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R&S®CMW500 Wideband Radio Communication Tester

TD-SCDMA RF testing

The R&S®CMW500 is the universal tester for testing the air interface of wireless devices supporting all common cellular and noncellular wireless technologies. It enables users to test today's and tomorrow's wireless communications devices – ranging from basic mobile phones up to the most sophisticated smartphones – quickly and precisely in production and service environments.



ROHDE&SCHWARZ

R&S®CMW500 Wideband Radio Communication Tester

At a glance

Future-ready test platform designed to handle all major technologies

In the fast-paced world of wireless communications, existing technologies are continuously being optimized and new standards are adopted. A tester designed for the future must therefore be able to handle tomorrow's requirements today. Owing to its large transmit and receive bandwidths, a frequency range up to 6 GHz, exceptional measurement accuracy and support of a variety of applications, the R&S®CMW500 is clearly a safe investment.

The multitechnology platform supports GSM with EDGE Evolution, WCDMA up to HSPA+, CDMA2000® 1), TD-SCDMA, LTE TDD/FDD and several noncellular standards such as WLAN. Therefore, it is the ideal equipment for mobile phone testing. In the development and production of mobile phones in line with the TD-SCDMA (time division synchronous code division multiple access) standard, the R&S®CMW500 wideband radio communication tester offers comprehensive test and measurement capabilities.

Designed for high first pass yield

The R&S®CMW500 has been specially designed for production applications: Top priority was placed on accuracy, repeatability and linearity. These parameters have a direct impact on production yield: The better the instrument's performance in terms of these parameters, the lower the number of DUTs that are found to be faulty even though they comply with specifications.

Significant reduction in test time owing to R&S®Multi-Evaluation measurement

The R&S®CMW500 can perform various measurements (for example, spectrum emission mask, code domain power, error vector magnitude and more) in parallel on the same signal sample. This yields a drastic reduction in measurement time as compared to the conventional sequential approach.

1) CDMA2000® is a registered trademark of the Telecommunications Industry Association (TIA-USA).

Shortest possible alignment times owing to R&S®Smart Alignment

In the R&S®CMW500, predefined frequency/power sequences can be stored in list format exactly as done in the mobile phone's chipset. After being started in sync, the mobile phone and the tester follow the sequence without requiring any further interaction. The calibration time during production can be reduced down to 10% of the original value.

Reliable receiver test in nonsignaling and signaling mode

Featuring single-ended BER and loop-based BER analysis, the R&S®CMW500 offers two alternatives for testing receiver quality in the non-signaling mode. Alternatively, the R&S®CMW500 offers a TD-SCDMA base station emulator to verify network entry and functional performance in signaling mode. BLER (block error rate) and BER (bit error rate) tests after connection can be used to verify the receiver performance in signaling mode.

Dual-channel mode – two in one

The R&S®CMW500 can be operated in either the single-channel or the dual-channel mode. In the dual-channel mode, two mobile phones can be tested simultaneously yet fully independently of one another, even while applying different standards.

TX measurements

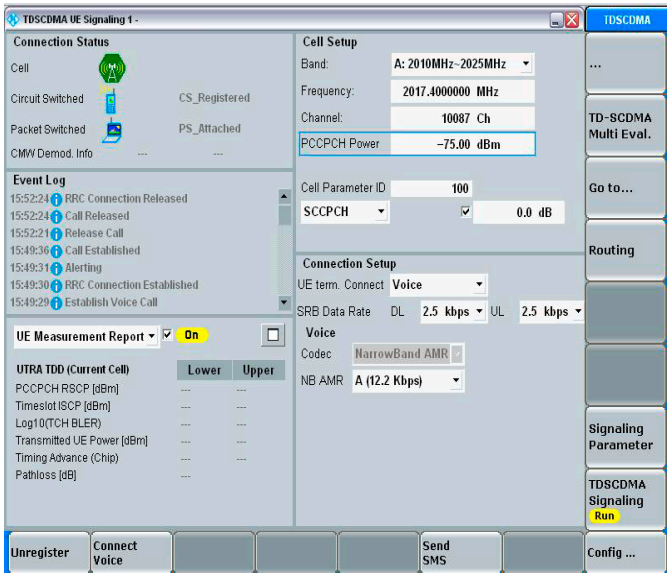
The implementation of the transmitter measurements in the R&S®CMW500 is based on the 3GPP TS 25.102 and 3GPP TS 34.122 test specifications. The following transmitter measurements are supported:

- Power measurements
- Spectrum measurements
- Modulation accuracy measurements

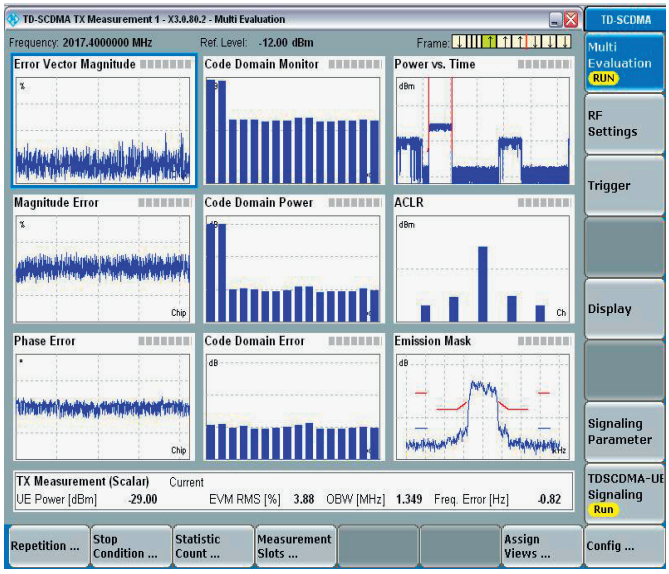
The measurements can be performed in nonsignaling mode with any desired TD-SCDMA uplink signal. Plus, the "combined signal path" scenario allows RF measurements with signaling provided by the TD-SCDMA base station emulator to analyze the RF performance of the TD-SCDMA mobile phone in real operation.

Optimized handling for production test systems

The R&S®CMW500 unites three basic functions in one box: RF generator, RF analyzer and signaling (network emulation). As a result, it can be flexibly used in all stages of production – from calibration and verification to functional testing. The extreme scalability, test speed and measurement accuracy translate into minimum test costs. The compact tester approach with SCPI remote control concept minimizes the effort involved in planning and upkeeping production test systems.



TD-SCDMA base station emulator for verifying network entry and functional performance under fully controlled network conditions.



Based on data sets of identical signal samples, the R&S®Multi-Evaluation measurement allows the simultaneous evaluation of a variety of signal parameters, such as transmitter output power and spectrum measurements, i.e. spectrum emission mask (SEM) and occupied bandwidth (OBW), as well as modulation accuracy measurements, i.e. error vector magnitude (EVM) and more, in nonsignaling and signaling mode.

Ordering information

Typical configuration of a TD-SCDMA tester used in production and development.

Designation	Type	Order No.
Wideband Radio Communication Tester	R&S®CMW500	1201.0002K50
Wideband Radio Communication Tester, Mainframe, Frequency Range 70 MHz to 3.3 GHz	R&S®CMW-PS502	1202.5408.02
Baseband Interconnection Board (fixed link)	R&S®CMW-S550A	1202.4801.02
RF Frontend Module	R&S®CMW-S590A	1202.5108.02
Selection: Front Panel with Display/Keypad	R&S®CMW-S600B	1201.0102.03
TD-SCDMA Enhancement, TX Measurement, Uplink	R&S®CMW-KM751	1207.6102.02
ARB + Realtime Baseband Generator Module	R&S®CMW-B110A	1202.5508.02
Signaling Unit, Wideband (SUW)	R&S®CMW-B300A	1202.6304.02
TD-SCDMA Release 4, Basic Signaling	R&S®CMW-KS750	1208.0908.02
TD-SCDMA R&S®WinIQSIM2™ Waveform	R&S®CMW-KW750	1203.1406.02
TD-SCDMA Enhanced R&S®WinIQSIM2™ Waveform	R&S®CMW-KW751	1203.1458.02
TD-SCDMA TX Measurements	R&S®CMW-KM750	1203.2554.02

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Environmental commitment

- Energy-efficient products
- Continuous improvement in environmental sustainability
- ISO 14001-certified environmental management system

Certified Quality System
ISO 9001

Rohde&Schwarz GmbH&Co. KG
www.rohde-schwarz.com

Regional contact

- Europe, Africa, Middle East | +49 89 4129 12345
  customersupport@rohde-schwarz.com
- North America | 1 888 TEST RSA (1 888 837 87 72)
  customer.support@rsa.rohde-schwarz.com
- Latin America | +1 410 910 79 88
  customersupport.la@rohde-schwarz.com
- Asia/Pacific | +65 65 13 04 88
  customersupport.asia@rohde-schwarz.com
- China | +86 800 810 8228/+86 400 650 5896
  customersupport.china@rohde-schwarz.com

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