R&S®FSV-K72
3G FDD BS Analysis
Specifications
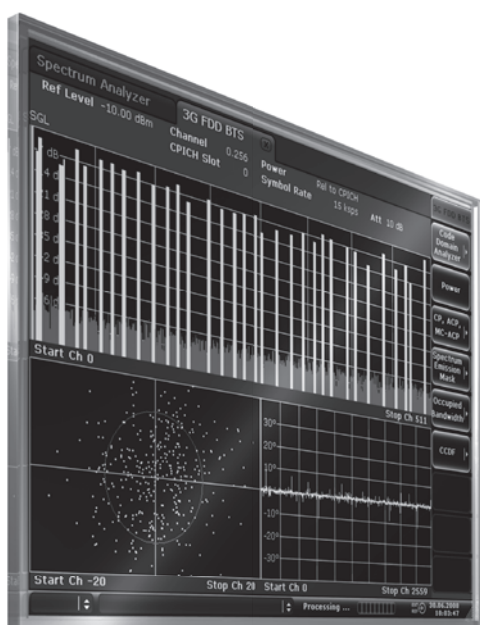
75 Years of Driving Innovation

ROHDE & SCHWARZ

CONTENTS

The specifications of the R&S®FSV-K72 application firmware for 3G FDD BS Analysis are based on the data sheet of the R&S®FSV signal analyzer. 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.

R&S®FSV-K72 3G FDD BS analysis

Frequency

Frequency range	R&S®FSV3	
	DC coupled	9 kHz to 3 GHz
	AC coupled	1 MHz to 3 GHz
	R&S®FSV7	
	DC coupled	9 kHz to 7 GHz
	AC coupled	1 MHz to 7 GHz

Level

Level range	RF input	−40 dBm to +30 dBm

Signal acquisition

Supported standards		3GPP TS 25.141 Supports HSDPA/HSUPA
Capture length		1 to 100 frames
Sweep time	spectrum mask, ACLR (adjacent channel leakage power ratio)	max. 16000 s, auto max. 16000 s
Sweep count		1 to 32767
Trigger modes	code domain analysis	free run, external
	RF-measurements	free run, external, if power

Measurement parameters

Link mode		down link (DL)
Modulation detection		automatic detection of QPSK, 16QAM and 64QAM
Predefined channel table	code domain analyzer	The predefined channel table allows the complete channel setup of the user signal for the code domain analyzer.
Spectrum emission mask	standard	in line with 3GPP
	user	spectrum emission mask measurement is performed according to either manual user setting or user specified XML file

Result diagrams

Result summary	global results:	total power, carrier frequency error, chip rate error, trigger to frame, IQ imbalance, IQ offset, Composite error vector magnitude, rho, average power of inactive channels, peak code domain error, average relative code domain error power of all channels with 64QAM, number of active channels.
	results for selected channel:	symbol rate, channel code, number of pilot bits, channel power relative, channel power absolute, relative code domain error power, timing offset of selected channel to CPICH, channel slot number, modulation type, symbol error vector magnitude
Code domain power		code domain power versus channel code domain error power versus channel
Peak code domain error		peak code domain error power versus slot
Channel table		numeric result table for all channels including the following readings per channel: Channel type, channel number, spreading factor, symbol rate, state, absolute power, relative power, timing offset, phase offset, number of pilot bits and TFCI symbols
Composite EVM (RMS)		averaged(RMS) EVM of selected frame versus slot
EVM versus chip		EVM of selected slot versus Chip
Magnitude error versus chip		magnitude error of selected slot versus chip
Phase error versus chip		phase error of selected slot versus chip
Composite constellation		constellation diagram for composite signal
Power versus slot		power versus slots of selected frame
Power versus symbol		power of selected channel and slot versus symbol
Symbol constellation		Constellation diagram for selected channel and slot
Symbol EVM		symbol EVM for selected channel and slot
Symbol magnitude error		magnitude error for selected channel and slot versus symbol
Symbol phase error		phase error of selected channel and slot versus symbol
Phase discontinuity versus slot		phase discontinuity of selected frame versus slot
Frequency error versus slot		frequency error of selected frame versus slot
Output power		integrated signal power over channel bandwidth
Adjacent channel power Multi carrier adjacent channel power		absolute and relative adjacent channel power.
Spectrum emission mask		spectrum mask limit check
		peak list evaluation
Occupied bandwidth		occupied bandwidth measured in frequency domain
CCDF		CCDF

Measurement specification (nominal)

CPICH power accuracy (test case 6.2.1)		
Level range of total power		-40 dBm to +30 dBm
Level range of CPICH		-40 dB to 0 dB
Level uncertainty (absolute power, P_{Total} > -20 dBm)	P_{CPICH} ≥ -30 dB	<0.5 dB
	P_{CPICH} ≥ -40 dB	<0.6 dB
Level uncertainty (relative power, P_{Total} > -20 dBm)	P_{CPICH} ≥ -10 dB	<0.015 dB
	P_{CPICH} ≥ -20 dB	<0.025 dB
	P_{CPICH} ≥ -30 dB	<0.075 dB
	P_{CPICH} ≥ -40 dB	<0.250 dB

Frequency error (test case 6.3)		
Measurement range	CPICH synchronous	±5 kHz
	SCH synchronous	±700 Hz
Measurement uncertainty		<5 Hz + Δf_{ref}

Spectrum emission mask (test case 6.5.2.1)		
Dynamic range	P_{Total} > -20 dBm	65 dB

Adjacent channel leakage power ratio (test case 6.5.2.2)		
Dynamic range	noise correction OFF	>68 dB
	noise correction ON	>74 dB

Composite EVM (test case 6.7.1)		
Measurement range		0.5 % to 25 %
Inherent EVM		<1 %
Measurement uncertainty	test models 1 to 4 P_{Total} > -40 dBm	<0.5 %

Peak code domain error power (PkCDEP, test case 6.7.2)		
Measurement range		0 dB to -60 dB
Inherent EVM		<-60 dB
Measurement uncertainty	-30 dB ≤ PkCDEP	<0.15 dB
	-40 dB ≤ PkCDEP < -30 dB	<0.4 dB
	-50 dB ≤ PkCDEP < -40 dB	<0.8 dB
	-60 dB ≤ PkCDEP < -50 dB	<2.5 dB

Ordering information

Designation	Type	Order No.
3G FDD BS Analysis	R&S®FSV-K72	1310.8503.02
Signal Analyzer 9 kHz to 3.6 GHz	R&S®FSV3	1307.9002.03
Signal Analyzer 9 kHz to 7 GHz	R&S®FSV7	1307.9002.07
Recommended options and extras	**see also specifications for the R&S®FSV signal analyzer (PD 5214.0499.22)**	

About Rohde & Schwarz

Rohde & Schwarz is an independent group of companies specializing in electronics. It is a leading supplier of solutions in the fields of test and measurement, broadcasting, radiomonitoring and radiolocation, as well as secure communications. Established 75 years ago, Rohde & Schwarz has a global presence and a dedicated service network in over 70 countries. Company headquarters are in Munich, Germany.

Regional contact

Europe, Africa, Middle East
+49 1805 12 42 42* or +49 89 4129 137 74
customersupport@rohde-schwarz.com
North America
1-888-TEST-RSA (1-888-837-8772)
customer.support@rsa.rohde-schwarz.com
Latin America
+1-410-910-7988
customersupport.la@rohde-schwarz.com
Asia/Pacific
+65 65 13 04 88
customersupport.asia@rohde-schwarz.com

Certified Quality System
ISO 9001
DQS REG. NO 1954 QM

Certified Environmental System
ISO 14001
DQS REG. NO 1954 UM

For product brochure,
see PD 5214.0499.12
and www.rohde-schwarz.com