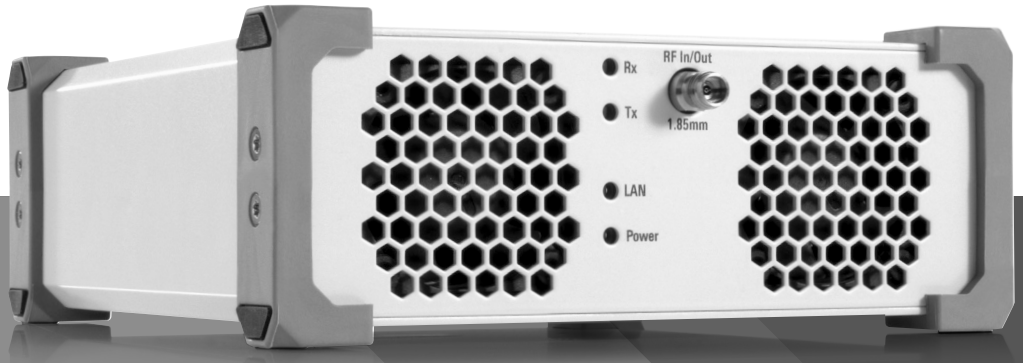
R&S®FE44S
EXTERNAL FRONTEND
24 GHz to 44 GHz

Specifications



Specifications
Version 08.00

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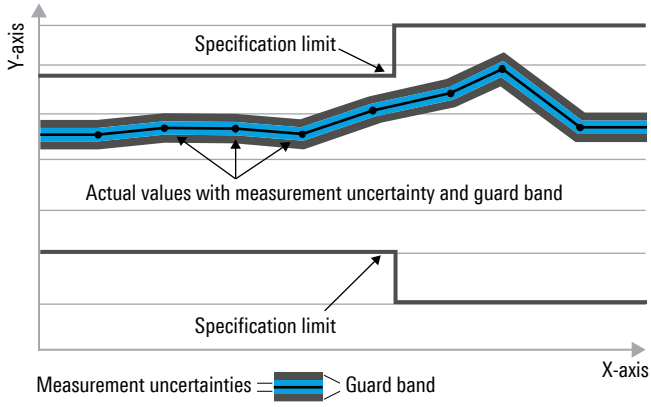
Definitions

General
Product data applies under the following conditions:

- Three hours of storage at ambient temperature followed by 30 minutes of 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 <, ≤, >, ≥, ± 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 for RX and TX mode

Frequency

RF frequency range	R&S®FE44S	24 GHz to 44 GHz

Reference frequency
This item is specified in the specifications of the base unit which is used as input for the R&S®FE44S reference frequency.

LO source		
Mode	internal	internal synthesizer
	external	external signal generator or LO output of a further R&S®FE44S

Setting times		
Frequency change	≤ 10 MHz	< 10 ms (nom.)
	> 10 MHz	< 30 ms (nom.)

Specifications for RX mode

Unless otherwise noted, all specifications in this section are valid for:

- R&S®FE44S, in combination with FSW, R&S®FSVA3000 or R&S®FSV3000 base unit (see Options needed for the base unit)
- 640 MHz reference signal from FSW, R&S®FSVA3000 or R&S®FSV3000 base unit, LO mode internal
- +12 V power supply (see Accessories supplied)
- IF cable, SMA, length: 1 m (see Accessories supplied)
- Temperature range from +20 °C to +30 °C

Analysis bandwidth

Maximum signal analysis bandwidth (equalized)		
With FSW	base unit	28 MHz
	with R&S®FSW-B320 option	320 MHz
	with R&S®FSW-B512 option	512 MHz
	with R&S®FSW-B1200/-B2001/-B800R/ -B4001/-B6001/-B8001 options	1 GHz
With R&S®FSVA3000 and R&S®FSV3000	base unit	28 MHz
	with R&S®FSV3-B200 option	200 MHz
With R&S®FSVA3000	with R&S®FSV3-B400 option	400 MHz
	with R&S®FSV3-B1000 option	1 GHz
With R&S®RTP	with R&S®RTP-K11 and R&S®RTP-K121 options	1 GHz

Level

Setting range of RF attenuator		0 dB to 31 dB, in 1 dB steps

Maximum safe input level		
RF power	f > 100 MHz	
	RF attenuation = 0 dB	+12 dBm
	RF attenuation ≥ 13 dB	+25 dBm
	10 kHz ≤ f ≤ 100 MHz	0 dBm
	f < 10 kHz	does not apply
DC voltage		0 V

Intermodulation		
1 dB compression of input amplifier	RF attenuation = 0 dB	
	24 GHz ≤ f_{in} ≤ 44 GHz	> –7 dBm (nom.)
Third order intercept point (TOI)	RF attenuation = 0 dB, every tone 5 dB under reference level, Δf = 500 kHz, analysis bandwidth = 10 MHz, IF mode: auto	
	24 GHz ≤ f_{in} ≤ 33 GHz	> +1 dBm
	33 GHz < f_{in} ≤ 40 GHz	> +5 dBm
	40 GHz < f_{in} ≤ 44 GHz	> +5 dBm (meas.)

Sensitivity

All noise level data in this section not marked as typical (typ.) or nominal (nom.) are specified values whose compliance is ensured by testing.

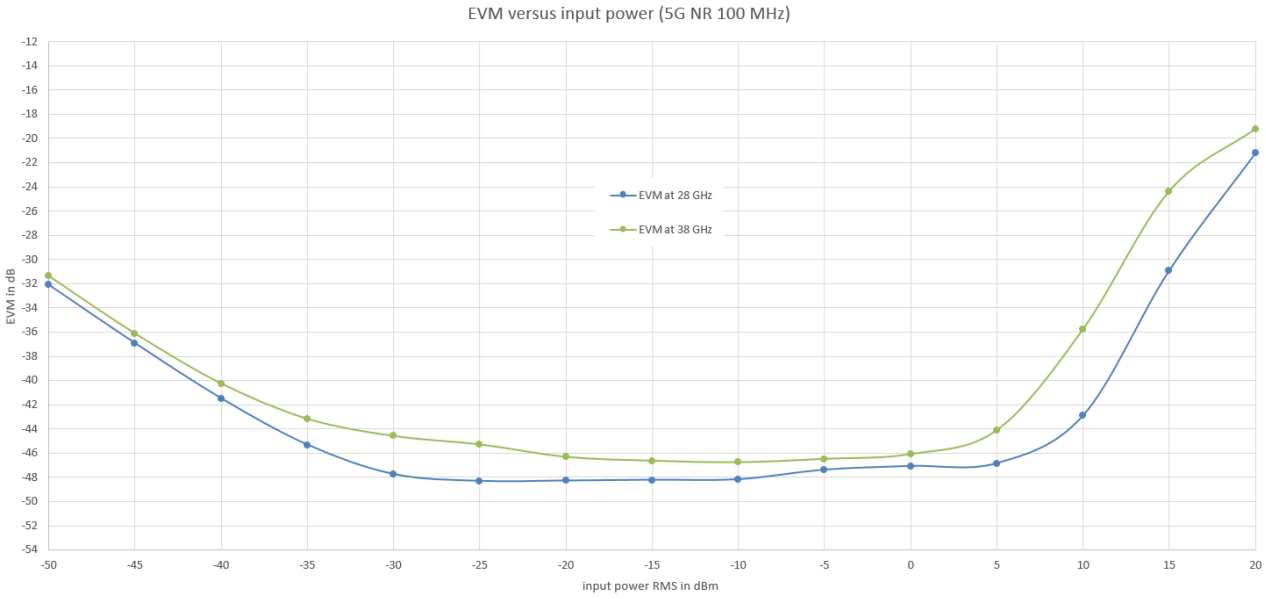
Displayed average noise level		
	RF attenuation = 0 dB, termination = 50 Ω, log. scaling, normalized to 1 Hz RBW, RBW = 1 kHz, trace average = 50, IF cable loss < 1 dB at I/Q analyzer center frequency, analysis bandwidth = 10 MHz	
	24 GHz ≤ f ≤ 30 GHz	–157 dBm, –160 dBm (typ.)
	30 GHz < f ≤ 40 GHz	–154 dBm, –157 dBm (typ.)
	40 GHz < f ≤ 44 GHz	–150 dBm, –153 dBm (typ.)

Level measurement uncertainty

Level measurement uncertainty at center frequency	any RF attenuation, amplitude settings: auto	
	24 GHz ≤ f ≤ 30 GHz	< 1.5 dB (σ = 0.67 dB)
	30 GHz < f ≤ 40 GHz	< 1.7 dB (σ = 0.83 dB)
	40 GHz < f ≤ 44 GHz	< 2.0 dB (σ = 1.0 dB)
RF attenuator switching uncertainty	referenced to 10 dB attenuation, f_{center} = 28 GHz	
	0 dB to 24 dB	< 0.3 dB (σ = 0.07 dB)
	25 dB to 31 dB	< 0.5 dB (σ = 0.07 dB)
	referenced to 10 dB attenuation, f_{center} = 38 GHz	
	0 dB to 24 dB	< 0.4 dB (σ = 0.07 dB)
	25 dB to 31 dB	< 0.8 dB (σ = 0.07 dB)
Amplitude flatness	RF attenuation = 10 dB, amplitude settings: auto	
	analysis bandwidth ≤ 200 MHz	
	24 GHz ≤ f_{center} ≤ 36 GHz	±1.4 dB (nom.)
	36 GHz < f_{center} ≤ 44 GHz	±1.8 dB (nom.)
	analysis bandwidth ≤ 400 MHz	
	24 GHz ≤ f_{center} ≤ 36 GHz	±1.5 dB (nom.)
	36 GHz < f_{center} ≤ 44 GHz	±2.0 dB (nom.)
	analysis bandwidth ≤ 1 GHz	
	24.3 GHz ≤ f_{center} ≤ 36 GHz	±1.8 dB (nom.)
	36 GHz < f_{center} ≤ 44 GHz	±2.3 dB (nom.)
Deviation from linear phase	RF attenuation = 10 dB, amplitude settings: auto	
	analysis bandwidth ≤ 400 MHz	
	24 GHz ≤ f_{center} ≤ 44 GHz	±10° (nom.)
	analysis bandwidth ≤ 1 GHz	
	24.3 GHz ≤ f_{center} ≤ 44 GHz	±13° (nom.)

Signal performance for digital standards

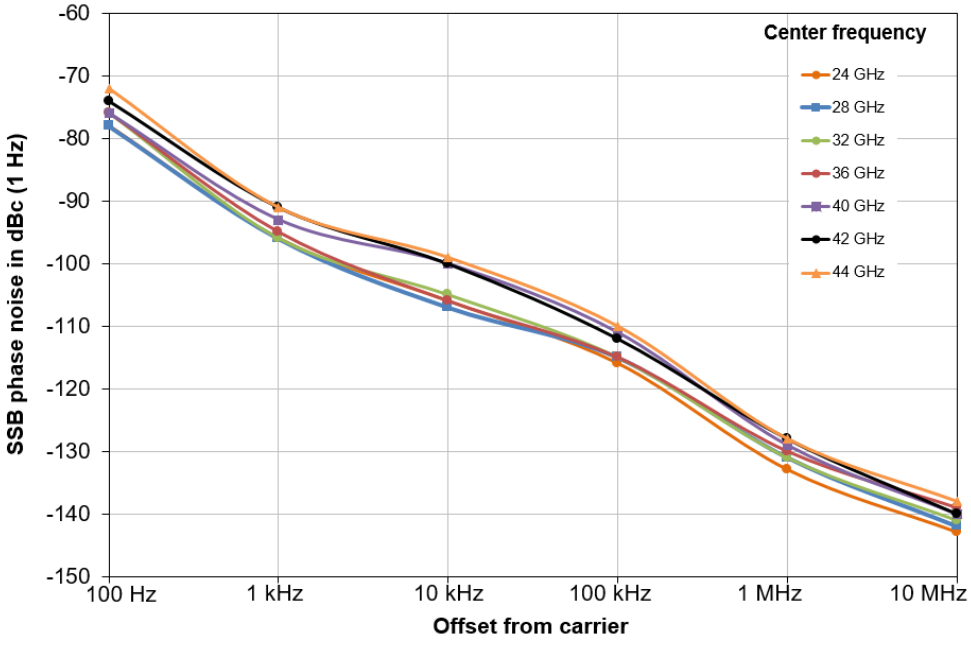
Residual EVM	5G NR signal, channel bandwidth: 100 MHz, full allocation, SCS: 60 kHz, modulation: 4QPSK, IF mode: low	
	27.5 GHz ≤ f_{in} ≤ 29.5 GHz	
	–37 dBm ≤ P_{in} (RMS) ≤ +7 dBm	< –44 dB (meas.)
	–41 dBm ≤ P_{in} (RMS) ≤ +11 dBm	< –40 dB (meas.)
	37.0 GHz ≤ f_{in} ≤ 39.0 GHz	
	–32 dBm ≤ P_{in} (RMS) ≤ +4 dBm	< –44 dB (meas.)
	–37 dBm ≤ P_{in} (RMS) ≤ +6 dBm	< –40 dB (meas.)



EVM values versus input power at different center frequencies in combination with an R&S®FSVA3000 (IF mode: low)

Spectral purity

Image response	f_{in} = f – 2 × (first IF), input level ≤ –10 dBm	
	IF mode: low, 4.1 GHz < (first IF) < 5.5 GHz	
	24 GHz ≤ f ≤ 31 GHz	< –70 dBc
	31 GHz < f ≤ 34 GHz	< –50 dBc
	34 GHz < f ≤ 44 GHz	< –45 dBc
	IF mode: high, 7.5 GHz < (first IF) < 9.2 GHz	
	24 GHz ≤ f ≤ 34 GHz	< –70 dBc
	34 GHz < f ≤ 44 GHz	< –50 dBc
	f = receive frequency	
Intermediate frequency response	input level ≤ –10 dBm	
	24 GHz ≤ f ≤ 44 GHz	< –70 dBc
	f = receive frequency	
Residual spurious response	RF attenuation = 0 dB, RF input termination = 50 Ω, analysis bandwidth ≤ 100 MHz	
	24 GHz ≤ f ≤ 44 GHz	< –100 dBm (nom.)
	f = receive frequency	
SSB phase noise	RF center frequency = 28 GHz, IF mode: low, measured with an R&S®FSVA3000 and R&S®FSV3-K40 phase noise measurement option on the used IF carrier offset	
	100 Hz	< –68 dBc (1 Hz)
	1 kHz	< –90 dBc (1 Hz)
	10 kHz	< –102 dBc (1 Hz)
	100 kHz	< –110 dBc (1 Hz)
	1 MHz	< –126 dBc (1 Hz)
	10 MHz	–137 dBc (1 Hz) (nom.)



Typical single side band phase noise at different center frequencies in combination with an R&S®FSVA3000 (IF mode: low)

Specifications for TX mode

Unless otherwise noted, all specifications in this section are valid for:

- R&S®FE44S in combination with R&S®SMW200A or R&S®SMM100A base unit (see Options needed for the base unit)
- 1 GHz reference signal from R&S®SMW200A or R&S®SMM100A base unit
- +12 V power supply (see Accessories supplied)
- IF cable, SMA, length: 1 m (see Accessories supplied)
- Temperature range from +20 °C to +30 °C

Modulation bandwidth

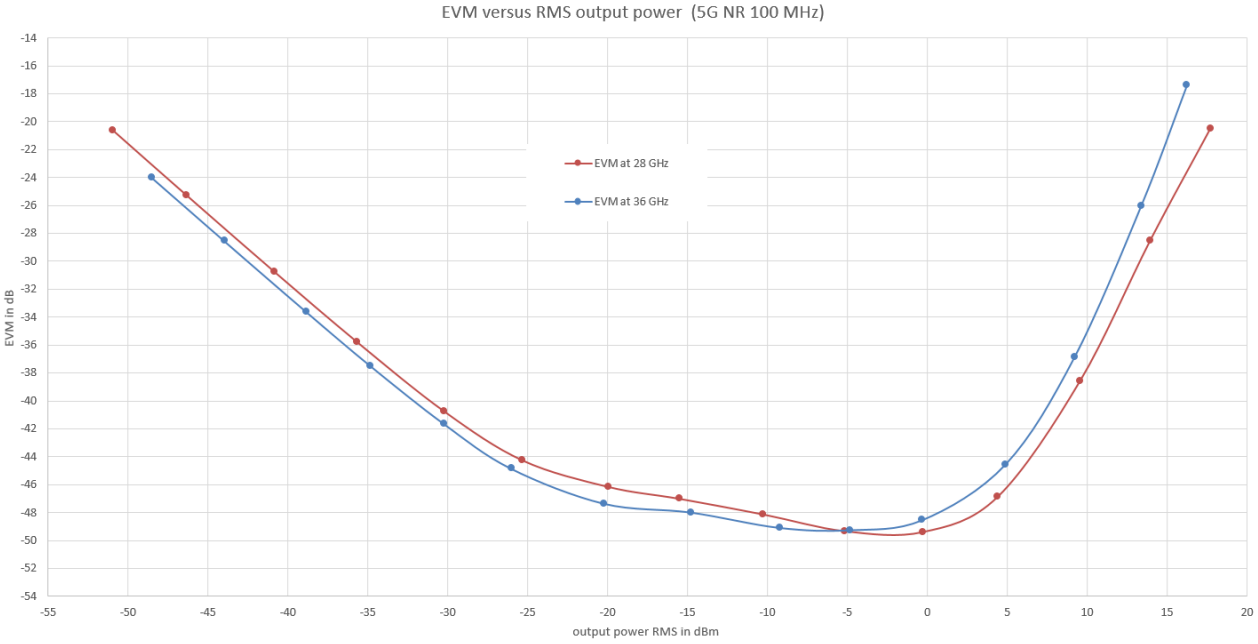
Maximum signal modulation bandwidth (equalized)	with R&S®SMW200A or R&S®SMM100A, depends on the installed bandwidth extensions of the used base instrument	max. 1 GHz

Level

Setting range		–145 dBm to +30 dBm
Specified level range	CW or I/Q modulated signals	
	24 GHz ≤ f_{out} ≤ 36 GHz	–50 dBm to +14 dBm (PEP)
	36 GHz < f_{out} ≤ 44 GHz	–50 dBm to +6 dBm (PEP)
Resolution of setting		0.1 dB (nom.)
Setting range of RF attenuator		0 dB to 31 dB, in 1 dB steps
Level error	CW signal, amplitude settings: auto, level range –30 dBm to 0 dBm	
	24 GHz ≤ f_{out} ≤ 28.5 GHz	< 1.5 dB
	28.5 GHz < f_{out} ≤ 40 GHz	< 1.7 dB
	40 GHz < f_{out} ≤ 44 GHz	< 2.0 dB
	I/Q modulated signal, level range –30 dBm to 0 dBm	
	24 GHz ≤ f_{out} ≤ 44 GHz	add 0.4 dB
	for any other level setting	
	24 GHz ≤ f_{out} ≤ 44 GHz	add 0.2 dB (nom.)
Amplitude flatness	with internal baseband I/Q (R&S®SMW-B13XT wideband baseband main module option), optimization mode: high quality	
	modulation bandwidth ≤ 200 MHz	
	24 GHz ≤ f_{out} ≤ 28.5 GHz	±1.2 dB (nom.)
	28.5 GHz < f_{out} ≤ 44 GHz	±1.7 dB (nom.)
	modulation bandwidth ≤ 400 MHz	
	24.2 GHz ≤ f_{out} ≤ 28.5 GHz	±1.5 dB (nom.)
	28.5 GHz < f_{out} ≤ 44 GHz	±2.0 dB (nom.)
	modulation bandwidth ≤ 1 GHz	
	24.5 GHz ≤ f_{out} ≤ 28.5 GHz	±1.8 dB (nom.)
	28.5 GHz < f_{out} ≤ 44 GHz	±2.3 dB (nom.)
Maximum rated reverse power	f > 100 MHz	+25 dBm
	10 kHz ≤ f ≤ 100 MHz	0 dBm
	f < 10 kHz	does not apply
Maximum permissible DC voltage		0 V

Signal performance for digital standards

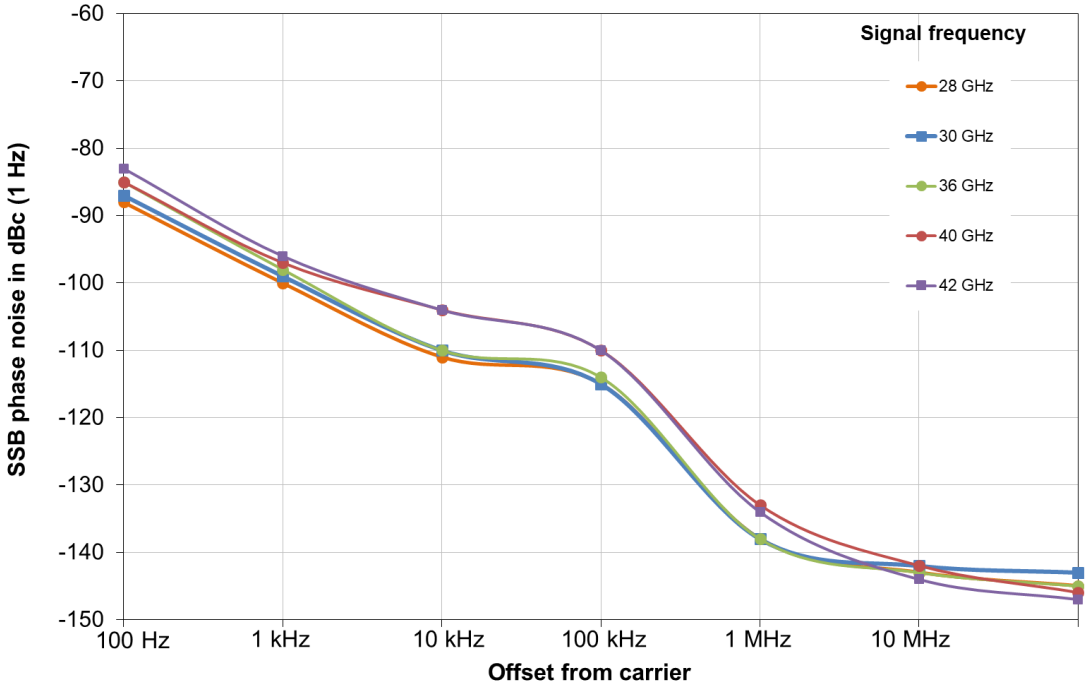
Residual EVM	5G NR signal, channel bandwidth: 100 MHz, full allocation, SCS: 60 kHz, modulation: 4QPSK, IF mode: low	
	27.5 GHz ≤ f_{out} ≤ 29.5 GHz	
	–25 dBm ≤ P_{out} (RMS) ≤ +5 dBm	< –44 dB (meas.)
	–30 dBm ≤ P_{out} (RMS) ≤ +7 dBm	< –40 dB (meas.)
	36.0 GHz ≤ f_{out} ≤ 38.0 GHz	
	–23 dBm ≤ P_{out} (RMS) ≤ +3 dBm	< –44 dB (meas.)
	–30 dBm ≤ P_{out} (RMS) ≤ +6 dBm	< –40 dB (meas.)



EVM values versus output power at different center frequencies in combination with an R&S®SMW200A (IF mode: low)

Spectral purity

Image suppression	–10 dBm CW output signal	
	IF mode: low	
	24 GHz ≤ f_{out} ≤ 40 GHz	< –55 dBc (nom.)
	40 GHz < f_{out} ≤ 44 GHz	< –50 dBc (nom.)
	IF mode: high	
	24 GHz ≤ f_{out} ≤ 30 GHz	< –45 dBc (nom.)
	30 GHz < f_{out} ≤ 41 GHz	< –55 dBc (nom.)
	41 GHz < f_{out} ≤ 44 GHz	< –50 dBc (nom.)
Wideband noise	–10 dBm CW output signal, IF mode: low, carrier offset 1 GHz, measurement bandwidth = 1 Hz	
	24 GHz ≤ f_{out} ≤ 40 GHz	< –144 dBc (meas.)
	40 GHz < f_{out} ≤ 44 GHz	< –140 dBc (meas.)
LO suppression	–10 dBm CW output signal	
	24 GHz ≤ f_{out} ≤ 44 GHz	< –30 dBc (nom.)
Harmonics, subharmonics and other mixing products of the RF and LO signals	–10 dBm CW output signal, within modulation bandwidth	
	24 GHz ≤ f_{out} ≤ 44 GHz	< –70 dBc (meas.)
	–10 dBm CW output signal, observed frequency range from 0 Hz to 44 GHz	
	IF mode: low	
	24 GHz ≤ f_{out} ≤ 27.5 GHz	< –45 dBc (meas.)
	27.5 GHz < f_{out} ≤ 44 GHz	< –60 dBc (meas.)
	IF mode: high	
	24 GHz ≤ f_{out} ≤ 44 GHz	< –60 dBc (meas.)



Typical single side band phase noise at different center frequencies in combination with an R&S®SMW200A

Inputs and outputs

RF input/output		
Connector		1.85 mm female (compatible with 2.4 mm)
Impedance		50 Ω
VSWR RX, mode: active	RF attenuation = 5 dB	
	24 GHz ≤ f ≤ 44 GHz	< 2.5, 1.8 [1] (typ.)
	RF attenuation = 10 dB, 20 dB and 30 dB	
	24 GHz ≤ f ≤ 44 GHz	< 2.4, 1.8 [1] (typ.)
VSWR TX, mode: active	RF attenuation auto, 0 dBm CW output power, RF off	
	24 GHz ≤ f ≤ 44 GHz	2.5 (typ.)

IF output		
Connector		SMA female
Impedance		50 Ω (nom.)
Output frequency range	IF mode: low	
	depends on RF frequency	4.1 GHz to 5.5 GHz
	IF mode: high	
	depends on RF frequency	7.5 GHz to 9.2 GHz
Level		–40 dBm to 0 dBm

IF input		
Connector		SMA female
Impedance		50 Ω (nom.)
Input frequency range	IF mode: low	
	depends on RF frequency	4.1 GHz to 5.5 GHz
	IF mode: high	
	depends on RF frequency	7.5 GHz to 9.2 GHz
Level		–40 dBm to +10 dBm

Reference input 10 MHz, 640 MHz, 1 GHz		
Connector		SMA female
Impedance		50 Ω (nom.)
Input frequency range		10 MHz, 640 MHz, 1 GHz
Required level		0 dBm to +20 dBm

LO input		
Connector		SMA female
Impedance		50 Ω (nom.)
Input frequency		8 GHz to 16.4 GHz
Level		+5 dBm to +20 dBm

LO output		
Connector		SMA female
Impedance		50 Ω (nom.)
Output frequency		8 GHz to 16.4 GHz
Level		+5 dBm to +20 dBm

Power supply		
Connector		2-pin LEMOSA
Supply voltage		+12 V DC, max. 2.5 A (nom.)

LAN interface		10BASE-T/100BASE-T
Connector		RJ-45 jack
PoE support		PoE++ (max. 52 W)

USB interface	for service use only	1 port, type B plug, version 2.0

[1] Typical VSWR performance: Performance expected to be met in 95 % of the cases with a confidence level of 95 %, temperature range from +20 °C to +30 °C. These values are not warranted and are subject to modification if a significant change in the statistical behavior of production instruments is observed.

General data

Temperature		
Temperature range	operating	+5 °C to +40 °C
	storage	–40 °C to +70 °C
Climatic loading		+40 °C at 95 % relative humidity, in line with EN 60068-2-30, without condensation

Altitude		
Maximum operating altitude	above sea level	4600 m (approx. 15100 ft)

Mechanical resistance		
Vibration	sinusoidal	5 Hz to 55 Hz, displacement: 0.3 mm, constant amplitude (1.8 g at 55 Hz), in line with EN 60068-2-6
		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-810G, method 516.6, procedure I

EMC		
		• IEC/EN 61326-1 [2, 3] • IEC/EN 61326-2-1 • CISPR 11/EN 55011 [2]

EU legislation	for details, see user documentation	EU: in line with Data Act – Regulation (EU) 2023/2854

Recommended calibration interval		1 year

External power supply		
DC output voltage range		+12 V
Maximum output current		5 A
Power consumption		max. 60 W
Safety		in line with IEC/UL/EN 61010-1
Test marks		KC, CE

Dimensions and weight		
Dimensions (nom.)	W × H × D (overall)	150 mm × 57 mm × 175 mm (5.90 in × 2.24 in × 6.88 in)
Net weight (nom.)		1.22 kg (2.69 lb)

[2] Emission limits for class A equipment apply.

[3] Immunity test requirement for industrial environment (EN 61326 table 2).

Ordering information

Designation	Type	Order No.
External frontend 24 GHz to 44 GHz	R&S®FE44S	1338.7001.02
Accessories supplied		
+12 V power supply, two IF cables (SMA, length: 1 m), reference cable (SMA, length: 2 m)		

Recommended extras

Designation	Type	Order No.
IF cable	R&S®ZV-Z193	1306.4520.36
Torque wrench, for 3.5/2.92/2.4/1.85 mm connectors, 0.9 Nm coupling torque	R&S®ZN-ZTW	1328.8534.35
Height adjustment, for external frontends	R&S®ZZA-FE02	1348.6550.02
LANCOM PoE++ injector (compatible with IEEE 802.3af/at/bt; up to 100 m distance)		4044144617799 (LANCOM order number)

Supported base instruments

Designation	Type	Order No.
Signal and spectrum analyzers		
FSW		
Signal and spectrum analyzer, 2 Hz to 8 GHz	R&S®FSW8	1331.5003.08
Signal and spectrum analyzer, 2 Hz to 13.6 GHz	R&S®FSW13	1331.5003.13
Signal and spectrum analyzer, 2 Hz to 26.5 GHz	R&S®FSW26	1331.5003.26
Signal and spectrum analyzer, 2 Hz to 43.5 GHz	R&S®FSW43	1331.5003.43
Signal and spectrum analyzer, 2 Hz to 50 GHz	R&S®FSW50	1331.5003.50
Signal and spectrum analyzer, 2 Hz to 67 GHz	R&S®FSW67	1331.5003.67
Signal and spectrum analyzer, 2 Hz to 85 GHz	R&S®FSW85	1331.5003.85
R&S®FSVA3000, R&S®FSV3000		
Signal and spectrum analyzer, 10 Hz to 7.5 GHz	R&S®FSVA3007	1331.5003.08
Signal and spectrum analyzer, 10 Hz to 13.6 GHz	R&S®FSVA3013	1331.5003.14
Signal and spectrum analyzer, 10 Hz to 30 GHz	R&S®FSVA3030	1331.5003.31
Signal and spectrum analyzer, 10 Hz to 44 GHz	R&S®FSVA3044	1331.5003.44
Signal and spectrum analyzer, 10 Hz to 7.5 GHz	R&S®FSV3007	1330.5000.07
Signal and spectrum analyzer, 10 Hz to 13.6 GHz	R&S®FSV3013	1330.5000.13
Signal and spectrum analyzer, 10 Hz to 30 GHz	R&S®FSV3030	1330.5000.30
Signal and spectrum analyzer, 10 Hz to 44 GHz	R&S®FSV3044	1330.5000.43
R&S®FSWT		
Test receiver, 10 Hz to 26.5 GHz	R&S®FSWT26	1313.7008.26
Vector signal generators		
Vector signal generator	R&S®SMW200A	1412.0000.02
Vector signal generator	R&S®SMM100A	1440.8002.02
Oscilloscopes		
R&S®RTP		
Oscilloscope, 8 GHz, 100 Mpoints memory	R&S®RTP084B	1803.7000.08
Oscilloscope, 13 GHz, 100 Mpoints memory	R&S®RTP134B	1803.7000.13
Oscilloscope, 16 GHz, 100 Mpoints memory	R&S®RTP164B	1803.7000.16

Options needed for the base unit

Designation	Type	Order No.
Signal and spectrum analyzers		
External frontend control, for FSW	R&S®FSW-K553	1350.6118.02
External frontend control, for R&S®FSVA3000/R&S®FSV3000	R&S®FSV3-K553	1346.4889.02
External frontend control, for R&S®FSWT	R&S®FSWT-K553	1353.3449.02
Vector signal generators		
Minimum needed frequency extension, for R&S®SMW200A	R&S®SMW-B1006	1428.4800.02
External frontend control, for R&S®SMW200A	R&S®SMW-K553	1414.6758.02
Minimum needed frequency extension, for R&S®SMM100A	R&S®SMM-B1006	1440.9009.02
External frontend control, for R&S®SMM100A	R&S®SMM-K553	1441.1147.02
Oscilloscopes		
External frontend control	R&S®RTP-K553	1803.6890.02
I/Q software interface	R&S®RTP-K11	1800.6683.02
Deembedding base option	R&S®RTP-K121	1326.3064.02

Supported applications with FSW

Designation	Type	Order No.
Pulse measurements	R&S®FSW-K6	1313.1322.02
Amplifier measurements	R&S®FSW-K18	1325.2170.02
Noise figure measurements	R&S®FSW-K30	1313.1380.02
Transient measurement application	R&S®FSW-K60	1313.7495.02
Vector signal analysis	R&S®FSW-K70	1313.1416.02
WLAN 802.11ad measurements	R&S®FSW-K95	1313.1639.02
OFDM signal analysis	R&S®FSW-K96	1313.1539.02
WLAN 802.11ay measurements	R&S®FSW-K97	1338.4902.02
5G NR Rel. 15 downlink measurements	R&S®FSW-K144	1338.3606.02
5G NR Rel. 15 uplink measurements	R&S®FSW-K145	1338.3612.02

Supported applications with R&S®FSV(A)3000

Designation	Type	Order No.
Pulse measurements	R&S®FSV3-K6	1346.3330.02
Amplifier measurements	R&S®FSV3-K18	1346.3347.02
Noise figure measurements	R&S®FSV3-K30	1330.5045.02
Transient measurements	R&S®FSV3-K60	1346.4350.02
Vector signal analysis	R&S®FSV3-K70	1330.5074.02
OFDM signal analysis	R&S®FSV3-K96	1346.6469.02
5G NR Rel. 15 downlink measurements	R&S®FSV3-K144	1330.7219.02
5G NR Rel. 15 uplink measurements	R&S®FSV3-K145	1330.7225.02

Supported applications with R&S®FSWT

Designation	Type	Order No.
Video rastering	R&S®FSWT-K57	1338.4725.02
Vector signal analysis	R&S®FSWT-K70	1338.7560.02
OFDM vector signal analysis	R&S®FSWT-K96	1338.7576.02

Warranty and service

Warranty		
Base unit		1 year
All other items		1 year
Service options		
	Service plans	**On demand**
Calibration	up to five years [4]	pay per calibration
Warranty and repair	up to five years [4]	standard price repair
Contact your Rohde & Schwarz sales office for further details.		

[4] For extended periods, contact your Rohde & Schwarz sales office.

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You're in great hands

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

Rohde&Schwarz

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 90 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

- ▶ Environmental compatibility and eco-footprint
- ▶ Energy efficiency and low emissions
- ▶ Longevity and optimized total cost of ownership

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ISO 9001

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ISO 14001

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R&S®FE44S External Frontend 24 GHz to 44 GHz
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