R&S®CMWrun Sequencer Software Tool

Applications

Ready-to-use solution for configuring test sequences by remote control. For all standards supported by the R&S®CMW family. For general RF testing, preconformance and superior user experience test scenarios.
Today the R&S®CMW500 is the leading, most popular multistandard platform for UE testing. It is used by network operators, test houses, handset vendors and chipset manufacturers alike. The R&S®CMWrun automation software meets all requirements for executing remote control test sequences on the R&S®CMW500 in R&D, quality assurance, production and service for both current and future wireless equipment.

The software engine is based on the execution of test DLLs (plug-in assemblies). This architecture allows easy and straightforward configuration of test sequences without requiring specific programming knowledge of how to remotely control the instrument. It also provides full flexibility when configuring parameters and limits for the test items provided in the standard-specific R&S®CMWrun package options.

At the end of the test, an easy-to-read test report containing limits, test results and verdict is generated. The report is available in csv, txt, xml and pdf format.

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Simple and intuitive solution for high-volume testing

Running tests on mobile phones in the service and repair market segment could not be easier. The R&S®CMW500 in combination with the R&S®CMW-KT050 R&S®CMWrun package offers the following highlights:

- Select test plan by photo: the picture of the selected phone is displayed to help the operators confirm the correct model to be tested
- Easy to operate: just follow the instructions on the screen; all tests plans are predefined; there is no need to change parameters
- Test results and yield updated on the fly: once the tests are complete, the pass/fail results for the tests are displayed in a complete test report

For the service and repair personnel running the tests, it’s really that simple – there are no settings to change, just a sequence of tests to be selected for the identified phone. The user simply follows the instructions/prompts from the R&S®CMWrun software.

The R&S®CMWrun/R&S®CMW-KT050 controls all installed basic signaling tests required for service applications for any technology installed on the R&S®CMW500 (LTE, WCDMA/HSPA, TD-SCDMA GSM/(E)GPRS, CDMA2000®/1xRTT-1xEV-DO, WLAN and Bluetooth®).

RF preconformance testing solution

When the test focus is on preconformance RF testing in line with the specification rather than validation testing, the right choice is the R&S®CMW500 RF tester, remotely controlled by R&S®CMWrun.

Using a standalone R&S®CMW500, and with just a few configuration clicks for bands, channels and bandwidth, the tool provides a comprehensive result report that gives the user a first impression of in-band compliance. This provides beneficial knowledge in the very early stage of verification, before doing more complex system tests or validation.

The preconformance testing solution is available in the following standard-specific R&S®CMWrun options:

- R&S®CMW-KT053: WCDMA/HSPA in line with 3GPP TS 34.121 and GSM/(E)GPRS in line with 3GPP TS 51.010 specifications
- R&S®CMW-KT054: TD-SCDMA in line with 3GPP TS 34.122 specification
- R&S®CMW-KT055: for LTE/LTE-A in line with 3GPP TS 36.521 Rel.8 and Rel.10, FDD and TDD, including tests cases for high-power UEs
- R&S®CMW-KT057: for Bluetooth® and Bluetooth® low energy in line with TS 4.1.1 RF specifications
- R&S®CMW-KT058: for CDMA2000® 1xRTT/1xEV-DO in line with 3GPP2 specification

The simple and intuitive-to-use R&S®CMWrun operator interface.

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The European Union and the Russian Federation aim to have intelligent telematics-based vehicle safety systems in place by 2015 to speed up emergency response times in order to save human lives. eCall (emergency call) and ERA-Glonass (automated emergency response) are electronic safety systems for cars. The systems automatically call 112 for local emergency medical services in the event of a serious road accident.

Rohde & Schwarz offers a compact solution for automated, reliable and reproducible end-to-end conformance tests on eCall/ERA-Glonass modules in line with CEN/TS 16454:2012 and GOST 55533, and independent of the real-world mobile network. The R&S®CMW-KA094 eCall and R&S®CMW-KA095 ERA-Glonass application software simulate a PSAP and remotely control the R&S®CMW500 wideband radio communication tester to emulate a cellular network in the lab.

When the test focus is on conformance testing in line with eCall/ERA-Glonass specifications, the R&S®CMWrun/R&S®CMW-KT110 remotely controls the entire setup described before as a ready-to-go solution. It is the right choice for remotely configuring test sequences. It features straightforward handling of different IVS types and a complete pass/fail test protocol. The R&S®CMWrun/R&S®CMW-KT110 software also makes it easy to automate testing and simplifies handling of the tested devices. This provides beneficial knowledge in the very early stage of verification, before doing more complex system tests.
Audio performance testing solution

The R&S®CMWrun software is the right overall automation tool for audio/speech performance testing of VoLTE and legacy standards. In this setup, the R&S®CMW500 callbox tester acts as a 2G/3G and LTE network emulator. It provides integrated IMS service support plus an audio board with the standard specific speech codecs for voice calls. The R&S®UPV audio analyzer supports PESQ/POLQA algorithms for objective audio analysis.

With just a few mouse clicks, the user can define a testing campaign that includes the key signaling parameters and conditions in an LTE network with their possible impact on the audio quality and user experience. Signaling parameters that are integrated into the R&S®CMW500 and can be configured via R&S®CMWrun include: integrated IMS server to establish a voice or video call, RoHC, SPS, TTI bundling, dedicated bearer and QoS, IP environment (IPv4 and IPv6) delay, jitter, packet losses.

The audio testing solution is available in the following standard-specific R&S®CMWrun packages:

- R&S®CMW-KT053: for WCDMA and GSM
- R&S®CMW-KT055: for LTE/VoLTE
- R&S®CMW-KT058: for CDMA2000®

The following option is mandatory:

- R&S®CMW-KT051: to remotely control the R&S®UPV audio analyzer
Video analysis test solution

Since mobile video streaming is still new, many test personnel will either be familiar with video or with mobile communications, but not with both. The R&S®CMWrun CMW-KT105 provides automated test sequences, reducing the amount of special knowledge required for video testing.

It controls the R&S®CMW500 wideband radio communication tester, which simulates a mobile network including fading conditions for the RF signal. The R&S®VTE video tester performs difference picture analysis for detecting and objectively analyzing degradations in a mobile device’s decoded video signal. Video content is output to the R&S®VTE over the mobile device’s MHL, HDMI or Miracast interface.

The R&S®CMWrun CMW-KT105 solution is radio bearer agnostic, which means that video testing analysis can be done with any radio access technology that supports E2E video streaming – LTE(FDD/TDD), WCDMA/HSPA, GSM/(E)GPRS and WLAN. Based on the R&S®CMW500-DAU, it is tailored to customers who want to test the application layer, either for benchmarking purposes or simply to test the DUT performance under real user experience scenarios to obtain a conclusive overview of the key performance parameters for video analysis.

The video testing solution is available in the following standard-specific R&S®CMWrun packages:

- R&S®CMW-KT053: for WCDMA/HSPA and GSM/(E)GPRS
- R&S®CMW-KT055: for LTE/LTE-A (FDD/TDD)
- R&S®CMW-KT057: for WLAN
- R&S®CMW-KT058: for CDMA2000®

The following options are mandatory:

- R&S®CMW-KT051: to remotely control E2E applications, e.g.: video streaming in the R&S®CMW500-DAU data application unit
- R&S®CMW-KT105: to remotely control the R&S®VTE video analyzer

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Battery life measurements

With more and more apps running on smartphones, there is a risk that voice calls could suck these mobile devices dry. Features like DRX (the power saving mode in LTE) should improve power consumption a lot, but the application behavior needs to be tested and analyzed in a controlled emulated network environment.

The R&S®CMWrun CMW-KT051 collects samples from the R&S®NGMO2 power supply and displays the current drain on the phone over time. The x-axis shows the momentary current that the phone is drawing, and the y-axis represents the time. Specific signaling trigger events (e.g. LTE attach or IMS registration) have been implemented, providing more details (i.e. more samples). These are displayed in the current drain diagram. The current drain diagram is also correlated to events at the IP level by using IP traffic analysis (R&S®CMW-KM051), which indicates which app or IP flow impacts the battery lifetime.

The setup shown here can also be extended to include the R&S®UPV audio analyzer. It is then possible to monitor the power consumption by establishing a VoLTE call, and to measure audio quality with and without DRX.

Battery life measurements are available in the following standard-specific R&S®CMWrun packages:
- R&S®CMW-KT053: for WCDMA/HSPA and GSM/(E)GPRS
- R&S®CMW-KT054: for TD-SCDMA
- R&S®CMW-KT055: for LTE/LTE-A (FDD/TDD)
- R&S®CMW-KT057: for WLAN/Bluetooth®
- R&S®CMW-KT058: for CDMA2000®, 1xRTT/1xEV-DO

The following option is mandatory:
- R&S®CMW-KT051: to remote control R&S®NGMO2 power supply
Service that adds value
- Worldwide
- Local and personalized
- Customized and flexible
- Uncompromising quality
- Long-term dependability

About Rohde & Schwarz
The Rohde & Schwarz electronics group is a leading supplier of solutions in the fields of test and measurement, broadcast and media, secure communications, cybersecurity, and radiomonitoring and radiolocation. Founded more than 80 years ago, this independent global company has an extensive sales network and is present in more than 70 countries. The company is headquartered in Munich, Germany.

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

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