

³ For options that are 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.

Service that adds value

- ▶ Worldwide
- ▶ Local and personalized
- ▶ Customized and flexible
- ▶ Uncompromising quality
- ▶ Long-term dependability

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The Rohde&Schwarz technology group is among the trailblazers when it comes to paving the way for a safer and connected world with its leading solutions in test & measurement, technology systems, and networks & cybersecurity. Founded more than 85 years ago, the group is a reliable partner for industry and government customers around the globe. The independent company is headquartered in Munich, Germany and has an extensive sales and service network with locations in more than 70 countries.

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Sustainable product design

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- ▶ Energy efficiency and low emissions
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ISO 9001

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www.rohde-schwarz.com/support

