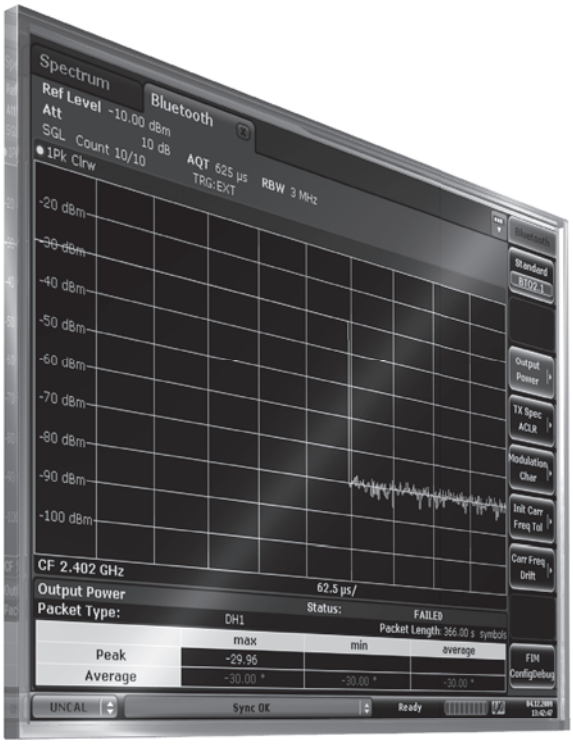
R&S®FSV-K8 Bluetooth®/EDR Measurement Application Specifications



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Test & Measurement

Data Sheet | 01.01

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The specifications of the R&S®FSV-K8 measurement application are based on the data sheet of the R&S®FSV signal and spectrum analyzer. They have not been checked separately and are not verified during instrument calibration. Measurement uncertainties are given as 95 % confidence intervals. The specified level measurement errors do not take into account systematic errors due to reduced signal-to-noise (S/N) ratio. Specifications apply under the following conditions: 30 minutes warm-up time at ambient temperature, frequency lower than 3 GHz, specified environmental conditions met, calibration cycle adhered to, and all internal automatic adjustments performed. "Typical values" are designated with the abbreviation "typ.". These values are verified during the final test but are not assured by Rohde & Schwarz. "Nominal values" are design parameters that are not assured by Rohde & Schwarz. These values are verified during product development but are not specifically tested during production. Data without tolerance limits is not binding.
Unless otherwise stated, specifications are indicated for default settings and for an RF input level from +30 dBm to –50 dBm in the Bluetooth® 2400 MHz to 2483.5 MHz ISM band.

R&S®FSV-K8 Bluetooth®/EDR measurement application

Frequency

Frequency range	R&S®FSV3	9 kHz to 3.6 GHz
	R&S®FSV7	9 kHz to 7 GHz
	R&S®FSV13	9 kHz to 13.6 GHz
	R&S®FSV30	9 kHz to 30 GHz
	R&S®FSV40	9 kHz to 40 GHz

Measurement parameters

Supported standards		Bluetooth® 2.1 – basic rate
		Bluetooth® 2.1 – EDR
Supported power classes		classes 1 to 3

Basic rate measurements

Output power		
Measurements		average and peak power in line with Bluetooth® RF test specification 2.1.E.0, 5.1.3
Level uncertainty		like the R&S®FSV (see R&S®FSV total measurement uncertainty)
Packet type		DH1, DH3, DH5
Synchronization		RF burst or access code
Trigger		IF power, external, free run, time
Modulation characteristics		
Measurements		average and peak power in line with Bluetooth® RF test specification 2.1.E.0, 5.1.9
Deviation range		±250 kHz
Deviation uncertainty	average value per packet, signal level > –30 dBm	< 3 kHz
Packet type		DH1, DH3, DH5
Payload		10101010 and 11110000, auto detection
Synchronization		access code
Trigger		IF power, external, free run, time
Initial carrier frequency tolerance (ICFT)		
Measurements		in line with Bluetooth® RF test specification 2.1.E.0, 5.1.10
Deviation range		±250 kHz
Uncertainty	signal level > –30 dBm	< 2 kHz + R&S®FSV frequency uncertainty (see R&S®FSV reference frequency)
Packet type		DH1
Synchronization		access code
Trigger		IF power, external, free run, time
Carrier frequency drift		
Measurements		in line with Bluetooth® RF test specification 2.1.E.0, 5.1.11
Deviation range		±250 kHz
Uncertainty	signal level > –30 dBm	< 2 kHz
Packet type		DH1, DH3, DH5
Payload		10101010
Synchronization		access code
Trigger		IF power, external, free run, time

Adjacent channel power (ACP)		
Measurements		adjacent channel power in line with Bluetooth® RF test specification 2.1.E.0, 5.1.8
Packet type		DH1, DH3, DH5
Synchronization		none
Trigger		IF power, external, free run, time

Enhanced data rate (EDR) measurements

Relative TX power		
Measurements		GFSK and DPSK power in line with Bluetooth® RF test specification 2.1.E.0, 5.1.12
Level uncertainty		like the R&S®FSV (see R&S®FSV total measurement uncertainty)
Packet type		2-DHx, 3-DHx, 2-EVx, 3-EVx
Synchronization		GFSK access code and DPSK synchronization sequence
Trigger		IF power, external, free run, time
Frequency stability		
Measurements		initial frequency error (ω_i), per block (ω_0) and total ($\omega_i + \omega_0$) in line with Bluetooth® RF test specification 2.1.E.0, 5.1.13
Measurement range		±250 kHz
Uncertainty	initial frequency error, signal level > –25 dBm	< 2 kHz + R&S®FSV frequency uncertainty (see R&S®FSV reference frequency)
	frequency error per block, signal level > –25 dBm	< 2 kHz
Packet type		2-DHx, 3-DHx, 2-EVx, 3-EVx
Synchronization		GFSK access code and DPSK synchronization sequence
Trigger		IF power, external, free run, time
Modulation accuracy		
Measurements		RMS, peak and 99 % DEVM RF in line with Bluetooth® RF test specification 2.1.E.0, 5.1.13
Uncertainty	DEVM (RMS), signal level > –25 dBm	< 0.02
	DEVM (peak), signal level > –25 dBm	< 0.05
Packet type		2-DHx, 3-DHx, 2-EVx, 3-EVx
Synchronization		GFSK access code and DPSK synchronization sequence
Trigger		IF power, external, free run, time
Differential phase encoding		
Measurements		bit error detection in line with Bluetooth® RF test specification 2.1.E.0, 5.1.14
Packet type		2-DHx, 3-DHx, 2-EVx, 3-EVx
Synchronization		GFSK access code and DPSK synchronization sequence
Trigger		IF power, external, free run, time
In-band spurious emissions		
Measurements		adjacent channel power and power between 1 MHz and 1.5 MHz from carrier in line with Bluetooth® RF test specification 2.1.E.0, 5.1.15
Packet type		2-DHx, 3-DHx, 2-EVx, 3-EVx
Synchronization		gated measurement
Trigger		IF power, external, free run, time

Ordering information

Designation	Type	Order No.
Bluetooth®/EDR Measurement Application	R&S®FSV-K8	1301.8155.02
Signal Analyzer, 9 kHz to 3.6 GHz	R&S®FSV3	1307.9002K03
Signal Analyzer, 9 kHz to 7 GHz	R&S®FSV7	1307.9002K07
Signal Analyzer, 9 kHz to 13.6 GHz	R&S®FSV13	1307.9002K13
Signal Analyzer, 9 kHz to 30 GHz	R&S®FSV30	1307.9002K30
Signal Analyzer, 9 kHz to 40 GHz	R&S®FSV40	1307.9002K40
Recommended options and extras	**see also the specifications for the R&S®FSV signal analyzer (PD 5214.0499.22)**	

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The product brochure containing further information is available under PD 5214.0499.12 and at www.rohde-schwarz.com.

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Environmental commitment

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- Continuous improvement in environmental sustainability
- ISO 14001-certified environmental management system

Certified Quality System
ISO 9001

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