Modern protocol test platform for WCDMA

■ Productronica 2001, Munich — The Protocol Tester CRTU-W from Rohde & Schwarz is now in its final stage of development. The versatile test platform is designed for the development and certification of WCDMA user equipment. Thanks to a novel soft radio concept, the CRTU-W can be upgraded to further standards simply by software update.

The technology of the third mobile radio generation is much more complex than that of the second generation. Especially the requirements placed on the air interface and the complexity of layer 1 call for new technical solutions. Therefore, Rohde & Schwarz has developed the CRTU-W, a versatile protocol tester for WCDMA FDD (frequency division duplex), which supports the test specifications of the 3rd Generation Partnership Project (3GPP). The physical protocol layer (layer 1), medium access control (MAC), radio link control (RLC) and radio resource control (RRC) are implemented as a reference. This means that these protocol layers, as well as higher protocol functionalities, can be fully tested.

The soft radio concept of layer 1 ensures optimum safety of investment. Not all the regions have yet decided on the standard that is to be finally used. For the CRTU-W from Rohde & Schwarz this is no risk at all. Using digital signal processors (DSP) and field programmable gate arrays (FPGA), layer 1 is implemented as an integrated board. Other standards, such as cdma 2000, WCDMA TDD (time division duplex), or TD-SCDMA which is favoured in China, can easily be implemented.

The CRTU-W is intended for manufacturers of user equipment and chip sets as well as software and test houses. The integrated TTCN compiler generates at a keystroke executable test cases from the test suites written in TTCN programming language. The TTCN test suites are specified in the 3GPP Test Specification TS34.123. The test cases enable the users to quickly and easily check their products for conformance with the specifications. With the aid of the TTCN editor, predefined test cases can be modified and user-specific test

scenarios created. The CRTU-W also provides a C/C++ interface. Thanks to these comprehensive features, the CRTU-W satisfies the requirements both of a validated certification tester and an individual development tool.

For the handover test, two separate RF channels allow the simulation of two independent mobile radio cells at the same frequency or at different frequencies. The intersystem handover testing function enables the protocol tester to check user equipment handover between two mobile radio cells of different standards. This test function especially benefits from the fact that the Protocol Tester CRTU-G for GSM, GPRS and EDGE is a member of the same family. The identical platform concept, for example, simplifies synchronization and ensures error-free data exchange between the two testers.

The CRTU family benefits from the long-standing experience of Rohde & Schwarz in the field of protocol testing. For more than 10 years, Rohde & Schwarz has been successfully marketing the Digital Radiocommunication Test Sets CRTP02 and CRTC02 for the development and type approval of GSM mobile phones.

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Rohde & Schwarz

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