

Explore what's possible

Test solutions for GSM/GPRS/EDGE

- EDGE
- HSPA
- LTE
- WiMAX



75 Years of
Driving
Innovation



GSM/GPRS/EDGE

New technical challenges

GSM is the most dominant 2G technology deployed worldwide. In 1990, it was originally developed to transmit voice, but was later enhanced with packet data capabilities by means of GPRS (General Packet Radio Services) to supporting all data services such as Internet browsing and SMS/MMS. In order to further increase the data transmission rate and to improve network capacity, EDGE (Enhanced Data for GSM Evolution) was introduced in 1998. EDGE applies 8-PSK modulation, which triples the effective data rate, and carries a peak data rate of 384 kbit/s in the downlink. The average data rate in commercially operated networks is in the range of 200 kbit/s.

Rohde&Schwarz offers a comprehensive GSM/EDGE test and measurement portfolio addressing the complete value chain from RF and baseband development to network deployment and efficient network optimization support. In 1999, the R&S®CMU200 radiocommunications tester was introduced and soon became a worldwide bestseller. It can be found today on countless production lines for mobile phones. In the course of time the R&S®CMU200 was repeatedly expanded with software options for GSM/EDGE expansions as well as with new technologies.

After almost 20 years of commercial operation, GSM/EDGE is still being enhanced in order to ensure the future competitiveness of the dominant second-generation technology and specifically to provide service continuity across the various radio technologies (2G/3G/LTE). The most recent improvements summarized in the EDGE Evolution family include downlink dual-carrier operation, EGPRS2, latency improvements, and the use of receiver diversity at the mobile station. EGPRS2 features higher-order modulation (16QAM, 32QAM) in combination with an optional higher

symbol rate and turbo coding. Depending on the features applied, peak data rates of up to 1.9 Mbit/s in the downlink and close to 1 Mbit/s in the uplink can be achieved, while realistic deployments will see 1 Mbit/s downlink and 500 kbit/s uplink.

Rohde&Schwarz already provides an integrated EGPRS2 test solution as software option based on its signal generator family such as the R&S®SMU200A. Drawing on long-standing experience gained from past GSM/EDGE product development, Rohde&Schwarz will continuously expand EDGE Evolution features on general-purpose equipment such as signal and spectrum analyzers, dedicated communications and protocol testers as well as complete conformance test systems.

Rohde&Schwarz is your single-source supplier for comprehensive test equipment covering any wireless standard. See brochures on CDMA2000® 1xRTT/1xEV-DO, HSPA, LTE, MIMO, WCDMA, WiMAX, Wireless Connectivity, etc.

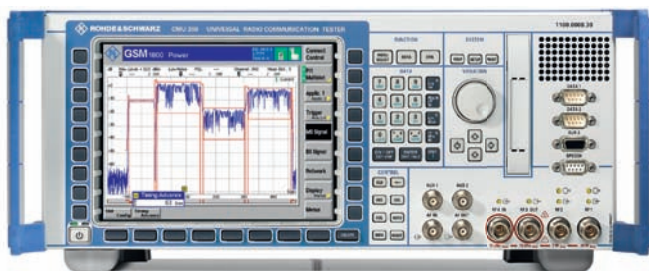
For further information, please visit:

www.rohde-schwarz.com/technologies

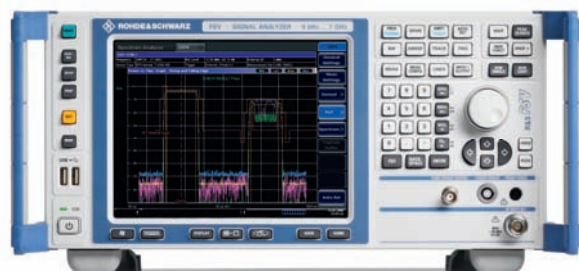
Application notes	
Description	Number
EDGE Evolution Technology Introduction	1MA129
Generating and Analyzing Downlink Signals for Evolved GSM/EDGE Radio Access Network	1MA116
GSM Measurements with the R&S®CMU200 and R&S®CMUgo	1CM57
Polar Modulation with R&S®SMU200A	1GP58
GSM/GPRS/EDGE Receiver Tests Under Fading Conditions with R&S®CMU and R&S®SMIQ/ABFS	1MA60
Hints for Fast and Accurate Testing of GSM/EDGE Mobile Phone Power Amplifiers	1MA66

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R&S®CMU200



R&S®FSV



Test and measurement solutions for GSM/GPRS/EDGE

Product	Development of RF & baseband	Development of protocol stack	Verification & conformance tests	Production & service	Network deployment & optimization
Wireless communications testers & systems					
R&S®CMU200 radio communication tester	●			●	
R&S®CMU300 radio communication tester for base stations	●			●	
R&S®CRTU protocol testers		●	●		
R&S®TS8991 OTA performance test system			●		
R&S®TS895xGW conformance test systems	●		●		
R&S®TS8996 RSE test system			●		
R&S®TS712x shielded RF test chambers	●			●	
R&S®TS7180 production test system				●	
Spectrum & signal analyzers					
R&S®FSU spectrum analyzer	●		●	●	
R&S®FSQ signal analyzer	●		●	●	
R&S®FSMR measuring receiver	●		●		
R&S®FSUP signal source analyzer	●				
R&S®FMU36 baseband signal analyzer	●				
R&S®FSG spectrum analyzer	●		●	●	
R&S®FSV signal analyzer	●			●	●
R&S®FSP spectrum analyzer	●			●	●
R&S®FSL portable spectrum analyzer	○			○	○
R&S®FSH handheld spectrum analyzer					○
Signal generators					
R&S®SMU200A vector signal generator	●		●	●	●
R&S®SMATE200A vector signal generator	●			●	
R&S®SMJ100A vector signal generator	●			●	●
R&S®SMV03 vector signal generator	○			○	
R&S®SMA100A, R&S®SMB100A signal generators	○			○	
R&S®SMF100A microwave signal generator	○			○	
R&S®AMU200A baseband signal generator and fading simulator	●		●	●	
R&S®AFQ100A I/Q modulation generator	●			●	
R&S®AFQ100B I/Q modulation generator	●			●	
Network analyzers					
R&S®ZVx vector network analyzers	○			○	
Drive test tools					
R&S®TSMQ radio network analyzer					●
R&S®TSMU radio network analyzer					●
R&S®TSML radio network analyzer					●
R&S®ROMES coverage measurement software					●
EMC & field strength test solutions					
R&S®TS9975 EMI test system			○		
R&S®TS9982 EMS test system			○		
R&S®IMS integrated measurement system			○		
Power meters					
R&S®NRP power meter	○			○	
R&S®NRP-Z power sensors	○			○	
Audio analyzers					
R&S®UPV audio analyzer	●		●	●	
Modular instruments					
R&S®CompactTSVP production test system				○	
Power supplies					
R&S®NGMO power supply	○			○	
R&S®NGPQ programmable power supply	○			○	

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, radio-monitoring 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.

Service you can rely on

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