R&S®CMP180
RADIO COMMUNICATION TESTER

The future integrated

Product Brochure
https://mod-e.ru/

ROHDE&SCHWARZ
Make ideas real

AT A GLANCE

The R&S®CMP180 radio communication tester is a non-signaling R&D and production test platform for Wi-Fi 6E, Wi-Fi 7, 5G NR FR1 and many other technologies. It is the next generation test platform for cellular and non-cellular technologies. The R&S®CMP180 completes the VSA/VSG single-box tester portfolio for higher frequency ranges up to 8 GHz and provides a bandwidth of up to 500 MHz.

New standard in non-signaling test solutions

Modern modules, CPEs, smartphones and tablets support a growing number of technologies and frequency bands. More transmitters, receivers and antenna paths have to be tested. Advanced production concepts need to take this growing complexity into account while keeping costs low. Performance, capacity utilization and flexibility demands on test and measurement equipment are rising dramatically. The R&S®CMP180 radio communication tester meets all these requirements and is the logical further development of the market leader R&S®CMW100. It supports the latest Wi-Fi 6E, Wi-Fi 7 and 5G FR1 technology challenges in frequencies up to 8 GHz.

Engineering validation tests (EVT) and design validation tests (DVT) require more extensive RF testing than final mass production (MP) testing. MIMO requirements and RF signals with higher power need to be tested during the EVT and DVT stages. The R&S®CMP180 supports R&D testing in all stages.

Rohde&Schwarz – more than 80 years of quality, precision and innovation in all RF test and measurement fields

Rohde&Schwarz has decades of engineering experience, setting the standard with the R&S®CMW platform in all R&D and production facilities. The R&S®CMP180 was designed with this background and experience in mind.

Key facts

- Non-signaling radio communication tester supports Wi-Fi 6E, Wi-Fi 7, 5G FR1 and legacy technologies
- Multi-DUT and multitechnology measurements
- Parallel tests: two independent RF channels, each with eight RF ports (16 RF ports total)
- Integrated controller/processor and power supply
- Future-proof hardware

Wi-Fi® is a registered trademark of Wi-Fi Alliance®.

HIGHLIGHTS

The excellent RF characteristics of the R&S®CMP180 are ready for new challenges in cellular and non-cellular wireless technologies.

- Compact design: 2 HU × 19”, 1 HU per channel
- RF frequency up to 8 GHz, up to 500 MHz bandwidth
- Excellent RF parameters and high output power
- Up to two analyzers and two generators
- Linux operating system
- Simple and flexible option concept
- Intuitive web based R&S®CMsquares user interface
- R&S®CMPflexx: ultimate flexibility with the scalable R&S®CMP180 system
- R&S®NRPx power sensor connector
- Self-alignment for accuracy adjustment at any time
- Optimized production throughput with broadcast mode and smart channel
- Broadcast mode simultaneously transmits to all RF ports/outputs for receiver (RX) testing of the DUT
- Smart channel for efficient parallel testing
- Analyzer and generator list mode for high speed and flexibility
- Waveform creator for on-instrument parametric waveform generation
- Multi-evaluation measurements for very fast highspeed measurements

BENEFITS

A single non-signaling tester from R&D to mass production.

Efficiency boost through parallel testing, high measurement accuracy and optimized test times

The R&S®CMP180 can test up to 16 RF ports in parallel with two independent vector signal analyzers (VSA)/vector signal generators (VSG) for unprecedented flexibility when designing production lines. The open architecture of the R&S®CMP180 enables quick integration of latest computer technologies, ensuring top test performance both today and tomorrow. Test time optimization with R&S®SmartChannel, DL broadcast and interleaving significantly shortens calibration and verification times relative to single DUT testing. Multi-evaluation list mode provides the fastest highspeed measurements. Users can draw on existing implementation experience and considerably reduce development time.

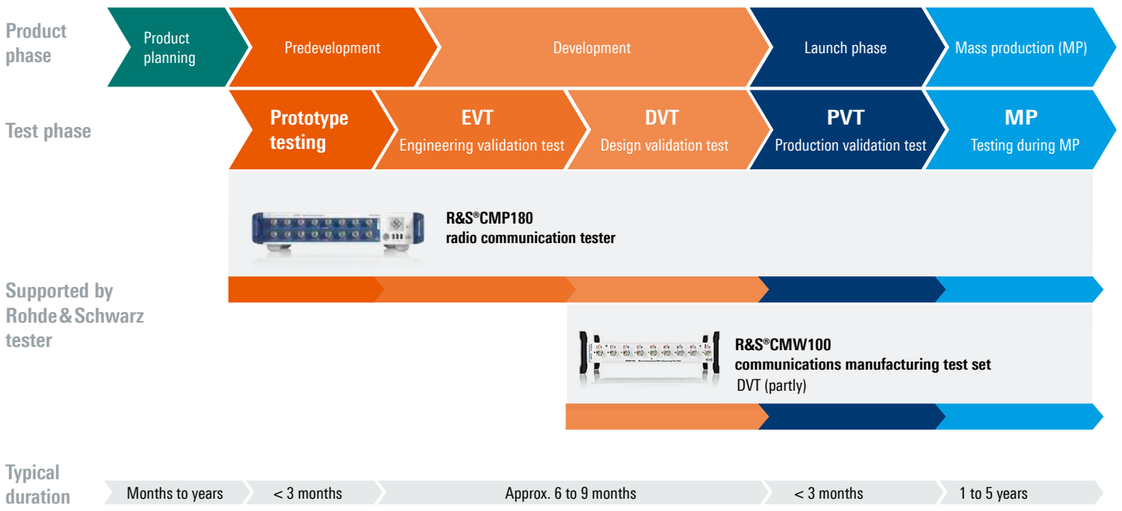
Self-alignment, on-site calibration and service

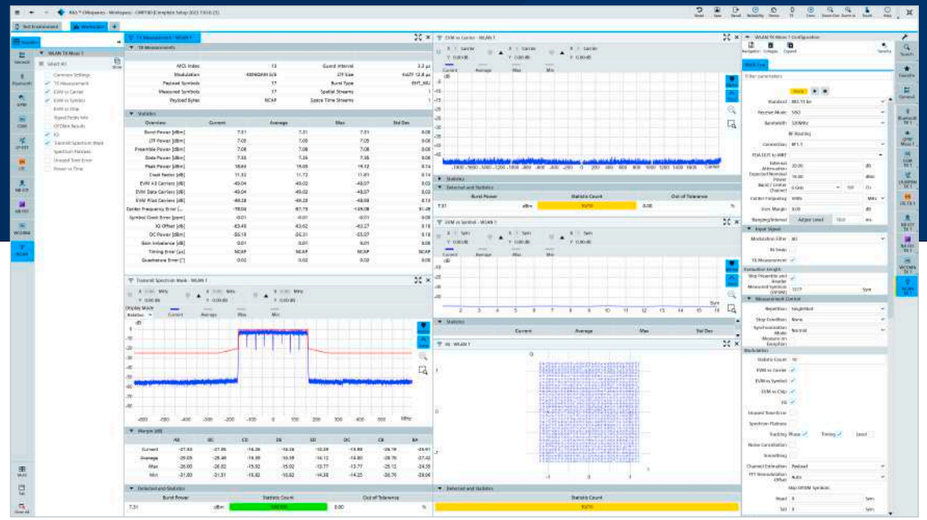
The R&S®CMP180 supports self-correction with an integrated self-alignment function, enabling users to adjust accuracy at any time. This self-alignment function can retrieve the VSA/VSG levels for the correction values stored during the manufacturing process. The initial accuracy can be maintained until the next regular instrument calibration. Rohde&Schwarz Service performs all tasks that users cannot handle on their own, such as factory calibrations, repairs and on-site calibration. Rohde&Schwarz subsidiaries around the world meet any service demands. Application engineers worldwide help test mobile devices in line with specific requirements to get them ready for mass production as quickly as possible. The Rohde&Schwarz network in more than 70 countries ensures optimum on-site support from highly qualified experts.

Tester for the entire product lifecycle

The R&S®CMP180 is more than a mass production tester. Test engineers can use the instrument throughout the entire development phase, from engineering validation tests (EVT), design validation tests (DVT) and production validation tests (PVT) to mass production (MP). Current development and production lines for wireless devices must combine flexibility, performance and capacity utilization. Rohde&Schwarz is the leading supplier of test and measurement equipment for all stages of wireless product development and production. The company's R&S®CMP180 can meet the stringent requirements for all these stages.

Product development cycle





R&S®CMsquares: the same software for all device testers

Enabling short time to market

Every device must go through various phases as it moves from idea to salable product. The markets and competition are pushing for ever shorter product cycles, making it very important that users are always able to work with the same tools and test instruments in the various product development phases. Using the same tester through all stages offers software and coding benefits for everyone. Time to market is a major factor. The R&S®CMP180 can be used from the early mobile prototype phase up to mass production.

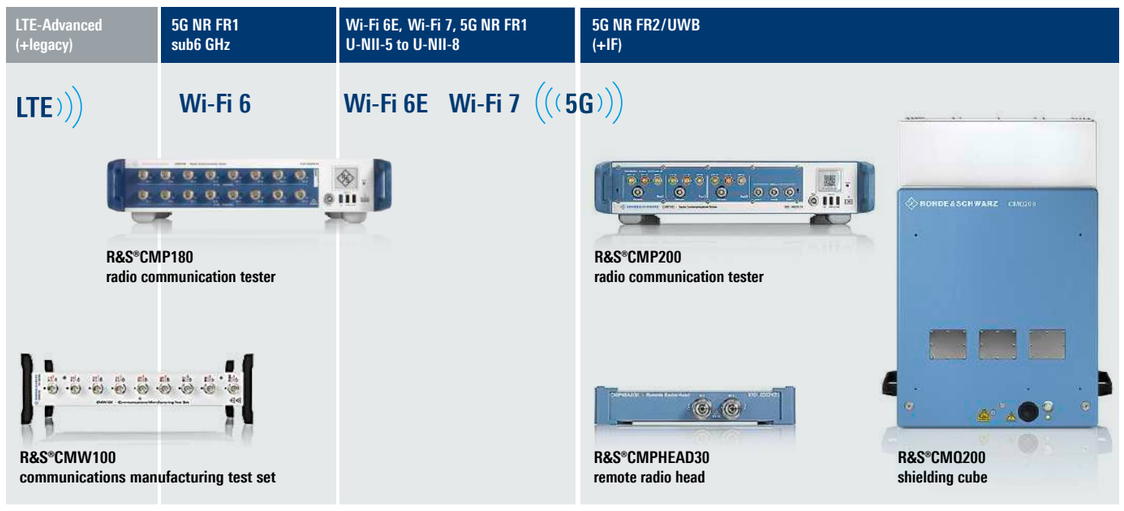
Uniform and intuitive operation

The R&S®CMP180 is easy to operate thanks to the popular R&S®CMsquares user interface. All instruments have the same R&S®CMsquares graphical user interface for a continuous information flow regardless of where R&D and production are located.

Future-proof due to one-platform strategy

New Rohde&Schwarz radio communication testers are developed on the same hardware and software platforms to generate identical measurements. This ensures reproducibility, scalability and reduces time to market with minimal programming requirements.

Rohde&Schwarz radio communication tester (non-signaling) portfolio for parametric testing



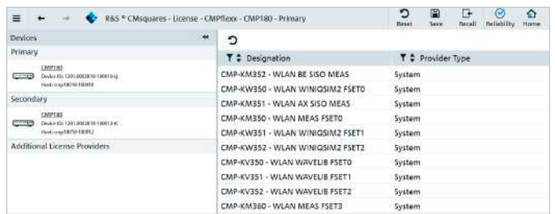
ULTIMATE FLEXIBILITY WITH R&S®CMPflexx

Every new WLAN standard has new properties that need to be measured. MIMO multi-antenna technology helps modern radio systems achieve higher data throughput when all RF paths function properly. R&S®CMPflexx offers developers and production specialists all the measurement functions they need.

R&S®CMPflexx system for WLAN 4x4 true MIMO measurements

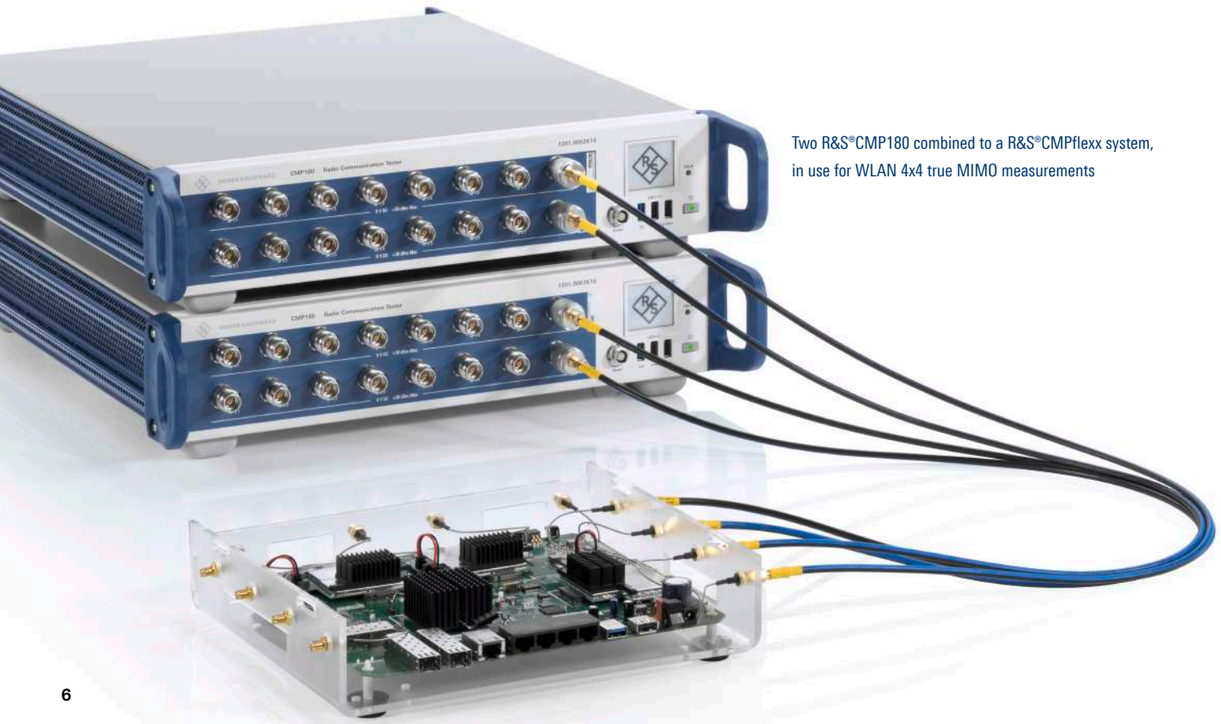
R&S®CMPflexx is an extremely flexible high-end solution for WLAN 4x4 true MIMO transmitter and receiver testing. Users can scale up by stacking two R&S®CMP180 testers and combining them to a R&S®CMPflexx system to use them together. The R&S®CMPflexx system can have four analyzers, four generators and four times eight RF ports. One R&S®CMP180 acts as the primary instrument and the other is the secondary. The primary R&S®CMP180 controls the secondary one. The same R&S®CMsquares software is used to control all the instruments in the system. The software licenses are shared between the primary and secondary R&S®CMP180 for flexibility and cost savings. Separating the two instruments is also simple: simply disconnect the testers and each will be a standalone instrument with independently installed software licenses.

The primary R&S®CMP180 controls the R&S®CMPflex system with R&S®CMsquares



Flexible budget planning

R&S®CMPflexx creates flexibility in the budget planning process. Plan your solution ahead and extend it later. You only have to invest in what you need at the moment.



Two R&S®CMP180 combined to a R&S®CMPflexx system, in use for WLAN 4x4 true MIMO measurements

WIRELESS TECHNOLOGY TESTING AND TEST AUTOMATION

The R&S®CMP180 is designed to match a wide variety of test requirements over the entire product lifecycle of mobile communications device.

Wireless technology testing

The R&S®CMP180 can test a wide variety of wireless technologies. The table shows an overview of the supported technologies, including Wi-Fi 6E, Wi-Fi 7, 5G NR FR1 and older legacy technologies. The future-proof R&S®CMP180 hardware is ready for new wireless requirements coming in the next few years.

R&S®WMT wireless automated testing

In the product development cycle, engineers will require an automated test environment (ATE) to easily develop and quickly execute measurements or test plans. The ATE can also be used to control the device under test (DUT) and a variety of test instruments. The R&S®WMT wireless automated testing framework can be readily integrated in the test process to make non-signaling testing with VSA/VSG single-box testers, chambers and power supplies fast and easy. It is tailored for production testing and non-signaling R&D applications:

- Flexible integration into any automated testing environment
- Fully customizable from a basic test tool to a full turnkey solution including Python based user add-ins
- Field-proven speed of test execution
- High efficiency through use of broadcasting and smart channels
- Insightful and easily customizable GUI for sequencing and test plan creation
- Supports large numbers of chipsets and tools from many chipset vendors.

R&S®WMT has a modular Python framework for flexible integration into third-party sequencing software via a test API for fully automated item tests by importing R&S®WMT core Python modules into the host program.

Wireless technologies testing

Technology	RF generator	RF analyzer
Cellular technologies		
5G NR	•	•
LTE-A	•	•
WCDMA/HSPA+	•	•
GSM/GPRS/EGPRS	•	•
eMTC	•	•
NB-IoT	•	•
C-V2X	•	•
CDMA2000® 1xRTT	•	•
Non-cellular technologies		
WLAN IEEE 802.11a/b/g/n/ac/ax/be	•	•
Bluetooth® BR, Bluetooth® EDR, Bluetooth® Low Energy	•	•
LP-IoT		
IEEE 802.15.4 (Zigbee)	•	•
LoRa®	•	–
SigFox	•	–
GNSS	•	–

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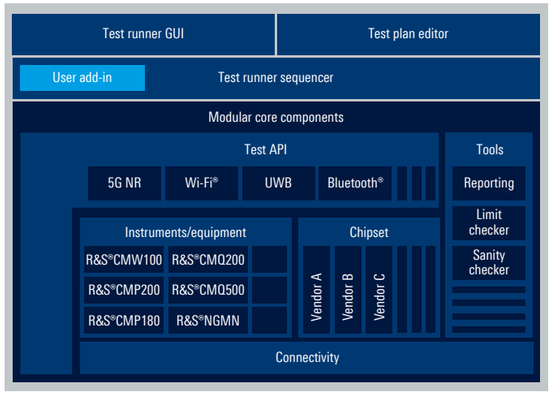
R&S®WMT wireless automated testing



Service at Rohde&Schwarz
You're in great hands

- Worldwide
- Local and personalized
- Customized and flexible
- Uncompromising quality
- Long-term dependability

Rohde&Schwarz

The Rohde&Schwarz technology group is among the trailblazers when it comes to paving the way for a safer and connected world with its leading solutions in test&measurement, technology systems and networks&cybersecurity. Founded more than 85 years ago, the group is a reliable partner for industry and government customers around the globe. The independent company is headquartered in Munich, Germany and has an extensive sales and service network with locations in more than 70 countries.

www.rohde-schwarz.com

Sustainable product design

- Environmental compatibility and eco-footprint
- Energy efficiency and low emissions
- Longevity and optimized total cost of ownership

Certified Quality Management
ISO 9001

Certified Environmental Management
ISO 14001

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