

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 & support

With 24-hour support worldwide and personal service contacts in over 70 countries, Rohde & Schwarz is present around the globe. The company stands for high quality, preventive service, and compliance with delivery schedules – no matter whether the task at hand is calibration or application support.

Look into the future – now. With test solutions for 3GPP LTE.

- | LTE
- | WiMAX
- | HSPA
- | MIMO



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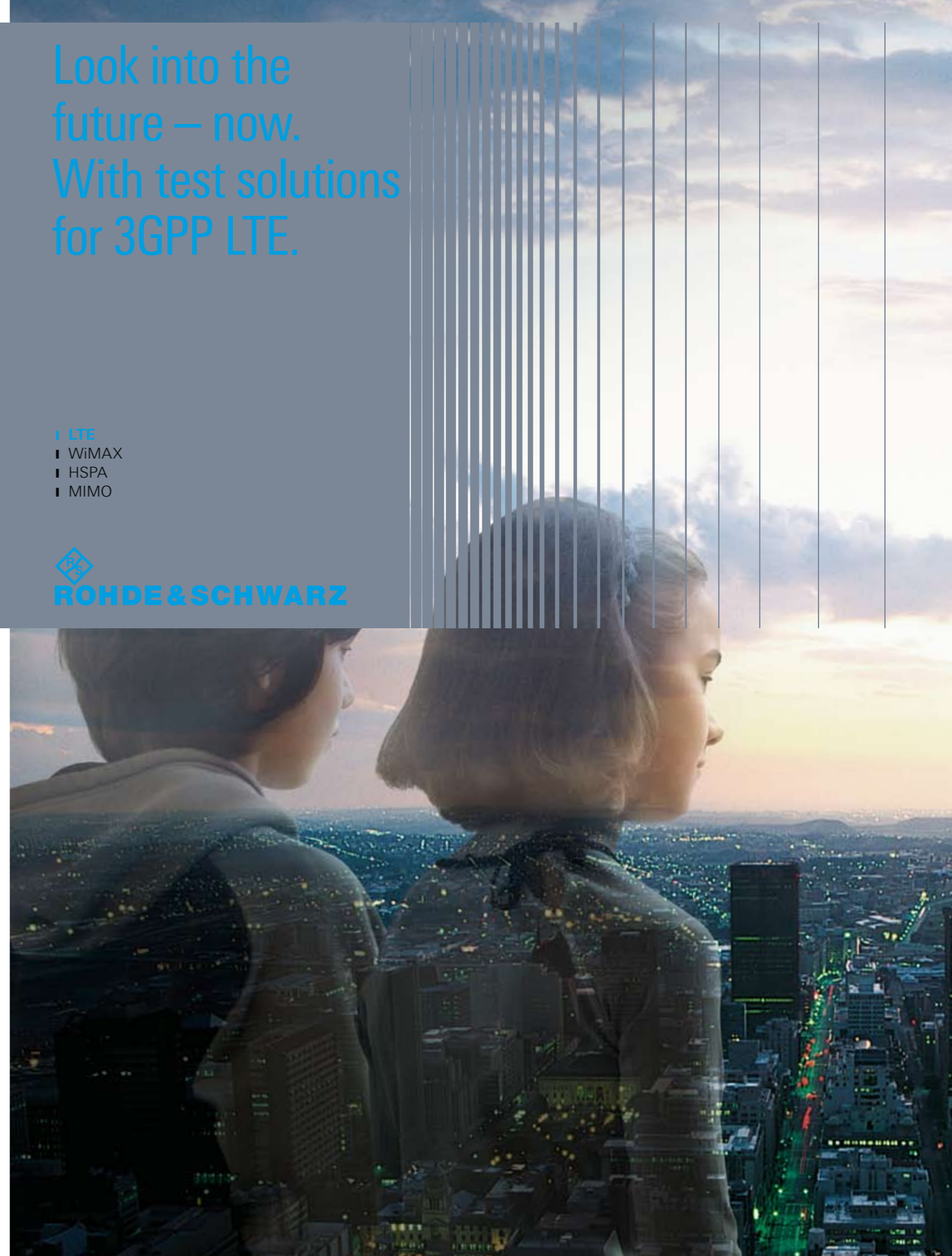
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Test and measurement solutions for 3GPP LTE

3GPP LTE New technical challenges

Product	Development of RF and baseband	Development of protocol stack	Verification and conformance tests	Manufacturing and service	Network deployment and optimization
Signal generators					
R&S®SMU200A vector signal generator and fading simulator	●		●	●	●
R&S®SMATE200A vector signal generator	●			●	
R&S®SMJ100A vector signal generator	●			●	●
R&S®SMA100A signal generator	○			○	
R&S®SMB100A signal generator	○			○	
R&S®SMV03 vector signal generator	○			○	
R&S®AFQ100A I/Q modulation generator	●			●	
R&S®AMU200A baseband signal generator and fading simulator	●		●	●	
Signal/spectrum analysis					
R&S®FSH handheld spectrum analyzer					○
R&S®FSL spectrum analyzer	○			○	○
R&S®FSMR measuring receiver	○		○		
R&S®FSUP signal source analyzer	○				
R&S®FSQ signal analyzer	●		●	●	
R&S®FSG spectrum analyzer	●		●	●	
R&S®FSU spectrum analyzer	○		○	○	
R&S®FSP spectrum analyzer	○			○	○
R&S®FMU36 baseband signal analyzer	○				
Network analysis					
R&S®ZVA vector network analyzer	○			○	
R&S®ZVB vector network analyzer	○			○	
R&S®ZVT vector network analyzer	○			○	
R&S®ZVL vector network analyzer	○			○	
Protocol test					
R&S®CMW500 for LTE protocol test		●	●		
R&S®LTE virtual protocol tester		●			
Power supplies					
R&S®NGMO power supply	○			○	
R&S®NGPQ power supply	○			○	
Power meters					
R&S®NRP power meter	○			○	
R&S®NRP-Z power sensor	○			○	
Shielded RF test chamber					
R&S®TS712x shielded RF test chamber	○			○	
Audio test					
R&S®UPV audio analyzer	○		○	○	
EMC test					
R&S®ESU EMI test receiver			○		
R&S®ESCI EMI test receiver			○		
R&S®ESPI test receiver			○		
R&S®TS9975 test system			○		
R&S®TS9982 test system			○		
R&S®IMS integrated measurement system			○		

○ General use ● LTE-specific use

Long term evolution (LTE) will turn UMTS into a high-performance, cellular wideband system of the future that will ensure subscribers of fast and smooth access to the mobile Internet.

An essential feature of LTE will be high bandwidths up to 20 MHz. New access methods on the air interface will provide maximum spectral efficiency. The LTE downlink will be based on orthogonal frequency division multiple access (OFDMA). The LTE uplink will implement single carrier frequency division multiple access (SC-FDMA), which can be considered a precoded OFDM technique. Efficient multiple input multiple output (MIMO) antenna technology will ensure the high data rates required for LTE. The protocol architecture of LTE has also been optimized for fast packet-oriented operation.

Rohde&Schwarz was the first supplier on the market to offer LTE test solutions. The company's powerful signal generators and signal analyzers can thoroughly test transmitters and receivers of LTE-capable base stations and wireless devices as well as perform measurements on components and power amplifiers. A special highlight is the company's unique

portfolio of test solutions for MIMO. Rohde&Schwarz offers a complete, one-box test solution for 2x2 MIMO receiver tests, including channel simulation. The powerful protocol test solutions from Rohde&Schwarz enable the thorough verification of wireless devices by means of special LTE test scenarios. Rohde&Schwarz will continuously expand its test solutions for LTE – thus always keeping you one step ahead.

For further information please visit:
www.lte.rohde-schwarz.com

Please see also other Rohde&Schwarz technology brochures on WCDMA, HSPA, WiMAX, CDMA2000®, etc. Rohde&Schwarz offers you solutions for all standards.

Application notes	
Description	Number
LTE technology introduction	1MA111
LTE measurement guide	RSI004 LTE
Introduction to MIMO systems	1MA102

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R&S®CMW500 for LTE protocol test

